ACTION ITEM

Amendment of an Agreement with the Aquatic Science Center for the Expansion of the Delta Landscape Scenario Planning Tool

Summary: The Executive Officer requests authority to amend a contract with the San Francisco Estuary Institute – Aquatic Science Center (SFEI-ASC) to extend the contract's length, amend its scope, and increase the contract's budget by up to $499,993, for a total of $1,472,717. This additional time and resource will be allocated to the ongoing development of the Delta Landscapes Scenario Planning Tool (DLSPT), a map-based tool that allows users to assess integrated ecological and social impacts of planned land-use projects in the Delta. DLSPT development was initiated in 2017 with the first of an anticipated three phases of work. The first two phases, representing $430,224 of the SFEI-ASC agreement budget, included scoping, piloting, and designing the tool's user interface, and developing the core functionality to analyze the effects of land-use scenarios across an 800,000-acre coverage area in the Delta. The purpose of the third phase of work is to extend the tool's range to include the full Legal Delta and Suisun Marsh, and also update and extend the tool's analysis capabilities to better integrate it with the Delta Plan. Completion of this work will result in a comprehensive, science-based tool that supports the development of best-available science, communicates and promotes science-based adaptive management, and extends the capacity of the science enterprise in the Delta.

REQUESTED ACTION

Authorize the Executive Officer to amend an existing contract with SFEI-ASC (#5186), by increasing the contract's budget by up to $499,993 (for a total of $1,472,717), providing a time extension of one year, and making changes to the contract's scope and personnel. These changes would allow SFEI-ASC to:

- expand the DLSPT coverage area to include the full Legal Delta and Suisun Marsh;
- develop two new modules assessing the impacts of land-use scenarios on carbon and economic sustainability;
- update the Inundation module to align with the proposed seasonal inundation performance measure of the Delta Plan;
- update the dataset underlying the existing Protected Areas module to improve the module's accuracy;

- develop functionality that will allow users to incorporate information from the EcoAtlas Project Tracker into scenario analyses; and
- make back-end improvements to the tool.

Additional funds will support outreach and training to promote the usage of the DLSPT in the Delta management community.

The Executive Officer has delegated authority, up to $500,000, to enter into contractual agreements on the Council's behalf. This proposed contract requires Council authorization because the total contract exceeds that amount.

BACKGROUND: DELTA LANDSCAPE SCENARIO PLANNING TOOL PHASE III

Before development of the DLSPT, no user-friendly tool was widely available for regional planners and decision-makers to assess the integrated ecological and social impacts of proposed land-use activities in the Delta. The DLSPT was created specifically to inform Delta restoration planning efforts, including the Delta Plan Chapter 4 "Protect, Restore and Enhance the Delta Ecosystem" amendment process, and the ongoing implementation of restoration objectives described in the Delta Plan. The DLSPT allows users to develop, analyze, and evaluate alternative land-use scenarios in a scientifically robust, user-friendly interface. Designed for planners, agency staff, and other stakeholders and decision-makers, the DLSPT describes how proposed land-use modifications or restoration projects are likely to affect a suite of ecosystem processes and functions, as well as agriculture and infrastructure in the Delta.

The current tool was released to the public in April 2020 after 18 months of development (https://www.sfei.org/projects/delta-landscapes-scenario-planning-tool). It allows users to assess 11 ecological and social impacts of projects planned within an 800,000-acre coverage area across the Delta. Currently the DLSPT is being used by Council staff to inform evaluation of Performance Measures and calculate ecosystem impacts for Delta Adapts. Other users include the Nature Conservancy, the Sacramento-San Joaquin Delta Conservancy, and the California Department of Fish and Wildlife. By extending the DLSPT's coverage area and developing additional functionality, once completed, the tasks in Phase III will facilitate the usage of the DLSPT by project managers, land-use planners, and regulatory bodies to evaluate proposed land-use activities for consistency with the Delta Plan and contributions toward the coequal goals.

AMENDMENT FOR DLSPT PHASE III

The proposed amendment of $499,993 and time extension would allow SFEI-ASC to complete a set of tasks that will increase and improve the utility of the DLSPT for Delta resource managers and landowners. In Phase III the DLSPT's current coverage

area will be enlarged to include the full Legal Delta and Suisun Marsh. This will enhance the tool's utility to regional planners and decision-makers by extending its analytical capabilities to cover the complete geographic range governed under the Delta Plan. Phase III will also allow tool users to assess two additional impacts of planned land-use activities (on carbon balance and on economic sustainability), as well as improving analyses of land-use impacts on flood inundation and protected areas. These changes will better align DLSPT output with current and proposed Delta Plan Performance Measures. Increased integration with the EcoAtlas Project Tracker will allow DLSPT users to more accurately assess the cumulative impacts and likely future outcomes of proposed land-use scenarios by incorporating information about other planned wetland restoration, mitigation, and habitat conservation projects. Finally, to encourage widespread usage of the DLSPT, Phase III will include outreach efforts targeted toward potential users in the Delta management community through the development of informational and training materials for broader distribution.

FISCAL INFORMATION

The proposed contract amendment will add $499,993 to the existing budget to allow SFEI-ASC to improve and extend the functionality of the DLSPT and to promote its usage by conducting regional outreach and training.

LIST OF ATTACHMENTS

Attachment 1: Functionality of the Delta Landscape Scenario Planning Tool

Attachment 2: Example output of the Delta Landscape Scenario Planning Tool

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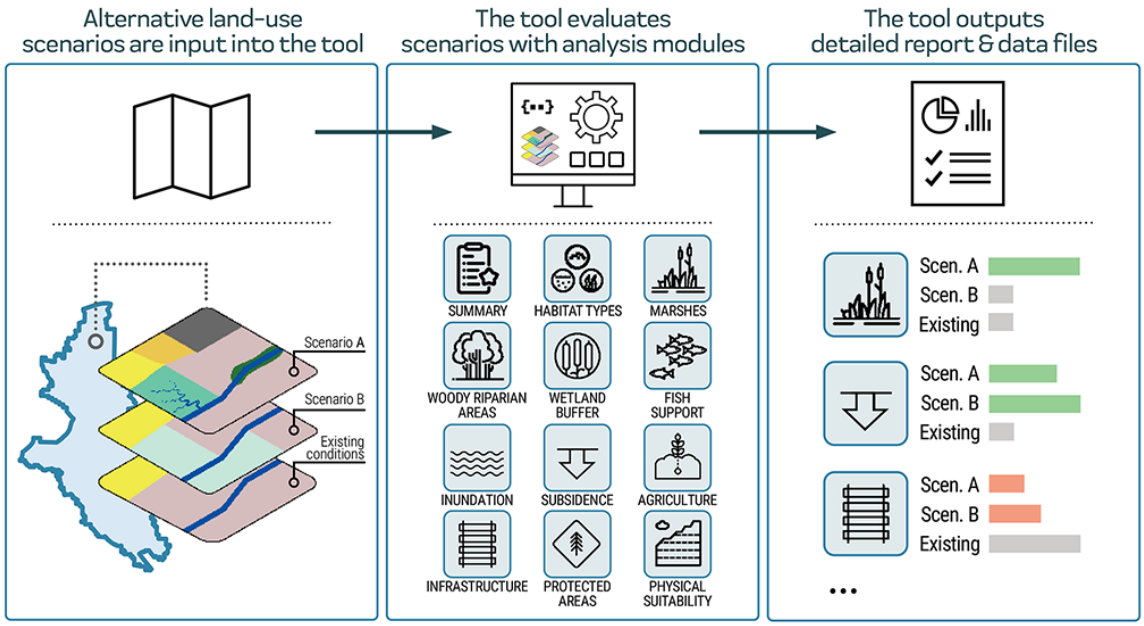
ATTACHMENT 1: FUNCTIONALITY OF THE DELTA LANDSCAPE SCENARIO PLANNING TOOL



Alternative land-use scenarios are input into the tool as map files and are compared against existing conditions. The tool evaluates the scenarios across a variety of landscape metrics such as acreages of different habitat types, effects on flood inundation, impacts to agriculture, and changes to infrastructure, to name a few. The tool outputs detailed reports and data files which quantify these changes so that tradeoffs between different scenarios can be easily compared.

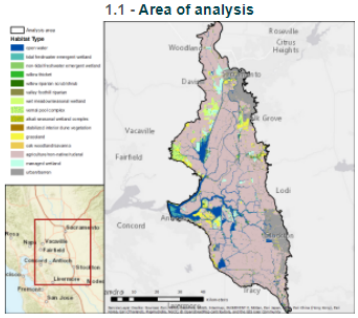
ATTACHMENT 2: EXAMPLE OUTPUT FROM DELTA LANDSCAPE SCENARIO PLANNING TOOL

Landscape Scenario Summary

SELECT MODULE: Summary

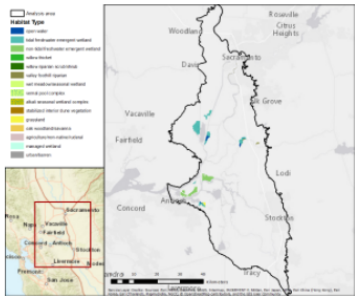
Print Report

1.1 - Area of analysis

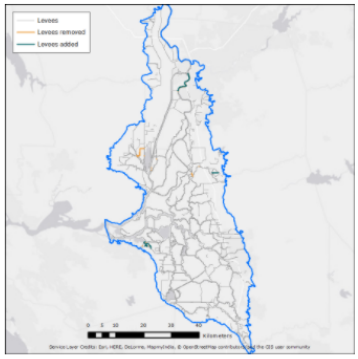


EcoRestore

1.2 - EcoRestore: Scenario land use modifications



1.3 - EcoRestore: Levee centerlines



1. Summary

Units: US/Imperial

DLSP tool and scenario summary

The Delta Landscape Scenario Planning Tool (DLSPT) is a regional restoration planning aid. Within the tool, different land-use scenarios are evaluated by their potential to support wildlife and provide ecosystem services, while also considering impacts to the agricultural economy and infrastructure (see the DLSPT project site for background information on the tool and for a tool user guide). Within this output report, dynamically generated values that are unique to this run of the tool are styled with **bold text**. One scenario is evaluated in this run of the tool: **"EcoRestore"**.

The DLSPT runs metrics analyses on user-determined scenarios within a user-defined area of analysis. The area of analysis for this output is a **781,904 acres** area defined by the user. This area includes part or all of **Alameda**, **Contra Costa**, **Sacramento**, **San Joaquin**, **Solano**, **Stanislaus**, **Sutter**, and **Yolo** counties. An alternative levee configuration **was** specified for **"EcoRestore"**.

This output was generated on **April 28, 2020**, using **version 1.0.0 of the DLSPT**. To generate a pdf of this output use the "Print" button at the top-right corner of this page. Additional information on each tool module is available in the tool user guide, which can be downloaded from the DLSPT project site.

	Scenario positively affects metric (relative to current conditions)
	Scenario does not alter metric
	Scenario negatively affects metric (relative to current conditions)
★	Indicates which scenario most improves each metric (all metrics will be marked with stars if only evaluating one scenario)

Ecosystem function

	Historical	Modern	EcoRestore	
Habitat change				
Area of tidal freshwater emergent wetlands	364,800 acres	8,182 acres	15,214 acres	★
Area of non-tidal emergent wetlands and managed wetlands	112,666 acres	25,678 acres	27,676 acres	★
Area of woody riparian habitat types	51,427 acres	17,343 acres	17,226 acres	★
Area of seasonal wetland habitat types	143,363 acres	14,047 acres	14,083 acres	★
Area of terrestrial habitat types	75,616 acres	29,143 acres	29,083 acres	★
Area of open water	34,032 acres	65,555 acres	66,343 acres	★
Marsh habitat				
Patch size: number of large marsh patches (>100 ha)	14	3	13	★
Patch size: number of large marsh patches (>500 ha)	11	1	4	★
Patch size: average marsh patch size	11,104 acres	9 acres	19 acres	★
Patch size: maximum marsh patch size	273,118 acres	1,777 acres	3,340 acres	★
Patch size: total area of large patches (>100 ha)	475,616 acres	2,773 acres	15,405 acres	★
Patch size: total area of large patches (>500 ha)	474,346 acres	1,777 acres	9,116 acres	★
Patch nearest neighbor distance: average distance to nearest large marsh patch (>100 ha)	0.24 miles	12 miles	7 miles	★
Network connectivity: probability that randomly placed marsh birds (Black Rails) can reach each other via dispersal	36%	$2.2x10^{-3}$%	0.020%	★
Core to edge area ratio	13 : 1	0.20 : 1	1.1 : 1	★
Woody riparian habitat				
Habitat extent: total woody riparian area	51,425 acres	17,343 acres	17,226 acres	★
Patch size: percent of total woody riparian area arranged in patches >80 ha	99%	51%	52%	★
Wetland buffers				
Percent of wetland buffer zone covered by natural terrestrial habitat types	100%	17%	17%	★
Fish support				
Total area of marsh	477,466 acres	10,527 acres	22,509 acres	★
Marsh to open water ratio	14 : 1	0.16 : 1	0.34 : 1	★
Total amount of tidal marsh within 2 km of open water areas (positively correlated with Delta Smelt stomach fullness)	441,401 acres	16,778 acres	23,856 acres	★
Average distance along the channel network to the nearest large wetland	0.087 miles	6 miles	6 miles	★