SACRAMENTO - SAN JOAQUIN DELTA CONSERVANCY
A California State Agency

1450 Halyard Drive, Suite 6
West Sacramento, CA 95691
www.deltaconservancy.ca.gov

Request for approval to enter into an interagency agreement in the amount of $1,100,000 with the San Francisco Estuary Institute-Aquatic Science Center, and run an Invitation for Bid process in the amount of $250,000 for facilitation services in support of Eco Restore regional planning for the NE Delta.

September 23, 2015

RECOMMENDATIONS

Staff recommends board authorization for the Executive Officer to enter into an interagency agreement in the amount of $1,100,000 with the San Francisco Estuary Institute/Aquatic Science Center Staff, and to run an Invitation for Bid process in the amount of $250,000 for facilitation services in support of Eco Restore regional planning for the NE Delta.

PROJECT DESCRIPTION

California Eco Restore directs the Delta Conservancy to facilitate locally led regional planning processes to identify priority projects in the Cosumnes (NE Delta), Cache Slough, Western and Southern Delta regions. To support this effort, a subset of the Restoration Network has developed a three step framework, to be piloted for the Northeast Delta region. The process aims to engage the best available science for restoration design by connecting science and stakeholder experts to advanced analytical tools in a real-time analysis and decision support environment. The Framework helps scientists, stakeholders, and agencies envision how complex ecosystem restoration alternatives can be integrated with flood protection, the agricultural economy, and heritage values of the Delta. ***Step 1. Implement Data, Modeling, and Decision-Support Tools.*** First, the Framework integrates diverse data from physical and ecological processes to economics and demographics within an advanced data analytics and visualization platform. The goal is to produce modeling, data, visualization and decision-support tools that can be used in real-time by stakeholders and system experts alike as alternative futures are deliberated. ***Step 2. Develop a Vision of Regional Ecological Potential .*** Second, using the data and modeling tools, the Framework will produce a science-based vision of northeast Delta ecological potential as a guide to assure that individual restoration actions yield high-functioning landscapes in the future. The vision will represent our best data-driven current understanding of ecosystem function and potential while providing an overarching reference tool to guide restoration actions. ***Step 3. Develop Multi-Benefit Alternatives and Facilitate Decisions***. The Framework ultimately supports co-development of broadly acceptable landscape restoration strategies using the best available tools and scientific understanding. Moreover, the Framework provides a decision support environment that facilitates clarification of tradeoffs between alternatives to promote informed decisions among all

stakeholders. The framework will support successful design, selection and implementation of projects eligible for funding through Proposition 1 grant programs.

Steps 1 and 2 will be led the by San Francisco Estuary Institute - Aquatic Science Center. SFEI-ASC is a unique public-service institution established as part of the Comprehensive Conservation and Management Plan (CCMP) for the San Francisco Estuary. Per their founding bylaws, SFEI is a 501(c)(3) nonprofit organization, led by a representational Board of Directors that includes high-level representatives from the EPA, the State Water Board, Regional Water Boards, local flood control agencies, clean water agencies, environmental NGOs, and industry. On behalf of the State of California, SFEI administers a Joint Powers Authority to provide science support to natural resources agencies. The SFEI staff are expert in collaborative processes to develop the ecological potential of a given area and the scientific basis for restoration strategies and individual projects. The cost for completing steps 1 and 2 for the NE Delta will not exceed $1,100,000. An interagency agreement will be developed between the Conservancy and ASC.

Step 3 will require expert facilitation and administrative support to ensure multiple stakeholders, agency representative and recognized science experts can engage at appropriate times, and efficiently to develop broadly accepted landscape restoration strategies and projects that support those strategies. The Conservancy will run an Invitation for Bid process to obtain qualified facilitation support from one or more contractors. The cost for facilitating the NE Delta processes will not exceed $250,000.

BACKGROUND

The need for additional regional planning in the Delta is called for in the Delta Plan, has been articulated in the High Impact Science Agenda as approved by the Delta Plan Interagency Implementation Committee, and has been specifically called for in the Governor's Eco Restore Program. The Framework for regional planning has been in development for several years. The Conservancy has worked extensively with the Delta Science Program, SFEI-ASC, The Nature Conservancy and several consultants to develop the Framework. The Framework has been vetted through the Delta Restoration Network which includes all agencies working in the Delta, several NGO organizations and local stakeholders. Additionally, countless meetings with agencies and stakeholders have been conducted to get input on the Framework. There is currently support from agencies and stakeholders to do the regional planning envisioned. A more detailed description of the NE Delta planning effort is attached

BUDGET

The total project cost is $1,650,000, with the Delta Stewardship Council providing funding to secure time from science experts (Approx. $150,000), and The Nature Conservancy contributing funding for data acquisition (Approx. $150,000). Both organizations will fund their components directly. The

funding to support the Delta Conservancy components of the projects will come from Prop. 1 for the Interagency Agreement with SFEI-ASC and Federal funding through the US Bureau of Reclamation (BOR) will support the Invitation For Bid for facilitation services. Prop. 1 allows for 10% of the Conservancy's allocation to go toward planning and monitoring to ensure successful design, selection and implementation of projects. These funds are not required to be competed through local assistance grant solicitation process. An agreement between the BOR is in the final stages of execution and includes $450,000 to support the Delta Restoration Network.

Contact Person:

Campbell Ingram, Executive Officer
Sacramento-San Joaquin Delta Conservancy
Phone: (916) 375-2089

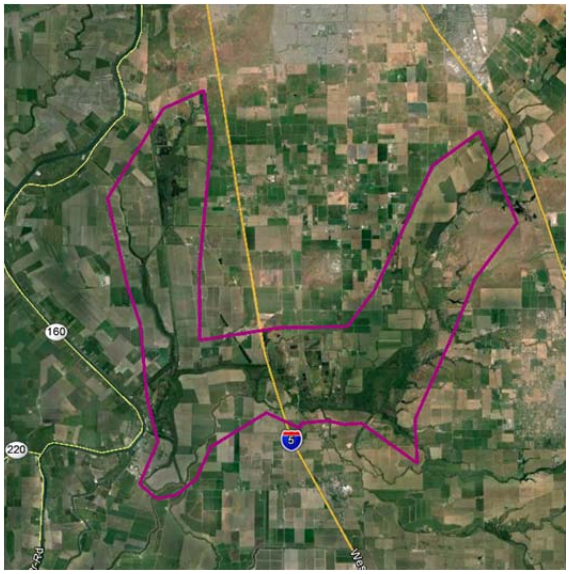
Northeast Delta Landscape Restoration Framework

A proposal by the Delta Conservancy, Delta Science Program, and The Nature Conservancy to support Eco Restore

The Delta Conservancy (DC), the Delta Science Program (DSP), The Nature Conservancy (TNC), the San Francisco Estuary Institute-Aquatic Science Center (SFEI-ASC), and the Intelligent Ecosystem Institute (IEI) propose to develop a Northeast Delta Landscape Restoration Framework (Framework). The project responds to the Governor's "EcoRestore" initiative that calls for 30,000 acres of ecosystem restoration in the Delta. The Framework embodies the best available science by integrating advanced analysis tools with stakeholder and science experts. Ultimately, the Framework supports co-development of broadly acceptable landscape restoration strategies integrated with flood protection, the agricultural economy, and heritage values of the Delta as an evolving place.

Summary

The Delta Conservancy (DC), the Delta Science Program (DSP), The Nature Conservancy (TNC), the San Francisco Estuary Institute-Aquatic Science Center (SFEI-ASC), and the Intelligent Ecosystem Institute (IEI) propose to develop a *Northeast Delta Landscape Restoration Framework* (Framework). The region includes the Cosumnes-Mokelumne Confluence, Lower Cosumnes River, Stone Lakes, and near floodplain corridors. The project responds to the Governor's "Eco Restore" initiative that calls for 30,000 acres of critical Delta restoration. It also addresses the Delta Stewardship Council's call for *landscape-scale conceptual models* for each of the six priority restoration areas in the Delta Plan. The project leverages recent advances by SFEI-ASC and TNC for envisioning landscape ecological potential and functional metrics of success. Guided by interdisciplinary science experts, stakeholder experts, and key agency representatives, the Framework will deliver three essential restoration services: 1) it will develop key data, visualization, decision support tools; 2) it will propose a vision of the northeast Delta regional ecological potential; and 3) it will host efficient processes both for creating alternative restoration strategies for the Northeast Delta region and in-turn facilitating decisions on the alternatives. The Framework will demonstrate these services through the development of a refined landscape design for the McCormack-Williamson Project. The McCormack-Williamson Project is an example of how restoration projects at the individual property scale can be advanced while envisioning possibilities for more effective landscape-scale connections in the future.



The North Delta Landscape Restoration Framework aims to engage the best available science for restoration design by connecting science and stakeholder experts to advanced analytical tools in a real-time analysis and decision support environment. The Framework helps scientists, stakeholders, and agencies envision how complex ecosystem restoration alternatives can be integrated with flood protection, the agricultural economy, and heritage values of the Delta as an evolving place. In all, the Framework has three interrelated components (Figure 1):

1. ***Implement Data Analytics, Decision Support, and Visualization Tools (Task 1).*** First, the Framework integrates diverse data from physical and ecological processes to economics and demographics within an advanced data analytics and visualization platform. A formal decision support system that can integrate ecosystem responses, land-use patterns, and stakeholder preferences will also be implemented. The goal is to produce data, visualization and decision-

support tools that can be used in real-time by stakeholders and system experts alike as alternative futures are deliberated and shared.

2. ***Develop a Vision of Regional Ecological Potential (Task 2).*** Second, using the data and visualization tools, the Framework will produce a science-based vision of northeast Delta ecological potential as a guide to assure that individual restoration actions yield high-functioning landscapes in the future. The vision will represent our best data-driven current understanding of ecosystem function and potential in the northeast Delta while providing an overarching reference tool to guide restoration actions. The project will develop a specific landscape-scale conceptual model and define *operational landscape units* (OLUs). OLUs are conceptual landscape extents and connections that interact to support specific ecological functions and native species resilience.

3. ***Develop Multi-Benefit Alternatives and Facilitate Decisions***. The vision of regional ecological potential developed in Task 2 can be used along with best available tools and scientific understanding to support co-development of broadly acceptable landscape restoration strategies for the northeast Delta region. The Framework provides a decision support environment that facilitates clarification of tradeoffs between alternatives to promote informed decisions among all stakeholders. This will require iterative and facilitated collaboration among expert stakeholders, scientists and agency participants to integrate ecosystem restoration with flood protection, water quality, recreation, and Delta agricultural values. The visualization and data analytics tools will support a collaborative decision-making process both between meetings and in real-time. To be successful, the decision support process must be viewed as neutral, credible, capable, and relevant to the needs of all participants. It must be a place where participants can express preferences and understand tradeoffs among alternative futures.

A core team from SFEI-ASC, the DC and the DSP will initiate project tasks by using existing landscape metrics, data analytics, and visualization platforms including EcoAtlas and Palantir. Landscape visions and the decision support framework will be implemented and applied with regular input by a working panel of science and local stakeholder experts along with key agency representatives.

Support for the McCormack-Williamson Project. As a pilot for the Northeast Delta Landscape Restoration Framework, this project will assist in the development of a refined restoration design and research plan for TNC's McCormack-Williamson restoration project. Science experts and stakeholders will utilize the data analytics tools to define and apply the OLU concept to meet target ecological functions. The project will demonstrate how restoration projects at the property-scale can be effective while preserving opportunities for broader landscape connections in the future.

The Northeast Delta Landscape Restoration Framework is adaptive management in action. From these collective efforts will emerge a landscape-scale conceptual model as mandated in the Delta Plan and a process for achieving landscape-scale restoration that can be repeated throughout the Delta.

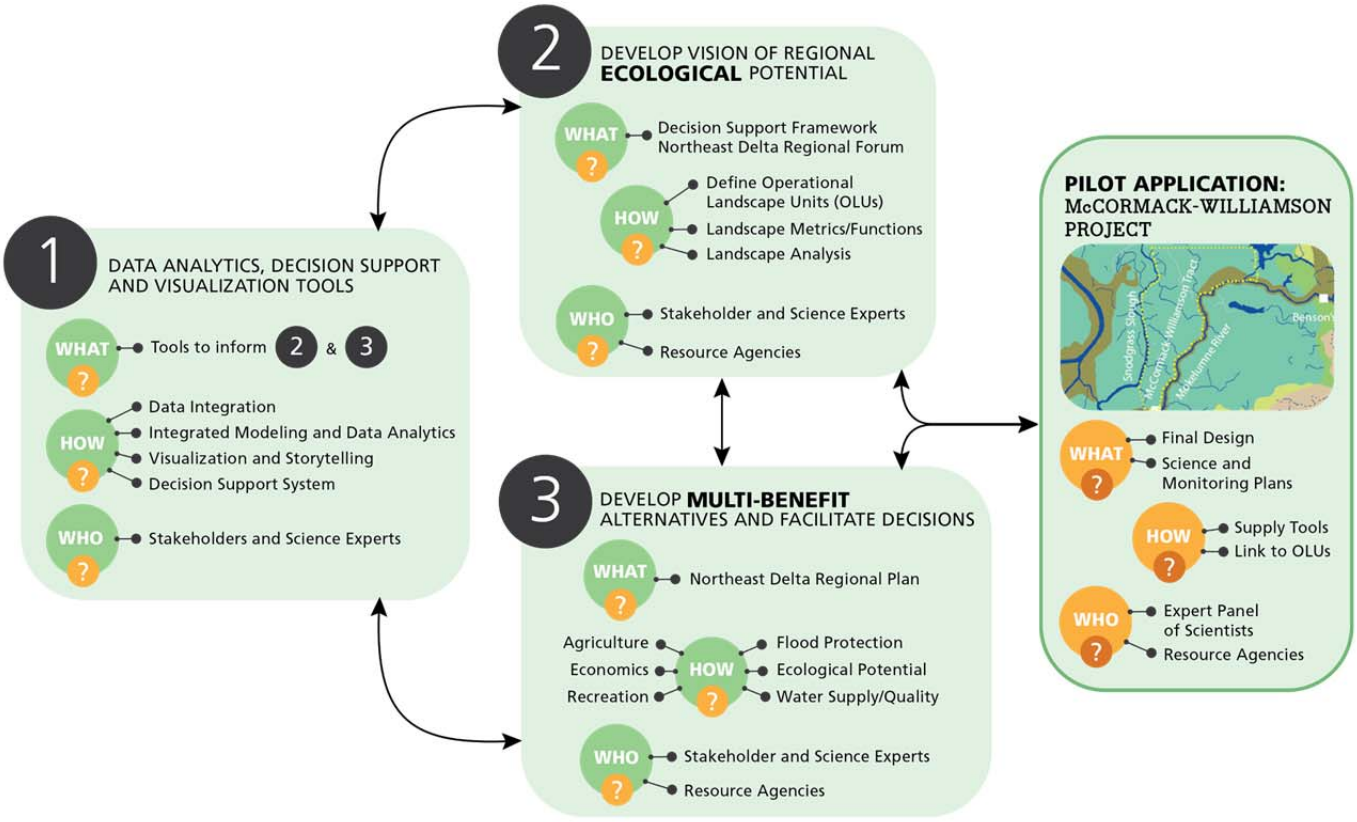

NORTHEAST DELTA LANDSCAPE RESTORATION FRAMEWORK
1
DATA ANALYTICS, DECISION SUPPORT AND VISUALIZATION TOOLS
WHAT
Tools to inform 2 & 3
HOW
Data Integration
Integrated Modeling and Data Analytics
Visualization and Storytelling
Decision Support System
WHO
Stakeholders and Science Experts
2
DEVELOP VISION OF REGIONAL ECOLOGICAL POTENTIAL
WHAT
Decision Support Framework
Northeast Delta Regional Forum
HOW
Define Operational Landscape Units (OLUs)
Landscape Metrics/Functions
Landscape Analysis
WHO
Stakeholder and Science Experts
Resource Agencies
3
DEVELOP MULTI-BENEFIT ALTERNATIVES AND FACILITATE DECISIONS
WHAT
Northeast Delta Regional Plan
Agriculture
Economics
Recreation
HOW
Flood Protection
Ecological Potential
Water Supply/Quality
WHO
Stakeholder and Science Experts
Resource Agencies
PILOT APPLICATION:
McCORMACK-WILLIAMSON PROJECT
WHAT
Final Design
Science and Monitoring Plans
HOW
Supply Tools
Link to OLUs
WHO
Expert Panel of Scientists
Resource Agencies

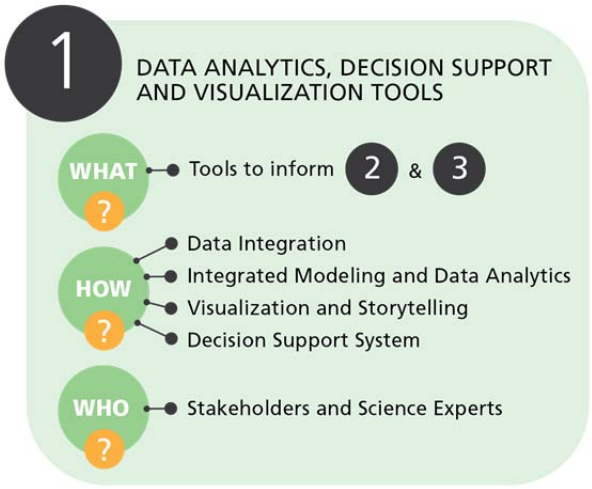
Figure 1

1. Data Analytics, Decision Support, and Visualization Tools

The strength and utility of a Landscape Restoration Framework for the Northeast Delta depends on the underlying data, visualization and decision support tools that support its development and ongoing refinement. Using the Framework in project design and decision-making for ecosystem restoration in the region will require analytical, visualization, and decision support tools to clarify data and modeling outputs for science and stakeholder experts. This component of the project develops a structure for data and model integration, analysis, visualization, and decision support for experts and diverse stakeholders to use in a real-time collaborative environment.

1.1 Data Integration and Analytics Tools

Implementation: Science and stakeholder experts will collaborate to identify readily available data sets relevant to the region or project, including past and present mapping, land use, ecological data, sea level rise projections, flooding scenarios, groundwater depth, and data about organisms, water quality, hydrology, hydrodynamics, climate, flow, and a variety of other environmental attributes. Data will be prioritized for integration based on expected value to development of the landscape vision and strategy. Data will be accessed from publically available, web-based repositories, or added to specialized, durable storage platforms set up for this project if data has not been provided publically. A dynamic ontology (i.e. a flexible data naming convention) will be developed for this data set so it can be integrated by type and to simplify access and cross-referencing.



Applications: Newly integrated data will enable more refined analytical investigations supporting development of the landscape ecological vision (Task 2) and regional planning and project-specific design (Task 3). The data analytics tools will facilitate data exploration and analysis by expert stakeholders and scientists during meetings and decision making. Data analytics tools will contribute to the conceptual model development and project evaluation. Example analytics include simple filtering of data based on driving variables such as climate and water year type. Analytics could also include custom metrics or predictive process models. Iteration of data analysis will be responsive to the input of the stakeholder and science experts during interactive work sessions.

1.2 Investigate Decision Support Tools

Alternative strategies for the Northeast Delta region will require high-level decision maker input as alternatives are proposed. The Framework will investigate options for a transparent and interactive decision support system to help stakeholders, policy makers, and agency planners weigh in substantively on alternative restoration designs. A formal decision support system will focus design charrettes where stakeholders and decision leaders can test the benefits and tradeoffs of regional restoration strategies and specific project designs (e.g. McCormack-Williamson Tract). Decision support tools will allow real time "what if" questions about restoration phasing, location, design in the context of Delta flood protection and working agriculture in a simulated Delta environment. Built to be interactive, a decision support system will take feedback from the users and then apply iterative learning and solution search methods to define better alternative restoration designs. A key value of modern land-use decision support systems is that they can "learn" about user's resource valuations while users also learn about how the Delta as a whole responds to various actions.

1.3 Visualization and Storytelling

Developing broadly acceptable alternative futures for the Delta will require complex data analytics and modeling to reveal options and tradeoffs. To decide between alternatives, decision makers must be able to visualize the story that each alternative offers for the future of the Delta. Therefore, a critical step is to develop compelling illustrations and maps that depict the essential story of the landscape ecological vision (Task 2) and regional restoration plan (Task 3). The abstract must be made credible and comprehensible through accessible online interactive tools and maps to "tell the story" of the data. The task outputs will ensure that the science behind the shared understanding and decision-making is made transparent to foster stakeholder engagement and decision-maker support. We will develop a variety of visualizations serving the full range of users (e.g. analysts, expert panel, project proponents, stakeholders, and the general public). These visualizations will vary to suit the task, potentially including maps, time series, schematics, and other narrative tools that can be combined into purposeful data stories.

This task will help translate key products for both project participants and public presentations throughout the course of the project. It will also capture the decisions, ideas, and results of the charrettes detailed in *Tasks 2 and 3* below and design the appropriate vehicle for their communication to the outside world. This task will build upon existing investments available through SFEI's EcoAtlas for the Delta, for instance, and other tools. It will also provide the web-based home for project products, providing team and stakeholder access to analyses, maps, descriptions, and meeting support materials.

2. Vision of Regional Ecological Potential

Broadly-supported, science-based regional restoration visions that build individual restoration actions into high-functioning landscapes are needed in order to avoid the risk of implementing many small, disconnected restoration actions that do not effectively restore functional ecosystems (DISB 2013). This component of the project will work closely with the Science Expert Panel to develop a regional ecological vision for one part of the Delta with particular restoration potential: the Northeast Delta, including the Mokelumne-Cosumnes rivers confluence, McCormack-Williamson Tract, Stone Lakes, and adjacent areas. The end product will include a set of spatially explicit conceptual models describing the current conditions, physical processes, ecological targets and management requirements that can be used to facilitate planning, implementation, monitoring, and adaptive management of restoration projects in the region. The vision will represent our best data-driven current understanding of ecosystem function and potential in this part of the Delta and provide an overarching reference tool to guide restoration actions with particular objectives. The products will also be useful for identifying specific research and long-term monitoring needs. The regional vision process has the following five components:

2.1 Create conceptual models and OLUs

Drawing on the Delta Historical Ecology Investigation (Whipple et al. 2012), contemporary mapping, data assembled in Task 1, and Science Panel input, we will develop initial conceptual models relating physical drivers to ecological function in the Northeast Delta under more natural, historical conditions and under contemporary conditions. These will illustrate major physical drivers and key ecological functions, establishing a shared conceptual foundation for understanding how the system works. These illustrations will be designed as communication products as well. Based on the landscape conceptual models, we will identify the initial spatial extent for one or more operational landscape units (after Verhoeven et al. 2008)). These will be refined during the course of the project based on subsequent analyses of target ecological functions and associated physical processes. This task will also further describe the OLU concept and approach, as applied in the Delta, building on the work of Verhoeven and current applications in SF Bay.

2.2 Landscape metrics analysis

This task will identify the native ecological communities that could be supported within the landscape (as well as non-native and novel ecosystem elements and species that may become appropriate to the region as a result of projected climate change) and quantify realized and potential changes in function and resilience. This information will be drawn from the historical analysis, existing conservation plans and strategies, the Science Panel, and other scientists. Using the emerging Landscape Resilience framework being developed by SFEI-ASC with regional and international scientists (under a separate grant from Google), we will then identify several priority landscape resilience attributes (e.g. riparian connectivity, connected floodplains, tidal transition zone, appropriate sediment supply). We will develop and analyze quantifiable metrics, drawing on the Delta Landscapes project, the data integration and synthesis from Part 1, and the expert panel. GIS analysis will be performed for historical (circa 1850) and contemporary conditions to identify missing attributes for native species support. The landscape metrics analysis will provide a framework for identifying desirable habitat mosaics, connectivity, patch size, and other design parameters and restoration targets. Selected non-GIS metrics will also be identified and developed to the extent data are available.

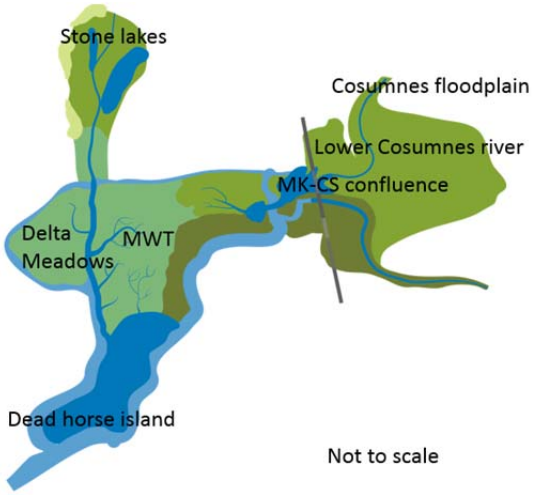
2.3 Evaluate future drivers

Drawing on the landscape scale conceptual models, this task will assess how the key physical drivers (e.g. topography, elevation, soils, floodplain inundation, groundwater levels, hydrograph, and temperature) associated with target ecological functions have changed through time and the general viability of reestablishing resilient, climate-adaptive landscape processes in the OLU. This task will identify the fundamental changes in physical setting that preclude restoration options, as well as persistent or recoverable drivers that contribute to the region's current ecological potential. This analysis will draw on available data and expertise to evaluate physical and ecological potential, rather than detailed engineering or socioeconomic feasibility. Where sufficient data or modeling is not currently available, these needs will be identified. After initial data acquisition and integration has been completed, workshops will be held to involve the expert scientists and stakeholders.

2.4 Create a vision of ecological potential

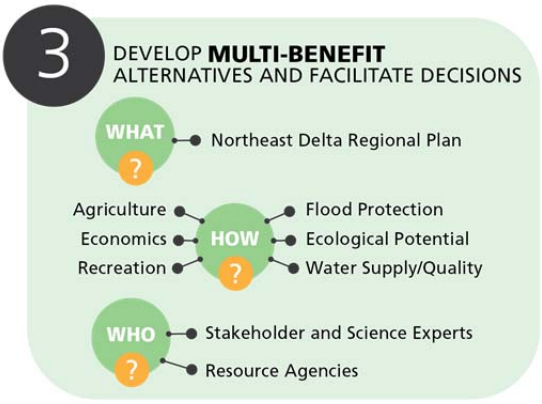
The Northeast Delta Landscape has the potential to support a wide range of ecological functions along a variety of physical gradients. However, not all functions can be supported in all places at the same time. In this task, we will draw on the expertise of the team, the Science Panel, and analyses conducted using the decision support tools and data developed in Task 1 to create a vision of potential target ecological functions and resilience attributes for different parts of the future OLU, synthesizing the information developed in the previous tasks. The vision will be described as annotated conceptual map graphics and associated documentation of methods and uncertainty. The vision will show spatially how different functions and attributes might be achieved in different settings, the interrelationships between

components, and the associated metrics. For example, different locations in space and time of the OLU might support native fishes during the flood season while supporting upland vegetation and birds during the dry periods of the year. Similarly floodplain wetlands, willow swamps, and oak woodlands would occur along defined gradients. The task will consider the potential environments supported or hindered by physical drivers such as artificially lowered groundwater tables and projected recharge actions as well as constraints from biological stressors such as invasive species.



3. Develop Multi-benefit Alternatives and Facilitate Decisions

The purpose of the North Delta Landscape Restoration Framework is to develop and facilitate durable strategies for ecosystem restoration that work with flood protection, agriculture, and the Delta economy. It responds directly to the Governor's EcoRestore initiative under the California Water Fix. The Framework will assure that the best available science and a collaborative decision support process is used to envision alternative futures for Northeast Delta region. Alternative futures are comprehensive scenario plans for the region that meet restoration and land use goals under EcoRestore, the coequal goals, applicable HCP/NCCP's and flood protection goals. Alternative future restoration options--at the region or property scale--must benefit native species, enhance natural processes including flood conveyance, and mesh with working Delta landscapes. Thus, the Framework has two primary responsibilities:



First, the Framework supports co-development of broadly acceptable landscape restoration strategies using the best available tools and scientific understanding. Second, the Framework provides a decision support environment that facilitates clarification of the many tradeoffs of each alternative to promote informed decisions among all stakeholders. The Framework also recognizes that any preferred regional plan is a snapshot-in-time that will likely change. The Framework therefore supports an ongoing forum, on neutral ground, for integrating new scientific understanding, new land use opportunities, and changing social preferences. This section describes how the Framework would use modeling and

decision support tools to engage and facilitate stakeholder experts, science experts, and responsible agencies for co-development of multi-benefit alternatives and to facilitate decisions.

3.1 Modeling Support

Envisioning a Delta landscape that works for the Delta economy, society, ecosystem, and water supply calls for tools that can integrate the essential interdependent system components and help clarify decision effects and trade-offs. The consequences of restoration or flood protection options in one area of the Delta will reverberate across the entire Delta system. Therefore, whole-system integrated modeling is an essential analytical step for supporting decisions. In concert with the data analytics tools described in Task 1, expert scientists and stakeholders will test alternative restoration options with deterministic models of system processes like hydrodynamics, transport, and food web dynamics. We expect modeling to be part of the Northeast Delta region vision of ecological potential(Task 2), and regional restoration planning including McCormack-Williamson Tract (Task 3).

Much of the restoration modeling expertise in the Bay-Delta system is in consulting firms. The Framework will contract with these firms for the more complex analyses like regional restoration effects on tidal currents, water levels, residence time, and material transports like sediment and nutrients. Where possible we will also employ parameterized models that can be executed in real time within decision charrettes in response to questions by stakeholder and science experts. All modeling analysis will be scoped and reviewed by science and stakeholder experts where modeling outputs will prompt feedbacks to improve modeling questions. All model outputs will be incorporated into the data analytics platform as a resource for future restoration projects (Task 1).

3.2 DRERIP evaluations for restoration project support

Near-term restoration initiatives need rapid and effective alternative restoration designs that meet both regulatory and CEQA requirements. Project proponents require timely analysis of restoration design alternatives and cumulative impacts analysis suitable for environmental documentation. The established Ecosystem Restoration Program (ERP) Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) process was designed for this task. Established over half a decade, the DRERIP evaluation process includes both conceptual models and a systematic restoration evaluation process. The conceptual models and evaluation process have been peer-reviewed and published in the journal San Francisco Estuary and Watershed Science. The process has been utilized on other restoration projects including Prospect Island and Lower Yolo Ranch. In the short term, the DRERIP evaluation process is the most effective means we have for adaptively applying “best available science” to design and decision support for restoration projects. The data analytics component of the Framework will streamline application of the DRERIP evaluation process and add value by making technical decision support for property-scale projects rapid, effective, and transparent. The Framework will demonstrate the utility of DRERIP evaluations for the science and monitoring design of TNC’s McCormack-Williamson Tract restoration project.

3.3 Stakeholder Expert Engagement

Local stakeholder expert knowledge is essential for regional restoration planning success. Planning alternative futures for the northeast Delta region will require iterative collaborations that bring together technology and people in systematic and facilitated processes. The goal is to develop an adaptive roadmap for management of restoration progress in the region. An expert stakeholder group will be established to help produce Northeast Delta regional restoration plan alternatives (Task 2) as well as some aspects of the McCormack-Williamson Tract DRERIP evaluation (Task 3). The group will review all relevant restoration objectives and use the data analytics, modeling, and decision support tools described above. Restoration objectives include the Governor's "EcoRestore" plan, objectives from local HCP/NCCP processes complete or in progress, flood protection system mitigation requirements, and the Delta Plan. With a shared understanding of available tools and objectives, local input will be sought on additional local objectives, data sets, and models that should be considered. The resulting information will be compiled and made available to all participants.

At working meetings of the expert stakeholder group, draft multi-benefit alternative futures for the Northeast Delta region will be developed and presented. At this time it will be possible to collectively and in real time, test assumptions and explore the social, economic, and ecological implications of the alternatives. This process will likely continue over several iterations. The ultimate output of this process will be a multi-benefit regional plan that places individual restoration projects in a landscape context and provides the basis for measuring expected outcomes and progress toward regional objectives.

The process for developing individual restoration project designs (like McCormack-Williamson Tract) will follow a similar pattern to the development of regional multi-benefit alternative futures. A technical group including the project proponent, subject experts, agency staff and analysts will assemble and refine relevant data, models and objectives. Early draft alternatives will be shared with nearby landowners and local stakeholders in workshops as needed to better understand the assumptions, objectives, measures and alternative designs. The Framework will support testing assumptions and exploring impacts of alternatives in real time. With broadly acceptable project alternatives, a science and local expert DRERIP review will be conducted and additional design refinement will occur if necessary. A second local stakeholder workshop will be scheduled to share and receive input on outcomes of the DRERIP review and any subsequent design changes.

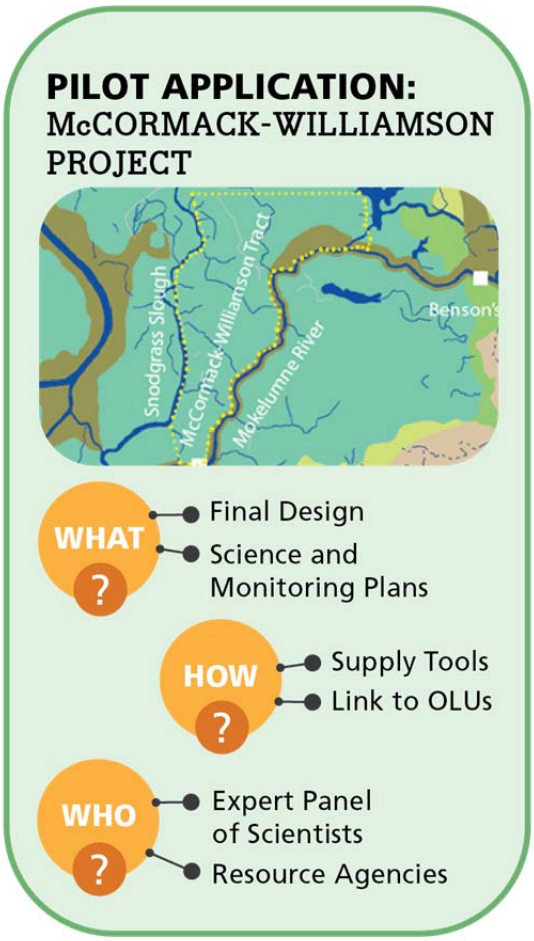
The project proponent will determine a preferred alternative and initiate the CEQA environmental review process. This process provides additional opportunity for local stakeholders to comment on project alternatives. Upon the completion of the CEQA process a final design alternative will be selected at which point the project will move forward with final design, permitting and construction. Tasks include recruiting up to six active stakeholders from the Northeast Delta Region, and convening at least four stakeholder meetings over the course of each project.

3.4 Science expert panel

An interdisciplinary panel of science experts will be convened to assist in identifying relevant data and development of data analytics, modeling and decision support tools (Task 1), guide the development of a Northeast Delta vision of ecological potential (Task 2), overall Northeast Delta restoration strategy alternatives, and the restoration science and adaptive management plans for McCormack-Williamson Tract (Task 3). The role of the science expert panel is to help ensure that the best available scientific understanding of Delta processes, species, habitats and stressors is incorporated into each project. The science panelists' expertise will include hydrology, hydrodynamics, modeling, fish biology, aquatic ecology including food web, terrestrial ecology including birds and riparian habitat, and landscape ecology.

3.5 Resource Agency input

Resource and regulatory agency participation is critically important to the success and realization of the envisioned benefits of the Northeast Delta Landscape Vision and Strategy. An agency group will be established to participate in both the development of the regional restoration alternatives (Task 2) and for McCormack-Williamson Tract science and monitoring plan. As previously described, this will involve workgroup sessions where the agency group will interact with science and stakeholder experts to develop the components of the project. This process will be to assure that agency mandates are covered by the regional ecological vision and ultimate restoration project designs.



3.6 Facilitating local, science, and agency expert deliberations

The transformative power of the proposed Framework is dependent on bringing together state-of-the-art data, models and decision making tools with science and stakeholder experts, resource agency staff in a routinely collaborative decision support environment. To realize the potential, the Framework must be expertly facilitated to ensure the work groups stay on track and focused on relevant issues in priority order. The facilitators will be responsible for working with the groups to identify the relevant questions to be answered in priority order, and to identify the

information to be considered in working through a given task. The facilitator will further be responsible for ensuring that work sessions stay on track and work through the prioritized issues in a timely and focused manner. The facilitator will also assist the analysts in capturing a comprehensive record of decisions and considerations leading to decision points.