

Delta Stewardship Council & U.S. Bureau of Reclamation

Delta Science Proposal Solicitation Notice

November 2020 - Solicitation #21000

This Delta Science Proposal Solicitation Notice is a collaborative effort between the Delta Stewardship Council's Delta Science Program and the U.S. Bureau of Reclamation to achieve the vision of "One Delta, One Science."



**Delta
Science
Program**

DELTA STEWARDSHIP COUNCIL



— BUREAU OF —
RECLAMATION

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1 Foreword and Background

The Delta Stewardship Council (Council) and the United States Bureau of Reclamation (USBR) are pleased to announce the 2021 Delta Science Proposal Solicitation (Solicitation). The Solicitation will be administered by the Council's Delta Science Program (DSP) and will further the DSP's legislatively mandated mission to...

... provide the best possible unbiased scientific information to inform water and environmental decision-making in the Delta ... through funding research, synthesizing and communicating scientific information to policy-makers and decision-makers, promoting independent scientific peer review, and coordinating with Delta agencies to promote science-based adaptive management.

-Delta Reform Act 2009, Water Code Section 85280(b)(4).

This Solicitation seeks research with direct management implications, thus the 2017-2021 **Science Action Agenda (SAA)** is the key source of focus areas for scientific studies in this Solicitation. As called for in the 2019 Delta Science Plan (<https://deltacouncil.ca.gov/pdf/2019-delta-science-plan.pdf>), the Science Action Agenda (SAA) prioritizes and aligns science actions to fill gaps in knowledge and build science capacity to address current and anticipated management needs. For more information about the SAA, please visit <http://scienceactionagenda.deltacouncil.ca.gov/>. USBR supports the SAA and the critical science that: advances ongoing efforts to modernize data collection and sharing; develops tools and associated data to evaluate the ecologic and hydrologic effects of existing and alternative water operations in the Sacramento and San Joaquin watershed; improves scientific understanding of measures and opportunities to restore native species; and collaboratively synthesizes available information regarding fish, wildlife, and wetland habitat restoration opportunities in the Delta.

Humans are an influential and inextricable component of the Delta environment. The Council recognizes the role of social science in advancing Delta management and restoration. To that end, the DSP recently organized and tasked a Social Science Task Force to produce a strategy for strengthening social sciences and integrating social sciences with the biophysical sciences for improving the management and policy landscape of the Sacramento-San Joaquin Delta. (<https://deltacouncil.ca.gov/pdf/science-program/delta-social-science-task-force/2019-12-20->

[draft-social-science-strategy-for-bay-delta.pdf](#)). Given their inextricable connections, this Solicitation seeks proposals that integrate social and biophysical sciences to better understand the socio-ecological processes of the watershed at local or regional scales. The Solicitation also seeks smaller research proposals focused on social sciences and/or biophysical sciences. All proposals should address the SAA action areas and or the Sacramento River Science Partnership topics. USBR is a participant in the Sacramento River Science Partnership, which seeks to support collaborative and structured decision-making between agencies and stakeholders with the intent of reducing scientific uncertainty in the upper Sacramento River through specific scientific studies.

This Solicitation seeks high-quality scientific study projects that advance the SAA and anticipates establishing a list of eligible projects as a result of this solicitation. The list of eligible projects may result in a contract agreement (Agreement) to be negotiated with the Council, as authorized by Water Code Section 85210. Total funding for all eligible projects is anticipated to be up to \$9 million. Funding sources include the California General Fund as well as Federal funding provided to the Council by the USBR for this Solicitation. The Council will work closely with California Sea Grant to assist the DSP in its administration of the solicitation notice, external and expert review of submitted proposals, and communication of funded work with key stakeholders during thematic stakeholder engagement workshops. All eligible entities are encouraged to submit proposals for qualified projects.

2 Schedule

Table 1. Schedule

Event	Date(s) and Deadlines
Application Webinar #1	December 2, 2020 9:00 – 10:00 AM PST
Letter of Intent Deadline	December 15, 2020 by 5:00 PM PST
Application Webinar #2	January 8, 2020 2:00 – 3:00 PM PST
Application Deadline	February 12, 2021 by 5:00 PM PST
Project Start Dates (acceptable range)	July 1, 2021 – June 30, 2022
Project End Date (no later than)	February 1, 2024

Schedule subject to change, and updates will be advertised through email announcements, website postings, and news releases (<https://deltacouncil.ca.gov/news-releases>). Please sign up for email updates from the Council at <https://confirmsubscription.com/h/r/53673BE3C86FE7AF>

and from California Sea Grant at <https://caseagrants.ucsd.edu/sign-up-for-announcements>.

3 Submittal Requirements

3.1 Letter of Intent

Letters of Intent are required to be submitted by the deadline in Section 2 (Schedule) using eSeaGrant: <http://eseagrants2.ucsd.edu/>.

Interested applicants must submit a Letter of Intent in order to submit a proposal. For additional information regarding the Letter of Intent see Section 3.17 (Letter of Intent Requirements).

3.2 Proposal

Proposals are required to be submitted by the deadline in Section 2 (Schedule) using eSeaGrant: <http://eseagrants2.ucsd.edu/>.

Applicants will receive access by email to the eSeaGrant portal for full proposals shortly after the Letter of Intent submission deadline. Applicants will submit all application materials through eSeaGrant portal. Only applicants who have submitted a Letter of Intent may submit a proposal.

3.3 Application Informational Workshops

Two optional informational workshops will be held in coordination with the Council and California Sea Grant to provide technical assistance with the application. The workshops will be conducted as virtual webinars. Please see the Council's events calendar web page for workshop details: <https://deltacouncil.ca.gov/events>. Workshops may be recorded and made available online. Questions and answers regarding this Solicitation will be posted on the DSP Funding & Fellowships web page (<https://deltacouncil.ca.gov/delta-science-program/research-funding-and-fellowships>) in a Frequently Asked Questions document on the website.

4 Eligibility Requirements

4.1 Eligible Entities

Eligible entities for Council Agreements are public and private entities eligible and in good

standing to do business in California, including:

- A California State agency, state college, or state university;
- A State agency, state college, or state university from another state;
- A local governmental entity, including those created as a Joint Powers Authority and local government entities from other states;
- An auxiliary organization of the CSU or of a California community college;
- The Federal government including National Laboratories;
- A foundation organized to support the Board of Governors of the California Community Colleges;
- An auxiliary organization of the Student Aid Commission established under Education Code;
- A corporation (both domestic and foreign), limited partnership, or limited liability company;
- A private independent individual, including sole proprietors;
- A domestic or foreign private college, university, or educational or research entity.

Generally, businesses (including individuals/sole proprietors) that conduct business in California are required to file appropriate taxes, register as an employer, and obtain business licenses, certificates, and other permits from appropriate cities or counties. Depending on the applicant's business type there may be additional permits, licenses, or certifications that the business needs to acquire. If selected for an award, and prior to entering into an Agreement with the Council, an applicant will be required to submit proof that the applicant has completed applicable requirements for the applicant's business to be in good standing to be eligible to do business in California.

All corporations (both domestic and foreign), limited partnership, or limited liability companies must be registered in good standing and an "active" status with the California Secretary of State. The Council determines whether a corporation is in good standing by accessing the Office of the Secretary of State's web site at www.sos.ca.gov.

Additional information regarding requirements to be eligible to do business in California may be found at the Business Registration Section of the California Business Navigator at <https://businessportal.ca.gov/registration-permits/register-a-business/>.

For proposals involving multiple entities, a single entity must be identified as the primary lead entity (i.e., account for more than 50% of the budget), and a single proposal describing the entire project must be submitted by that entity. The total subcontract¹ budget should not exceed \$50,000 or 25% of the total Agreement, whichever is less. If the subcontract budget does exceed these amounts...

1. one or more of the organizations identified in the Proposal may enter into a stand-alone Agreement directly with the Council; or
2. the Applicant must provide justification for why subcontracting is necessary to the extent proposed and why the subcontracts should not be stand-alone Agreements.

Eligible activities in a scientific study may include, but are not limited to...

- Data collection, analysis, synthesis, management, and delivery;
- Development of resource management tools and technologies;
- Development of conceptual or quantitative models;
- Stakeholder involvement and engagement (this is required for all projects);
- Production of peer-reviewed journal articles, conference presentations, and communications for the scientific/management community;
- Science communication for broader audiences or community outreach;
- Management/coordination of a multidisciplinary team and project management;
- Document/report preparation, including compliance with the Americans with Disabilities Act (ADA) and California's document accessibility standards (<https://webstandards.ca.gov/accessibility/>).

¹ Any subcontractor identified in the Proposal must be solicited by a competitive bid process unless the subcontractor is an exempt government entity/auxiliary. Any subcontractor whose identity is known at the time of Proposal submission must be identified in the Proposal. If a subcontractor is unknown at the time of Proposal submission, they may be added to the Agreement budget as TBD (to be determined), but an amendment is required before any subcontractor can begin work. Any private independent individuals acting as subcontractors, including sole proprietors, are required to provide a valid, active business tax certificate and/or active business license.

4.2 Qualifications

Applicants must demonstrate that the project team has the experience, facilities/equipment, and the capacity to successfully perform the proposed tasks by describing prior projects completed by the applicant, prior publications or examples of productivity, and other qualifications. The project team includes all key personnel and other entities (including subcontractors) who will be performing the work described in the Proposal. Proposal narratives should discuss the project team's experience with collaborative efforts, management engagement, and broader outreach history. Project teams partnered with collaborative workgroups or science initiatives (e.g., Interagency Ecological Program [IEP], Collaborative Adaptive Management Team [CAMT], Delta Regional Monitoring Program [Delta RMP]) are encouraged to apply.

4.3 Ineligible Projects

Funds shall not be expended to pay the costs of the design, construction, operation, mitigation, or maintenance of covered actions in the Delta (for more information:

<https://coveredactions.deltacouncil.ca.gov/?page=1>).

4.4 Small Business/Disabled Veteran Business Enterprise Opportunities

The Council must offer opportunities to California certified Small Business (SB), Microbusiness (MB), and Disabled Veteran Business Enterprise (DVBE) whenever possible. SB/DVBE preference incentives have not been established for this solicitation, however Applicants are encouraged to achieve SB or DVBE participation with 3% DVBE and 25% small business/ microbusiness commercially useful function opportunities as prime or with subcontractors. A business must be formally certified by DGS/OSDS to be considered a SB or DVBE. For more information see:

<https://www.dgs.ca.gov/PD/Services/Page-Content/Procurement-Division-Services-List-Folder/Certify-or-Re-apply-as-Small-Business-Disabled-Veteran-Business-Enterprise>.

The Applicant agrees to provide verification, in a form agreed to by the Council of the SB or DVBE percentage participation under the Agreement. Upon completion of an Agreement for which a commitment to achieve SB or DVBE participation is made, the Applicant shall report to the Council the actual percentage of SB and DVBE participation that was achieved.

The Council's SB/DVBE Advocate is listed below and is available to answer questions regarding

the SB/DVBE Program.

SB/DVBE Advocate: Jessica O'Connor
(916) 275-0971
Jessica.OConnor@deltacouncil.ca.gov

5 Award Information and Proposal Categories

Only one award will be made to a lead principal investigator (PI). PIs may be listed as co-PIs on other awarded projects if the total combined effort is less than or equal to 100%.

For event dates and deadlines see Section 2 (Schedule).

Availability of funding is estimated below but dependent upon State and Federal budget appropriations for the specified fiscal year and is subject to change. The anticipated total amount is up to \$9,000,000:

- Council - up to \$5,500,000
- USBR - up to \$3,500,000

Proposal categories: each proposal **must** contribute toward one or more action area identified in the 2017-2021 SAA (see Section 6.1 of this Solicitation).

- **Research Awards:** Maximum award of \$700,000 per proposal; project duration of 12-31 months.
- **Integrated Socio-Ecological Systems Awards:** Maximum award of \$1,500,000 per proposal; project duration of 12-31 months; must be a collaborative and multidisciplinary project that meaningfully integrates one or more of the social sciences with one or more of the biophysical sciences.

Smaller budget (i.e. much lower than the maximum award of \$700,000) Research projects are encouraged and will be evaluated by independent scientific experts with the appropriate specialized knowledge. Proposals for Research projects may include social science and/or biophysical disciplines. Integrated Socio-Ecological Systems and Research projects will be evaluated separately. All proposals must be directly related to Section 6, Solicitation Focus.

5.1 State-Funded Contract Agreement

5.1.1 Budget Contingency Clause

(1) If the Budget Act of the current year and/or any subsequent years covered under the ensuing Agreement does not appropriate sufficient funds for the program, the Agreement shall be of no further force and effect. In this event, the Council will have no liability to pay any funds whatsoever to the Contractor or to furnish any other considerations under the Agreement and Contractor shall not be obligated to perform any provisions of the Agreement.

(2) If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the Council will have the option to either: cancel the Agreement with no liability occurring to the Council, or offer an Agreement amendment to Contractor to reflect the reduced amount. Contractor shall be reimbursed for any completed work or work in progress at the time of termination of an executed Agreement if approved by the Council.

5.2 Federally Funded Contract Agreement

(1) It is mutually understood between the parties that an Agreement may have been written for the mutual benefit of both parties before ascertaining the availability of congressional appropriation of funds to avoid program and fiscal delays that would occur if the Agreement were executed after that determination was made.

(2) The ensuing Agreement is valid and enforceable only if sufficient funds are made available to the Council by the Federal government for the specified fiscal year and for the purpose of this program. In addition, the Agreement is subject to any additional restrictions, limitations, or conditions enacted by the Congress or to any statute enacted by the Congress that may affect the provisions, terms, or funding of the Agreement in any manner.

(3) If the Congress does not appropriate sufficient funds for the program, the Agreement shall be amended to reflect any reduction in funds.

(4) The Council has the option to invalidate an Agreement under the 30-day cancellation clause or to amend an Agreement to reflect any reduction in funds.

6 Solicitation Focus

The focus of this Solicitation is scientific projects in the Delta² that further the vision of **One Delta, One Science** (<https://deltacouncil.ca.gov/delta-science-program/one-delta-one-science>) – an open Delta science community that works collaboratively to build a shared body of scientific knowledge with the capacity to adapt, and with the intention to inform natural resource management decisions. This Solicitation prioritizes the funding of projects that will advance the objectives of the SAA, the Delta Science Plan, the Delta Plan, and the Sacramento River Science Partnership. USBR is a participant in the Sacramento River Science Partnership, which seeks to support collaborative and structured decision-making between agencies and stakeholders with the intent of reducing scientific uncertainty in the upper Sacramento River through specific scientific studies.

Proposals must address one or more of the SAA action areas described in Section 6.1. There are two categories of project types:

1) **Research:** Research project teams may consist of social science and/or biophysical disciplines. Research projects may have fewer study sites or personnel, may study systems with fewer key processes, may not necessarily (but could be) interdisciplinary, or may require less effort. USBR will provide funding to the Council to manage several near-term Research projects consistent with the SAA and Sacramento River Science Partnership. Small budget projects that leverage other funding sources or have low resource requirements are encouraged to apply in this category.

2) **Integrated Socio-Ecological Systems:** Integrated Socio-Ecological Systems Projects are larger in scope, may involve a larger number of co-investigators, and should meaningfully integrate at least one social science discipline (e.g., social psychology, anthropology, economics) with at least one biophysical science discipline (e.g., biology, hydrology, ecology) to address cross-

² Projects under this Program are not required to be physically located within the Delta; however, project activities must provide a demonstrable benefit(s) to the Delta. The ‘Delta’ means the Sacramento-San Joaquin Delta as defined in Water Code Section 12220 and the Suisun Marsh as defined in Public Resources Code Section 29101 (Water Code Section 79702[e]).

disciplinary research needs identified in the SAA. For collaborative projects, a single proposal should be submitted, with multiple PIs and all key personnel identified in the proposal.

All proposals should present novel, clear, and non-trivial hypotheses (and/or pose cogent research questions) that can be tested using a scientifically-sound research design that employs established or innovative methods, or a clear integration of several methods. Projects likely to improve capabilities for predicting the responses of socio-ecological systems to endogenous and exogenous changes, including appropriate estimates of uncertainty in model predictions, are encouraged. Proposals are strongly encouraged to openly share methods (e.g., script-based analyses in R), data, and journal publications, as demonstrated in a Data Management Plan (see 8.1.6 Data Management/Sharing Plan).

Proposals that include substantial roles for undergraduate, graduate, and postdoctoral fellows are encouraged. Proposals are also strongly encouraged to demonstrate mentoring opportunities for underrepresented undergraduate, graduate, and postdoctoral researchers, as part of the project's broader impacts.

6.1 Priority Action Areas

Applicants **must** address one or more of the following Science Action Areas by implementing an Example Priority Science Action (right-hand column) or responding in a meaningful way to a Priority Management Need (left-hand column). Sacramento River Science Partnership topics are identified by an asterisk (*). Please note: each of the Priority Action Areas are of equal priority and are not in order of importance.

Table 2. Action Area 1: Assess the human dimensions of natural resource management decisions

Priority Management Needs	Example Priority Science Actions
Consider human behaviors and stakeholder concerns when developing policy alternatives and potential incentives for improving species habitat conditions.	Investigate economic, recreational, or aesthetic benefits of habitat enhancements on public or private lands.
Obtain data that can quantify the effects of climate change and extreme events on agriculture and economy to inform adaptation strategies (e.g., potential for flood risk; how will increasing temperatures affect regional crop mixes, water pricing, and employment?)	Implement studies to understand socio-economic adaptations to climate change (e.g., human behavioral response in the agricultural sector to changes in water prices).
Evaluate success of restored areas on a landscape scale.	Assess long-term costs and benefits of managed wetlands.
Understand human responses to policy and management actions regarding common pool resources in the Delta.	Integrate natural sciences with the social sciences for research on the Delta as an evolving place.
Determine how to coordinate and assist adaptive management in the Delta.	Develop tools to assist adaptive management in the Delta.

Table 3. Action Area 2: Capitalize on existing data through increasing science synthesis

Priority Management Needs	Example Priority Science Actions
Obtain population abundance estimates and trends for Green and White Sturgeon.	Develop improved sturgeon abundance estimates through modeling and synthesizing data from cohort abundance studies, surveys, and report cards.
Enhance knowledge of predator-prey relationships and how changes in flow, climate, and habitat may affect these relationships.	Analyze existing telemetry results to understand system-wide fish movement and predation.
Improve data and information exchange.	Identify, prioritize, and integrate key data sources that promote collaboration among disciplines, and provide the technology necessary to easily access this information.

Table 4. Action Area 3: Develop tools and methods to support and evaluate habitat restoration

Priority Management Needs	Example Priority Science Actions
Understand how species use restored areas.	Review efforts to examine effectiveness and evaluate the long-term benefits of habitat restoration.
Effectively plan restoration, enhancement, and mitigation projects to meet project and/or system-wide goals and objectives.	Estimate effects of tidal marsh restoration under climate change and sea-level rise scenarios.
Evaluate performance of restored areas on a landscape scale.	Develop methods for evaluating long-term benefits of habitat restoration based on current understanding of how species use restored areas and how use changes over time as habitats evolve.
Evaluate success of restored areas on water quality on a landscape scale.	Develop a database of baseline habitat conditions at the landscape scale (e.g., native species, water quality, predators, hydrologic conditions, and socio-economic values).

Table 5. Action Area 4: Improve understanding of interactions between stressors, managed species, and their communities

Priority Management Needs	Example Priority Science Actions
Develop conceptual and numeric models to enhance current understanding and inform nutrient management questions.	Implement studies to better understand the ecosystem response before, during, and after major changes in the amount and type of effluent from large point sources in the Delta including water treatment facilities.
Quantify the effects of climate change on species, Delta ecology, and potential impacts on water and natural resource management.	Identify climate change refugia for species of concern during extreme conditions (e.g., drought and flood), to inform management decisions and priorities during extreme climate events.
Determine how water operations and restoration actions will affect native fishes to adaptively guide management decisions and restoration design.	Understand mechanisms for observed relationships between flows and aquatic species.
Identify and forecast which water quality contaminant sources and processes are most important to understand and quantify.	Evaluate the effects of contaminant mixtures, mercury, pharmaceutical products, and harmful algal blooms and disease on aquatic species health and survival.
Predict how environmental stressors will affect the health condition of salmonids in the Bay-Delta, migratory corridors and natal tributaries.	Better understand salmonid temperature tolerances in streams and rivers. *Improve our understanding regarding sources of mortality of early life stages of salmon.

Improve ability to prevent, conduct early detection, rapid response, eradication, and control of non-native and potential invasive species.	Identify effective mechanical and biological control strategies for established non-native clams and potential invasive mussels, including developing effective prevention measures for potential invaders.
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*Sacramento River Science Partnership topic

Table 6. Action Area 5: Modernize monitoring, data management, and modeling

Priority Management Needs	Example Priority Science Actions
<p>Utilize models of the Delta and visualization tools that are widely accessible and sustained by multiple sources to predict and assess the likely outcomes of management actions and environmental change (preferably in real-time).</p>	<p>Advance integrated modeling through efforts such as an open data collaboratory (physical or virtual) that promotes the use of models in guiding policy.</p>
<p>Increase capacity to be nimble, prepared, and responsive to new demands, including emerging and opportunistic science needs.</p>	<p>Explore innovative technologies and cost-effective methods for scientific monitoring and analysis of flow, water quality, and ecosystem characteristics (e.g., improved tools for fish monitoring, LiDAR, high-resolution bathymetry technology, new measurements for Delta levee hazards, and citizen scientist monitoring programs).</p>
<p>Determine how water project operations affect salmon population dynamics and survival within the Delta’s complex channel network to guide water operations timing, provide early warning, and accelerate recovery efforts and habitat restoration design.</p>	<p>Build on existing models to integrate fish and water quality monitoring data to report, simulate, and forecast distribution of salmon runs in time and space (e.g., coupling 3-D hydrodynamic modeling of the Delta with juvenile salmon behavior and survival).</p> <p>*Further develop decision support tools for species recovery including physical and biological modeling and exploring integration with management questions including understanding effects between species.</p>

<p>Identify anadromous fish habitat usage and attributes to guide resource allocations for their protection, conservation, and recovery.</p>	<p>Conduct baseline surveys throughout spawning habitat, map egg collection and larval rearing habitat, and quantify availability using various characteristics identified through egg sampling (water temperature, depth, velocity, substrate, etc.).</p> <p>*Assess the quantity, condition, and habitat needs of emerging juvenile fry and smolts, exploring the management relevance of these findings.</p> <p>*Understand the fishery needs within the Sacramento mainstem with a focus on salmonids and concern for other species of interest as well.</p>
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*Sacramento River Science Partnership topic

7 Letter of Intent Requirements

Only applicants who have submitted a Letter of Intent may submit a proposal.

Applicants may submit more than one Letter of Intent.

For the application deadline see Section 2 (Schedule); for instructions on the proposal submittal process see Section 3.2.

Letters of Intent are nonbinding documents that will allow DSP and California Sea Grant to plan for the number and topical expertise of independent reviewers and panelists.

The page limit for the Letters of Intent is two (2) pages, including header, footer, labeling, and address information. Information in excess of two pages will not be considered.

In the Letter of Intent, please provide the following information:

- Name of lead PI, affiliation, and contact information
 - *Note:* Applicants may submit more than one Letter of Intent and proposal, but a maximum of one award will be made to an individual lead PI. However, lead PIs may be listed as co-PIs on other awarded projects if the total combined effort is less than or equal to 100%.
- List of possible Co-PIs (if applicable) with affiliation(s)
- Title of project
- Brief discussion of the focal topic and approach
- Indication of award type (Standard Research Award or Integrated Socio-Ecological Systems Award) and which SAA action area(s) will be addressed
- Approximate total budget and budget by each State fiscal year (July 1 – June 30) of the project

8 Proposal Requirements

Applicants may submit more than one proposal. For award information see Section 5 (Award Information and Proposal Categories).

See deadline in Section 2 (Schedule) and how to submit in Section 3 (Submittal Requirements).

8.1 Contents of a Complete Proposal

Listed below are the requirements for a complete application package. **Only applicants who have submitted a Letter of Intent may submit a proposal.** For lead PIs affiliated with academic institutions, final proposals must be submitted by the institution's sponsored research office.

8.1.1 Title Page

A signed title page must be included with the proposal. Please provide all requested information and obtain the required signatures. The completed and signed title page must be converted to a PDF and uploaded to eSeaGrant.

8.1.2 Project Summary

The project summary should be submitted through eSeaGrant. Applicants should include separate sections for Objectives, Methodology, and Rationale. The Project Summary should present a concise description of the proposed research in a form useful to a variety of readers and should not require specialized expertise. Instructions in eSeaGrant will guide applicants through the completion of the form. Please follow them carefully – the Project Summary is the most widely-consulted description of the project.

8.1.3 Project Narrative

The project narrative **must not** exceed 12 pages, Arial font size 12, single spacing, and standard margins (including introduction, objectives, approach, illustrations, charts, tables, and figures). Proposals exceeding this size limit will not be reviewed.

The Project Narrative format and contents may vary; however, proposals must include the following information:

8.1.3.1 Introduction and Background

Provide the rationale for the project (i.e., a well-defined problem or important opportunity). Show a clear relationship between the problem statement and the project objectives. Relevance to the Solicitation Focus, importance, merit, and broader impacts for the proposed research are the criteria by which proposals are evaluated. Thus, a clear, concise statement of the “real world” need for the applicant’s research (rationale) and a description of who might use the results and how they might use them (utilization) should be addressed.

8.1.3.2 Objectives and Expected Outcomes

In number or “bullet” format, list the objectives or goals of the research. Project outcomes should be clearly related to the project objectives and should be briefly described.

8.1.3.3 Work Plan

Present the scientific/technical approach, experiments, procedures, and methods. Identify and discuss any new approaches (innovativeness) to solving problems and exploiting opportunities in resource management or development, including public outreach. If strong community engagement is planned, describe who will be engaged and describe the anticipated methods and approach. Include relevant letter(s) of support from community group(s). Please make clear what other sources of support (fiscal, personnel, equipment, or logistical), if any, will be used to help support the work proposed.

8.1.3.4 Deliverables

Required deliverables:

- Presentation(s) at relevant science conferences (e.g., Bay Delta Science Conference),
- Quarterly progress reports and invoices,
- Annual progress report,
- Final progress report, including lay-person or visual abstracts,
- Revised Data Management Plan (within 1 year of start date),
- A project-specific stakeholder engagement plan, (see Section 8.1.5 Broader Impacts),
- Addition of project information to the Delta Science Tracker (if applicable),
- Participation in a theme-based, grouped stakeholder engagement workshop focused on

the science-policy interface, to be hosted by the DSP and/or California Sea Grant,

- Participation in the development of communication products developed with the DSP and/or California Sea Grant to communicate outcomes of the project, and
- Any draft manuscripts expected from the project.

Any deliverables or products intended for posting on the Council website must meet ADA requirements (<https://webstandards.ca.gov/accessibility/>). We strongly recommend that publications be open access and relevant methods and data be published online.

8.1.3.5 References

List all included references alphabetically. The list of references **does not** count toward the 12-page limit of the narrative but must be included in the narrative PDF file.

8.1.4 Science Action Agenda Relevance

Describe how the proposed work will address one or more of the SAA Action Areas (and specify the specific management need[s] and/or science action[s]), how the project would address key scientific uncertainties and fill important information gaps, and how the information produced from the project could contribute to more effective and equitable management of the Delta. This section and subsequent sections **do not** count toward the 12-page limit of the narrative and should be provided in separate PDF files unless otherwise specified.

8.1.5 Broader Impacts

This section should describe how the project will achieve other broader impacts (i.e., stakeholder and Community Based Organization engagement, community relationship-building, mentorship opportunities for undergraduate, graduate, and postdoctoral researchers, science communication, community/citizen science, and coordination/collaboration efforts). Applicants should describe their plans for stakeholder engagement. At a minimum, plans must contain details about the frequency and method of stakeholder engagement, communication goals, audience(s), and the vehicle/media used. Applicants are encouraged to engage with local communities (e.g. through CBOs) and to develop questions and methods in partnership with stakeholders (e.g. work with management-relevant collaborative groups).

Broader impacts may be accomplished through the research itself, through the activities that

are directly related to specific research projects, or through activities that are complementary to the project. Societally-relevant outcomes that the DSP values include, but are not limited to the following: curriculum enhancement and educator training at any level; increased public scientific literacy and public engagement with science; enhanced equitability of public access to information and resources; increased partnerships between academia, industry, and others; and enhanced infrastructure for research and education. The proposal evaluation for broader impacts will include the applicant's Vulnerable Communities assessment (below, Section 8.1.5.1).

8.1.5.1 Vulnerable Communities

Applicants are required to evaluate and describe whether and how the project will benefit a community that is vulnerable in the context of climate change by demonstrating community need or the potential utility of the project's results. For example, research may investigate or evaluate potential management actions to address one or more of the factors that contributes to higher social vulnerability to climate change impacts in a specific community. Applicants are directed to use the Delta Adapts Map Tool (https://deltacouncil.shinyapps.io/sovi_map/), which shows the location of vulnerable communities in the Delta, to demonstrate how their project will affect specific vulnerable communities.

Executive Order B-30-15 requires that, "State agencies' planning and investments shall...protect the state's most vulnerable populations." Vulnerable communities, in the context of climate change are here defined as those which "experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality," (California's Office of Planning and Research: Integrated Climate Adaptation and Resiliency Program).

8.1.6 Data Management/Sharing Plan

A data management plan (DMP) is a written document that describes the data that applicants expect to acquire or generate during the course of a research project, how applicants will manage, describe, analyze, and store those data, and what mechanisms will be used at the end

of the project to share and preserve the data. Data management should be consistent with the recommendations of the Environmental Data Summit white paper (<http://deltacouncil.ca.gov/enhancing-the-vision-for-managing-californias-environmental-information>), complementary to the Open and Transparent Water Data Act (AB 1755) (https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1755), and in compliance with the following principles:

- Data are interoperable (machine readable).
- Standard data and metadata formats are used for similar data types.
- Quality Assurance/Quality Control (QA/QC) procedures are documented and followed.
- Open and transparent data and metadata are accessible to the public in a reasonable time frame.

Data must be documented, accessible, and understandable to general users, except where limited by law, regulation, and policy or security requirements. All data generated through awarded projects are required to meet QA/QC procedures documented in the Data Management Plan (DMP) described below. All data generated through awarded projects are required to be made publicly accessible no later than two years after the end date of the project.

Applicants must demonstrate that project data will be collected using peer-approved methods, will undergo a quality control and accuracy assessment process, will include metadata that meet the California Department of Fish and Wildlife's Minimum Data Standards (<https://www.wildlife.ca.gov/Data/BIOS/Metadata>), and will be properly stored and protected until the project has been completed and data have been delivered. Data delivery can include publishing data to relevant open data portals, including but not limited to...

- Surface water data reported to California Environmental Data Exchange Network (CEDEN) (<http://www.ceden.org/>),
- Environmental Data Initiative (EDI) (<https://environmentaldatainitiative.org/>),
- California Natural Resources Agency Open Data Platform (<https://data.cnra.ca.gov/>),
- California Open Data Portal (<https://data.ca.gov/>),
- Groundwater data reported to GeoTracker GAMA (https://www.waterboards.ca.gov/water_issues/programs/gama/geotracker_gama.shtml),

- Species observation data of tracked species (<https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>) reported to the California Natural Diversity Database (CNDDDB) (<http://wildlife.ca.gov/Data/CNDDDB>) using the online field survey form (<https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>) or other digital method, and
- Fish passage assessment data reported to the California Fish Passage Assessment Database (PAD) (<https://nrm.dfg.ca.gov/PAD/>).

Proposals must include a Data Management Plan (DMP). The DMPs are short (2-3 page) documents that capture essential information from researchers about their datasets, including:

- Description of the data to be acquired or generated during the project;
- Quality control/quality assurance procedures;
- The process to manage, describe, analyze, store, curate, and publish datasets;
- The process for efficient and effective data flow;
- The process to address data sharing;
- How the DMP is aligned with applicant's established data management approach (if applicable);
- The mechanisms to share and ensure long-term archival of the dataset;
- Proposed data publishing organizations;

Proposals are strongly encouraged to share methods (e.g., script-based analyses in R), data, and journal publications using open-access services.

For more information about DMPs, see the California Water Quality Monitoring Council's DMP Fact Sheet (http://www.mywaterquality.ca.gov/monitoring_council/meetings/2016dec/data_management_plans.pdf). DMPs are meant to be living documents. Therefore, successful applicants must revise the DMP as requested prior to project initiation. If awarded, the DMP will be part of the Agreement file and may be made available to the public on the Council's website. In addition, successful applicants must provide a revised DMP within 12 months, if the course of research changes, and/or before the end of the Agreement (shall be in Agreement deliverables). If funding is required for data curation and archiving, please make sure that funds are budgeted in the project proposal for data management.

8.1.7 Environmental Compliance Questionnaire and IRB Certification

Projects must comply with all applicable State, tribal, and Federal environmental laws and regulations, including the Delta Reform Act (Water Code Section 85000 et seq.). Applicants are responsible for obtaining all permits necessary to complete project work. Scientific studies that involve the collection of fish, wildlife, or endangered or rare plants must have a valid Scientific Collecting Permit or plant Voucher Collection Permit.

For any research involving human research subjects, the applicant must ensure that subjects are protected from research risks in conformance with the relevant Federal policy known as the Common Rule (Federal Policy for the Protection of Human Subjects, 45 CFR 690). All projects involving human subjects must provide documentation that they (1) have approval from an Institutional Review Board (IRB) before issuance of an Agreement or (2) affirm that the IRB has declared the research exempt from IRB review. Proposals will be reviewed without IRB certification; however, any research recommended for funding must document IRB certification prior to the finalization of any Agreement for research. IRB review should be initiated as soon as possible to avoid delays in contracting.

An Abbreviated Environmental Questionnaire

(https://seagrant.noaa.gov/Portals/1/Forms/NSGO%20Abbreviated%20Environmental%20Compliance%20Questionnaire_updated_11_18.docx) is required with each application. Only one questionnaire is to be submitted per project/proposal, even if there are to be sub-awards/awards issued to multiple institutions. For questions not applicable to the proposed research, please note N/A on the form. Leave blank the question about Grant/Project Number.

8.1.8 Budget and Budget Justification

Budget worksheets will need to be created and uploaded in Excel to eSeaGrant. Be prepared to enter any salaries, wages, indirect costs, and fringe benefits for all personnel associated with the project. Also, if applicable, indicate expected costs for expendable supplies, equipment, publishing costs, and travel.

All budget sections will require justification. Review the contract and budget templates to see what is expected as justification for each section.

Applicants should budget for all costs associated with project delivery, including presentations

to the Council, travel, publishing costs, permit fees, subcontractor costs, project reporting, document accessibility costs (<https://webstandards.ca.gov/accessibility/>), science communication, and coordination. Applicants should also budget for project “co-production” costs associated with stakeholder meetings, engagement, and broader outreach. (see <https://mavensnotebook.com/portfolio/panel-4-legitimacy-co-production-and-communication/>).

8.1.8.1 Indirect Costs

Indirect costs (i.e., administrative overhead) are costs related to the additional personnel or operating expenses which are not directly allocated or assigned to those personnel identified under direct costs. Indirect costs are incurred for common or joint objective and, therefore, cannot be identified readily and specifically with a particular project or program such as building use, facilities operation and maintenance costs, equipment use and depreciation and general administrative expenses are examples of costs that are usually treated as indirect costs.

Cost allocation is the assignment of indirect costs to one or more programs according to a formula. Indirect costs are assigned to the programs they benefit according to the methodology that represents a reasonable and equitable distribution.

Applicants proposing to include indirect costs must provide documented substantiation to support an approved cost allocation plan or approved cognizant agency’s federally negotiated rate. These ‘reasonable indirect costs’ must be fully documented, justified, and provided to the Council.

8.1.8.2 Ineligible Costs

The following are ineligible costs for reimbursement by the Council:

- Costs incurred outside of the agreement term
- Costs related to the preparation of the proposal
- Student tuition and fees (allowable for UC/CSUs only)
- Intern stipends (allowable for UC/CSUs only)
- Land acquisition
- Tools of the Trade: Applicants must be customarily engaged in an independently established trade, occupation, or business of the same nature as that involved in the

work performed, and be able to complete the work as proposed using their own instrumentalities, materials, tools, vehicles, facilities, equipment, and supplies. Specialized materials, equipment, or supplies that are requested exclusively for the project will be evaluated on a case-by-case basis. Applicants must provide a justification for any request for specialized materials, equipment, or supplies and explain why the Applicant does not have or need such materials, equipment, or supplies to operate as an independently established, trade, occupation, or business of the same nature as that involved in the work performed. The Council does not guarantee or represent that any such request will be approved. Title to any equipment purchased or built with State funds will vest with the Council. Any equipment provided by the Council is subject to the State of California laws, rules, regulations, and policies related to state funded equipment. In addition, any equipment funded by federal funds is also subject to any federal laws, rules, regulations, or policies related to federally funded equipment.

- Out-of-state travel without prior written authorization from the Council
- Insurance, including liability insurance
- Relocation expenses
- Costs of the design, construction, operation, mitigation, or maintenance of covered actions.
- Printing production expenses

Ineligible costs for reimbursement may be identified as cost share if funds will be spent during the Agreement term. The Council may remove ineligible costs for reimbursement from the budget of a project selected for funding.

8.1.9 Resumes

A complete resume (**maximum of 2 pages for each person**) of all key personnel must be included in the submission. Resumes should include the key personnel's educational and employment history, a list of relevant publications and other outcomes (e.g., online or media resources, data releases, software), and participation in synergistic activities.

8.1.10 Current and Pending Support

Using the section online in eSeaGrant, please list other current and pending projects associated with all key personnel. Applicants may also upload the form provided.

8.1.11 Support Letters (optional)

Support letters are optional but are encouraged for proposals for which community engagement is an integral part of project methods (see Section 8.1.3.3 Work Plan). However, if they are to be included in the application, please consolidate all letters into one PDF for uploading to eSeaGrant.

8.1.12 Proposed Reviewers

Please provide the information of at least five potential reviewers and any names of people that you would not want to have your proposal reviewed by and why.

- **Proposers may include a list of suggested reviewers who they believe are especially well qualified to review the proposal. Proposers also may designate persons they would prefer not review the proposal, indicating why. These suggestions are optional.*

9 Proposal Review Procedure

9.1 Administrative Review

Administrative review determines if the Proposal is complete (Table 7). Proposals that receive a “No” for one or more of the Administrative Review Evaluation Criteria will be considered incomplete and may not be considered eligible under this Solicitation.

Table 7. Administrative Review Evaluation Criteria

CRITERIA	SCORE
Application is complete	Yes/No
Applicant is an eligible entity	Yes/No
Proposed project is applicable to Solicitation Priorities	Yes/No
Proposed project is not required mitigation	Yes/No

9.2 Technical Review

All proposals that advance past administrative review will go through independent scientific review by at least three external technical experts. Individuals selected to serve as technical reviewers will be professionals in fields relevant to the proposed project and evaluated for any potential conflict of interest. Technical reviewers will evaluate each proposal in accordance with the standard Technical Review Criteria (Table 8) and may submit narrative comments that support their scores.

Table 8. Technical Review Criteria

	CRITERIA	MAXIMUM SCORE
1	IMPORTANCE/RELEVANCE	25
2	SCIENTIFIC MERIT	20
3	APPROACH AND FEASIBILITY	15
4	SCHEDULE AND DELIVERABLES	5
5	TEAM QUALIFICATIONS	10
6	BROADER IMPACTS (INCLUDING VULNERABLE COMMUNITIES)	10
7	DATA MANAGEMENT PLAN	5
8	BUDGET	10
	TOTAL POSSIBLE POINTS	100

9.3 Review Panel

Following completion of the technical review, the DSP will convene a Selection Panel facilitated by California Sea Grant. The Delta Lead Scientist (or their designee) will serve as the non-voting chairperson of the Review Panel with primary responsibility of insuring that the discussion is balanced, fair, and comprehensive. Representatives from other agencies and entities may be invited to participate on the Review Panel. The Review Panel will prepare recommendations to the DSP's Lead Scientist of qualified projects to be considered for a potential Agreement to be negotiated with the Council. The Review Panel's recommendations will be based on:

- Scientific merit,
- The degree to which results can potentially inform management actions,
- The degree to which the proposal is responsive to the Solicitation Focus,
- The degree to which the applicant is engaged with collaborative science initiatives that involve multiple agencies and organizations (e.g. IEP, CAMT),
- The merit and relevance of broader impacts are demonstrated, including but not limited to:
 - Creating education and training opportunities for underserved communities,
 - Contributions to the infrastructure for deep integration of social science with natural (biophysical) sciences (if applicable),
 - Support from community leaders for research that investigates or evaluates management actions to address social vulnerability in a specific community (*see* Section 8.1.5.1, Vulnerable Communities),
 - The potential use of research for societal benefit,
 - Dissemination of the results beyond the scientific community, and
 - Engagement with local communities in the Delta and inclusion of citizen science or community science.
- The degree to which social and biophysical scientific disciplines are meaningfully integrated (Integrated Socio-Ecological Systems Awards),
- The approach and feasibility of the work and of the broader impacts, and
- The appropriateness of the budget.

9.4 Funding Decisions

The Delta Lead Scientist will consider the Review Panel recommendations, and in coordination with funding partners (i.e. USBR), will make final contract Agreement recommendations to the Council. The selection or approval by the Council of a project for funding based on a Proposal does not guarantee an ensuing Agreement. The Council reserves the right to negotiate, at its discretion, the details of any project selected for funding based on a Proposal prior to entering into an Agreement for the proposed project, as well as the terms of the Agreement, based on the goals and objectives of the Solicitation as determined by the Council. For proposals recommended for funding, intent to award letters will be distributed to the primary applicant and will include contract Agreement negotiation requirements including the funding source, proposal review feedback, and requested changes to the Proposal and/or budget (if any). Intent to award letters do not guarantee a contract Agreement or funding; successful applicants must

provide any revisions and additional documentation as requested by the Council in a timely manner (see Schedule Section 2).

Funding prioritization decisions will be made with consideration of the following:

- Technical Reviews and Review Panel recommendations,
- Availability of funds,
- A balance of funding priorities,
- Coordination with partner agencies,
- Scientific merit,
- The degree to which results can potentially inform management actions, and
- The merit and relevance of broader impacts as described.

10 General Terms and Conditions

10.1 Council Contract Agreement Requirements

Recipients of Council Agreements must be able to comply with the Council's contract Agreement terms and conditions based on their entity type. In accordance with Assembly Bill 20 (AB20), UC and CSU's must agree to University Terms & Conditions (Exhibit C_UTC-220). All other entities must agree to the Council's Agreement provisions including terms and conditions (Exhibits C, D and E). Funding will be provided by a successfully negotiated contract Agreement with the Council; some Agreements may include funding provided from the U.S. Bureau of Reclamation. If the total budget for subawards exceeds \$50,000, then one or more organizations may be contracted separately. Applicants who receive U.S. Bureau of Reclamation funds must also comply with federal pass-through requirements.

Insurance (as applicable): The Recipient shall furnish to the State either proof of self-insurance or a certificate of insurance stating that there is insurance presently in effect as specified in the Agreement before the Agreement may be executed.

10.2 Council Contract Agreement Documents

Draft development of Agreements will begin following the conditional intent to award notice. The applicant must submit additional forms as required before a contract Agreement is final drafted and executed.

The applicable forms described in this section are for informational purposes only. **Do not submit these forms with the Proposal.** Applicants are required to complete, sign, and return the forms when projects are approved. These additional forms include:

- Payee Data Record form (STD. 204) including Federal Taxpayer ID Number (for non-profit organizations)
- Contractor Certification Clauses CCC 04/2017
- Authorizing Resolution (if applicable)

10.3 Responsibility of the Awarded Entity

The awarded entity will be responsible for carrying out the work agreed to as described in the Agreement and for managing finances, including but not limited to, invoicing, payments to subcontractors for services completed as described in the Agreement, accounting and financial auditing, and other project management duties including reporting requirements as described in the Agreement. All eligible costs must be supported by appropriate documentation.

Services must not start until the Council provides notice of a fully executed Agreement. Awarded Entities shall comply with all applicable federal, state, and local laws, rules, regulations, and/or ordinances.

10.4 Invoicing and Payments

Contract Agreements will be structured to provide for payment reimbursement for services completed satisfactorily in arrears of work performed (i.e., the applicant pays for the services, products or supplies as authorized under the Agreement, submits an invoice that must be approved by the Council project manager, and then reimbursement will be made). Funds cannot be disbursed until there is an executed Agreement between the Council and the applicant.

10.5 Reporting

The awarded entity shall submit quarterly progress reports to the Council project manager for the duration of the Agreement. Annual progress reports, stakeholder meetings, communication products (e.g., website material or interviews), and task-specific reports may also be included as project deliverables (see Section 8.1.3.4 Deliverables).

10.6 Recognition of Funding Source

The applicant must inform the public that the project received funds through the Council, the DSP, and the U.S. Bureau of Reclamation (if applicable). Recognition of funding under this program also extends to publications, websites, and other media-related and public-outreach products.

11 Acronyms

CAMT	Collaborative Adaptive Management Team
CBO	Community Based Organization
CEDEN	California Environmental Data Exchange Network
Council	Delta Stewardship Council
CSU	California State University
Delta RMP	Delta Regional Monitoring Program
DGS	Department of General Services
DMP	Data Management Plan
DSP	Delta Science Program
DVBE	Disabled Veteran Business Enterprise
GAMA	Groundwater Ambient Monitoring and Assessment
IEP	Interagency Ecological Program
IRB	Institutional Review Board
OPR ICARP	Office of Planning and Research: Integrated Climate Adaptation and Resiliency Program
PAD	Passage Assessment Database
PST	Pacific Standard Time
PI	Principal Investigator
SAA	Science Action Agenda

SB	Small Business (California certified)
QA/QC	Quality Assurance and Quality Control
UC	University of California
USBR	United States Bureau of Reclamation

12 Definitions and Links

12.1 Definitions

Cognizant Agency for indirect cost rate

The federal agency with the largest dollar value of direct federal awards with a governmental unit or components, as appropriate.

Collaboration

Sharing information and resources and modifying activities based on a common interest or objective that multiple parties involved jointly define. Collaboration is distinguished from coordination or cooperation, in which the interests or objectives are independently defined or pursued. Parties include scientists (including federal, state, and local agencies), academics, consultants, non-governmental organizations, community-based organizations, and interested public who are actively participating in scientific and management activities in the Delta.

Delta

The Sacramento-San Joaquin Delta as defined in Water Code Section 12220 and the Suisun Marsh as defined in Public Resources Code Section 29101 (Water Code Section 79702[e]).

Federally Recognized Indian Tribe

Indian tribes that are recognized by the United States Department of the Interior, Bureau of Indian Affairs and listed annually in the Federal Register.

Nonprofit Organization

An organization qualified to do business in California and qualified under Section 501(c)(3) of Title 26 of the United States Code (Water Code Section 79702[p]).

Public Agency

A California agency or department [including public universities], special district, joint powers authority, county, city, city and county, or other political subdivision of the state (Water Code Section 79702[s]).

State Indian Tribe

Indian tribes that are listed on the Native American Heritage Commission’s California Tribal Consultation List.

Subcontractor

Any third-party entity other than the project proponent/applicant that performs a portion of the Scope of Work and includes subrecipients, subawardees, independent subcontractors, and consultants.

Vulnerable Communities

Vulnerable communities, in the context of climate change ... are defined here as those which “experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality ([OPR ICARP](#)).

12.2 Links

12.2.1 Enabling Legislation

[Delta Reform Act](#)

12.2.2 State Departments and Programs

[Delta Stewardship Council](#)

[Delta Plan](#)

[Delta Science Program](#)

[Delta Science Plan](#)

[Science Action Agenda](#)

[State Water Resources Control Board](#)

[California Environmental Data Exchange Center \(CEDEN\)](#)

[Surface Water Ambient Monitoring Program \(SWAMP\)](#)

12.2.3 Federal Departments and Programs

[United States Fish and Wildlife Service](#)

[United States Bureau of Reclamation, Bay-Delta Office](#)

[National Oceanic Atmospheric Administration](#)

12.2.4 Other Relevant Resources

[Sacramento River Science Partnership Charter](#)

[California Water Action Plan](#)

[California Wetland Monitoring Workgroup](#)

12.2.5 Climate Change Information

[Delta Adapts: Creating a Climate Resilient Future](#)

[Integrated Climate Adaptation and Resiliency Program](#)

[CDFW's Climate Science Program](#)

12.2.6 Data Management Resources

[Open and Transparent Water Data Act \(AB1755\)](#)

[Open Data Fact Sheet](#)

[Data Management Plan Fact Sheet](#)

[Data Management Planning Tool](#)

[Vulnerable Communities: Delta Adapts Map Tool](#)

[Interagency Ecological Program](#)

12.2.7 Metadata Information

[CDFW Minimum Metadata Standards](#)

12.2.8 Sacramento-San Joaquin Delta

[Map of Legal Delta](#), GIS

[Map of Legal Delta](#), PDF

[Statutory Definition of Legal Delta \(Water Code Section 12220\)](#)