APRIL 2025

Tribal and Environmental Justice in the Sacramento-San Joaquin Delta

History, Current Perspectives, and Recommendations for a Way Forward

Delta Stewardship Council
A CALIFORNIA STATE AGENCY

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Recommended Citation:

Delta Stewardship Council. 2025. Tribal and Environmental Justice in the Sacramento-San Joaquin Delta: History, Current Perspectives, and Recommendations for a Way Forward.

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Executive Summary

Why a Tribal and Environmental Justice Issue Paper?

Incorporating tribal and environmental justice into the Delta Stewardship Council's (Council) work requires understanding, acknowledging, and working in partnerships to address historic wrongs that have resulted in inequitable *distributions* of environmental harms and benefits, confirming there is a fair and open governance *process* that all community members can participate in going forward; and ensuring that those most burdened and historically marginalized are *represented* in environmental decision-making in the Delta.

The Council's first five-year review of the Delta Plan (2019 Five-Year Review) identified environmental justice as a key issue, noting a gap in our organizational understanding of environmental justice and a specific need for more information and analysis to inform potential future actions by the Council (Council, 2019).

When staff began this initiative, we identified a need to delineate between environmental justice as a whole and environmental justice issues as they relate to tribes and tribal communities (referred to as tribal justice in this paper). This stems from the understanding, echoed at the tribal listening session held by the Council in April 2023, that tribes have disparate impacts, concerns, and relationships related to historical wrongs committed against them. While tribes can be considered environmental justice communities, federally-recognized tribes are in unique positions as sovereign governments and, as such, are political entities and should not be treated as just an interested party.

Tribal Justice: Respecting tribes' unique status and recognizing the unique cultures, traditions, and rights of California tribes.

Environmental Justice: "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (CA Gov. Code, § 65040.12, subd. (e))

This issue paper focuses on tribal and environmental justice within the present-day legal boundaries of the Sacramento-San Joaquin Delta and Suisun Marsh (Delta) and the mission, duties, and responsibilities set forth in the Delta Reform Act. The Council recognizes that tribes and tribal communities view the legal Delta boundary as an

artificial construct. As such, this paper is not a full exploration of all tribal and environmental justice issues in the watershed and how these issues manifest upstream (e.g., cultural significance and damage to tribes and tribal communities from damming the tributaries in the upper watershed) and downstream (e.g., access to clean, affordable water for tribes and environmental justice communities in the Central Valley and southern California) of the Delta, which is a topic deserving rigorous study but is beyond the scope of this issue paper.

A wide range of tribal and environmental justice issues affect the Council's work and the Delta more broadly. **This issue paper is an important first step in acknowledging and responding to the concerns of tribes and environmental justice communities.**

What Did We Learn About Tribal and Environmental Justice Through This Effort?

The environmental injustices experienced by communities in and around the Delta today have evolved through complex and interdependent social, ecological, economic, and engineering developments across the region. These historical developments led to wrongs committed against Native Americans and other marginalized populations, such as forceful removal from homelands, exploitation of labor, redlining, water rights decisions and diversions, and lack of attention to environmental protections.

These historical events set the stage for decades of tribal and environmental injustices and provide important context for understanding the issues seen today. The Council identified past as well as persistent tribal and environmental justice concerns in the Delta through a mixed methods approach drawing on multiple sources, including scholarly literature, past public comments, 22 interviews with tribal and environmental justice-serving organizations, additional interviews with five tribes for related projects, use of a framework of representational, procedural, and distributive justice, and guidance from an environmental justice expert group (see **Section 5** and **Appendix C** for more information on the development process).

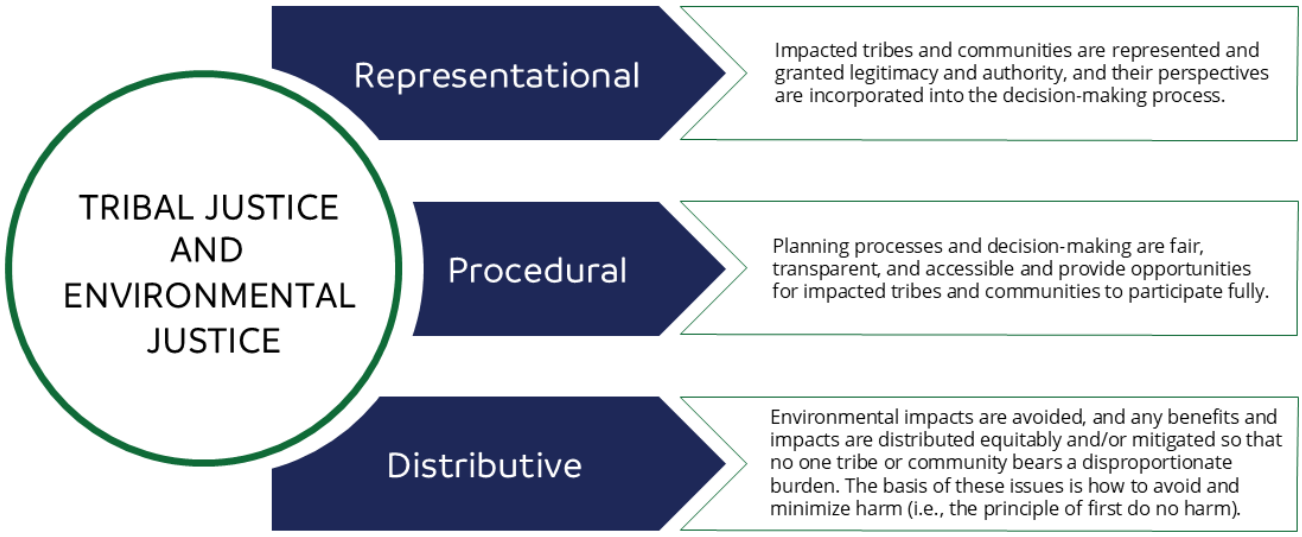

Figure 1: Tribal and environmental justice framework

Tribal Justice Issues

The United States and the State of California have a long history of causing and perpetuating violence, maltreatment, and neglect toward Native Americans[1]. Tribal governments and communities in California have experienced many years of marginalization, exclusion, and forced assimilation, including removal from their homelands, indentured servitude, and involuntary boarding schools. Despite federally recognized tribal governments' rights as sovereign nations, which include the right to hold elections, determine their own citizenship, own and manage land, implement tribal law and policy, and consult directly with the United States on policy and regulations, these rights continue to be impinged upon by federal, state, and local governments. This has been either through unrecognized or unratified treaties with the U.S. government, encroachment on tribal land, or lackluster or outright missing consultation with tribes on policies and decisions that impact them. These current issues must be understood within the context of the long history of policies implemented against tribes by federal and state governments (see **Section 4** for more information on the forced displacement of the original inhabitants of the Delta).

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[1] See, for example, President Biden's October 2024 remarks and California Governor Newsom's June 2019 Executive Order N-15-19, which discuss and formally apologize for the wrongs committed by the federal government and California state government, respectively, against Native Americans: (**https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2024/10/25/remarks-by-president-biden-on-the-biden-harris-administrations-record-of-delivering-for-tribal-communities-including-keeping-his-promise-to-make-this-historic-visit-to-indian-country-lavee/**) and (**https://www.gov.ca.gov/wp-content/uploads/2019/06/6.18.19-Executive-Order.pdf**)

Tribes and tribal communities have the right to harvest, to teach, and to put down prayers. However, these opportunities are threatened by the overuse of environmental resources and environmental and socio-ecological changes that impact the land, which is the basis for tribal cultures. Indigenous livelihoods are often resource-dependent, so restricted access and environmental changes can directly affect tribal health. Tribal cultures are place-based and require access to and the continued management of traditional territories to maintain the growth and balance of the features and resources of those territories. Closely intertwined with tribal sovereignty is the repression of tribal expertise, cultural beliefs, practices, and Traditional Knowledge. Traditional Knowledge "…is a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. [It] cannot be separated from the people inextricably connected to that knowledge" (Daniel et al., 2022). There is currently a lack of recognition that Traditional Knowledge is one of the primary sources of scientific information for the best available science, based on thousands of years of observation and application (Council, 2015).

Representational Justice Issues

Representation matters. To address representation, it's first imperative that agencies understand who the elected leaders or appointed representatives of California Native American tribes are, who comprise tribal and environmental justice communities, and where they are located geographically. Tribes and tribal and environmental justice communities are underrepresented or inadequately represented in decision-making processes. Often, government agency staff lack cultural competency and do not understand what environmental justice is, creating barriers for tribes, tribal communities, and community-based organizations (CBOs) to participate.

Procedural Justice Issues

Key themes emerged from the interviews and other sources reviewed for this issue paper related to procedural justice issues that are well-documented in environmental justice literature, including limited opportunities for meaningful involvement in decision-making processes, lack of transparency in decision-making, and minimal capacity to engage in multiple policy forums perceived as redundant. Early, often, and meaningful consultation with tribes on all initiatives, policies, or decisions that may impact them is also key to addressing procedural justice issues. It is imperative that

public agencies and other organizations working with tribes develop tribal consultation policies that set the tone and expectations for consultation.

Limited resources, limited funding, and public agencies often seeing public engagement as a "box-checking" exercise rather than a process that influences decision-making all hamper tribal and environmental justice community engagement in government processes. Government processes – particularly environmental decision-making – are often confusing and opaque, with outside parties unclear on how to engage. Interviewees and participants in community outreach events identified a lack of coordination and alignment between tribal governments, state agencies, local governments, and outside entities working on the same issues.

> "Everything is **connected**. When you change one thing, it will change another. We must use that **intersection** to build [broader] community with groups that are **not explicitly focused on the issue at hand**."
>
> INTERVIEW QUOTE

Distributive Justice Issues

Distributive justice considers how environmental burdens and benefits are distributed across communities and, specifically, how these distributions correlate with socio-demographic characteristics. The basis of distributive justice is how to avoid and minimize harm (i.e., the principle of first do no harm). Based on findings from the analysis of the data sources reviewed for this issue paper, the issue paper discusses seven core areas of distributive justice concern in and around the Delta: (1) climate change, (2) flood risk, (3) water, (4) air quality, pollution exposure, and public health, (5) housing and unhoused communities, (6) food security and access, and (7) recreation and outdoor access.

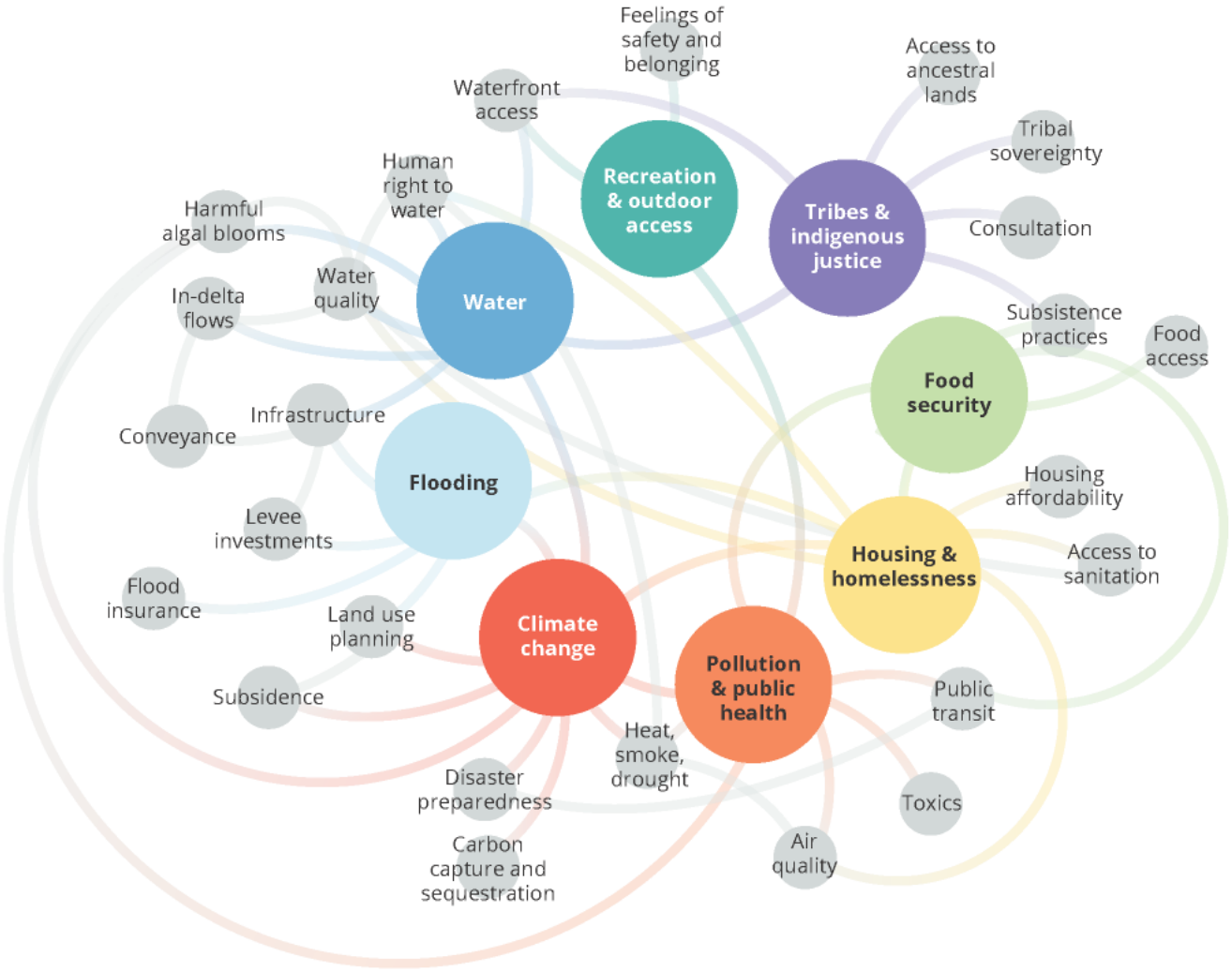


Figure 2: Graphic demonstrating intersectionality of distributive environmental justice issues

How Will This Paper Be Used?

The Council's 2019 Five-Year Review recommendation charged staff with identifying "future policy options for the Council to consider" to better address environmental justice concerns in its work. Through the various sources reviewed for this issue paper, it became evident that while there are actions that the Council should take, the issues and actions identified are complex and cannot be addressed by the Council alone.

In addition to building a foundational knowledge of tribal and environmental justice issues past and present, this issue paper includes a set of recommendations for addressing tribal and environmental injustices. Recommendations include both general recommendations relevant to all who work in

the Delta as well as ones specific to the Council. Delta tribal and environmental justice issues are presented within the three environmental justice tenets of representational, procedural, and distributive justice; however, the recommendations are not. Council staff consciously took this approach because of the interrelated nature of the issues and the interrelated approach we see as necessary to address them.

The recommendations are summarized below. For more details on each of the recommendations, please see **Section 2**.

General Recommendations for Agencies Working in the Delta (Summarized)

- **Invest in Relationship and Trust Building**
- **Work Through Trusted Community Partners**
- **Be Intentional and Justice-Oriented**
- **Make it Easy to Participate Early and Often**
- **Follow Through**
- **Enhance Coordination and Connections Between and Within State Agencies and Local Governments**
- **Identify and Fill Research and Data Needs and Effectively Communicate Findings**

Council-Specific Recommendations (Summarized)

Goal 1: Integrate environmental justice into the Delta Stewardship Council, consistent with the Delta Reform Act.
Strategy 1a: Commit to advancing environmental justice over the short and long term.
Strategy 1b: Create a more inclusive workplace through creative and equitable recruitment and retention, building staff capacity and literacy on equity and tribal and environmental justice, and using inclusive language.
Strategy 1c: Support and promote representation of tribes and tribal and environmental justice communities in Delta governance and decision-making.

Goal 2: Expand opportunities for tribes to practice their subsistence and cultures, and recognize tribal rights in the Council's work.
Strategy 2a: Build and strengthen respectful partnerships between tribes and the Council that practice reciprocity and recognize, honor, and promote tribal interests in the Delta.
Strategy 2b: Conduct proactive and early tribal consultations on Council initiatives and activities and facilitate and support meaningful tribal consultation.

Goal 3: Promote visibility and understanding of tribal and environmental justice in the Delta through research, policy development, and communications.
Strategy 3a: Establish partnerships that provide ongoing and stable support for tribal and community-engaged research that centers tribal and community identities, capacities, needs, and issues.
Strategy 3b: Embed equity and the appropriate interweaving of Traditional Knowledge – *in partnership with originating tribes* – in Delta science to ensure that the Council's support of science-based adaptive management and decision-making promotes equitable outcomes.
Strategy 3c: Enhance tribal and environmental justice communities' understanding of environmental and climate risks by improving data communication and transparency.

Goal 4: Explore ways to address funding inequity in communities that historically have seen the least investment.
Strategy 4a: Review, adapt, and enhance the Council's funding to advance equity.

Section 1: Introduction

The Council's 2019 Five-Year Review of the Delta Plan (2019 Five-Year Review) identified environmental justice as a key issue, noting a gap in organizational understanding of environmental justice as it relates to the Council's mission and authorities and a specific need for more information and analysis to inform potential future actions by the Council (Council, 2019). Endorsed by the Council via resolution 2019-3, the 2019 Five-Year Review recommended that the Council prepare an issue paper "to investigate the potential need for additional strategies or responses within the Delta Plan to address disadvantaged communities and environmental justice."

When staff began this initiative, we identified a need to delineate between environmental justice as a whole and environmental justice issues as they relate to tribes and tribal communities (referred to as tribal justice in this paper). This stems from the understanding, echoed at the tribal listening session held by the Council in April 2023, that tribes have disparate impacts, concerns, and relationships related to historical wrongs committed against them, are in unique positions as sovereign governments, and at times are environmental justice communities as well. As such, in recognition of the unique status of federally recognized tribes, this paper recognizes tribes first whenever possible. Native American people are citizens of the cities, counties, and states where they reside, and many are also members of tribes that have a responsibility to their membership. There must also be further distinction, when speaking of tribal justice, that state agencies are not speaking for tribes. In addition, there is a unique legal and political relationship between the federal/state government and federally recognized tribes, which is based on the United States Constitution, treaties, Supreme Court decisions, federal laws, and Executive Orders (EOs). Not all tribes have federal recognition status and may be engaged in long-standing negotiations with the federal government to seek recognition or may have historically been denied such recognition. Some may also choose not to pursue formal recognition. Governor Brown's and Governor Newsom's EOs B-10-11 and N-15-19, respectively, affirm and reaffirm state agencies' responsibility to conduct tribal consultation on any agency activities that may impact them. This includes encouraging state agencies to consult with any tribe, whether federally or non-federally recognized, on any initiative that may affect those tribes. State law also requires state and local agencies to consult with specified tribes in certain circumstances (such as AB 52 (Chapter 532, Statutes of 2014) as part of the California Environmental Quality Act process).

Past Delta governance efforts have been criticized by environmental justice activists, in scholarly literature, and in an independent state agency report that examined CALFED[2] for lack of adequate inclusion of environmental justice considerations, stating that environmental justice concerns have been marginalized, underfunded, and not given sufficient attention (Little Hoover Commission, 2005; London et al., 2008; Shilling et al., 2009; Sze et al., 2009).

The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) (Wat. Code, § 85000 et seq.) – which created the Council as a successor to CALFED for California – states that one of the fundamental goals for managing land use in the Delta is ensuring the utilization and conservation of Delta resources, taking into account the social and economic needs of the people of the state (Wat. Code, § 85022(d)(2)). **The Council's mission is to further the coequal goals. Achieving the state's coequal goals of "providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem…in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place" (Wat. Code, § 85054) is not possible without considering equity and justice.**

Incorporating tribal and environmental justice into the Council's work requires understanding, acknowledging, and working in partnership to address historic wrongs that have resulted in inequitable *distributions* of environmental harms and benefits today, confirming there is a fair and open governance *process* that all community members can participate in going forward, and ensuring that those most burdened and historically marginalized are *represented* in environmental decision-making in the Delta.

Past public comments submitted to the Council, as well as feedback received across various types of public engagement, illustrate a wide range of environmental justice issues affecting the Council's work and the Delta more broadly. This issue paper is an important first step in understanding, acknowledging, and responding to these issues.

[2] CALFED was a cooperative state-federal planning effort between water, environmental, state, and federal officials to safeguard the Sacramento-San Joaquin Delta. It was created in 1994 and disbanded in 2005; federal Bureau of Reclamation participation, however, continues under the California Bay-Delta Authorization Act (P.L. 108-361).

Scope and Organization of This Paper

This issue paper presents the Council's current understanding of tribal and environmental justice through the lens of past tribal and environmental injustices in the Delta and current tribal and environmental justice issues. The issue paper also recommends actions to better address these issues within the scope of the Council's mission, authority, and influence.

This issue paper focuses on tribal and environmental justice within the present-day legal boundaries of the Delta and the mission, duties, and responsibilities set forth in the Delta Reform Act. The Council recognizes that tribes and tribal communities view the legal Delta boundary as an artificial construct. As such, this paper is not a full exploration of all tribal and environmental justice issues in the watershed and how these issues manifest upstream (e.g., cultural significance and damage to tribes from damming the tributaries in the upper watershed) and downstream (e.g., access to clean, affordable water for tribes and tribal and environmental justice communities in the Central Valley and southern California) of the Delta, which is a topic deserving rigorous study but is beyond the scope of this issue paper. This paper expresses the Council's evolving understanding of tribal and environmental justice issues and provides foundational context from which the Council can build and grow its tribal and environmental justice work into the future. Its recommendations commit the Council to additional efforts to shape and increase our understanding of tribal and environmental justice issues and to begin addressing them in our work as we pursue our mission.

The Council was established, in part, to provide sustainable management for the Delta ecosystem. Environmental and tribal justice is a critical consideration for achieving that mission in future decades. To respond to this challenge, the Council initiated the preparation of this issue paper. Tribal justice and environmental justice must be considered to attain the state's coequal goals for the Delta, as established by the 2009 Delta Reform Act: securing a reliable water supply for California and protecting and restoring the ecosystem and wildlife it supports while enhancing the Delta as a unique place, with its community, tribal, and agricultural heritage. The Council adopted the Delta Plan, which has regulatory policies that protect land for restoration and agriculture, help manage flood risk and improve water supply reliability. The Delta Plan regulates covered actions to ensure they support statewide water supply reliability and Delta ecosystem restoration. Through the Delta Plan, the Council established a model for science-based decision-making, coordination, and

collaboration between the many partners in the Delta that can serve as a framework for addressing tribal and environmental justice issues.

This paper is organized first to express the Council's understanding of what can be done right now – by all agencies working in the Delta and by the Council specifically – to begin to better incorporate a tribal and environmental justice lens into our collective work. As such, the next section outlines recommendations (**Section 2**) relevant to all state and federal agencies doing work in the Delta, as well as recommendations specific to the Council.

Following the recommendations, the paper describes the Council's current understanding of tribal and environmental justice (**Section 3**), the history of tribal and environmental justice in the Delta (which we acknowledge is likely incomplete; **Section 4**), and a summary of current known tribal and environmental justice issues in the Delta (**Section 5**); these sections informed the development of the recommendations in **Section 2**.

To the greatest extent possible, this issue paper was developed following the principles of best available science. However, prior to the development of this paper, environmental and tribal justice had not been a focus or area of expertise for the Council, and peer-reviewed literature and empirical data on environmental justice issues in the Delta are limited. Council staff drew on multiple data sources, including new primary interview data collected following established social scientific methods, past public comments submitted to the Council, input from tribal consultations, engagement with the environmental justice expert group, and secondary data sources from published literature and available public datasets and tools. These data are woven together following a mixed methods approach, which is widely accepted and applied in health and social sciences to integrate rigorously collected quantitative and qualitative data sources (Creswell et al., 2011). The appendices provide more detailed information about these methods. Our hope is that this paper makes significant contributions to further both original data and synthesis of many existing, disparate data sources on the topic of tribal and environmental justice in and around the Delta. Also worth noting is that this work is being done in conjunction with the Council's climate adaptation initiative, *Delta Adapts: Creating a Climate Resilient Future*, which proposes equitable adaptation actions for the Delta.

Best Available Science

The Delta Reform Act requires the Council to make use of "best available science" in implementing the Delta Plan, and the Delta Plan outlines specific guidelines and criteria for categorizing scientific efforts (Delta Plan Appendix 1A). These specifications require scientists to use the best information and data to inform management and policy decisions. The required elements of best available science include well-stated objectives, outlined assumptions and limitations, use of a clear conceptual model, experimental design with standardized methods for data collection, sound logic for analysis and interpretation, and clear documentation of the entire process.

The Delta Plan's criteria for categorizing whether a body of work or project can be considered best available science include:

1) relevance
2) inclusiveness
3) objectivity
4) transparency and openness
5) timeliness
6) peer review

Delta Adapts: Creating a Climate Resilient Future is a two-part climate initiative taking a comprehensive, regional approach to climate resiliency. Climate change increases risk to California's water supply, economy, biodiversity, residents, and more. In the Sacramento-San Joaquin Delta, climate change will worsen water quality, increase stress on species that thrive in the region's ecosystems, and put more pressure on levees that protect residents, farmland, and public utilities from flooding. The Delta Adapts initiative began with a climate change **Vulnerability Assessment** for the Delta and Suisun Marsh, published in June 2021. The Vulnerability Assessment identified impacts from four climate hazards: flooding, extreme heat, drought, and wildfire. In November 2024, the Council published a draft Adaptation Plan detailing strategies and actions it can take alongside partners to address these vulnerabilities. The Council organized actions across the four focus areas of water supply reliability, ecosystem restoration, agriculture, and flooding. Proposed adaptation strategies under the Delta Adapts initiative address many of the tribal and environmental justice issues discussed in this paper. Moreover, Delta Adapts formalizes and weaves together many of the Council's equity priorities gathered from this work, with a focus on equitable climate adaptation. By prioritizing science-based decision-making and collaboration across state, local, and regional levels, the Delta Adapts initiative aims to reduce the Delta's vulnerability to climate change. **For more information about Delta Adapts, visit deltacouncil.ca.gov/delta-plan/climate-change.**

Section 2: Recommendations

The 2019 Five-Year Review charged staff with identifying "future policy options for the Council to consider" to better address environmental justice concerns in its work. Through the various sources reviewed for this issue paper, it became evident that while there are actions that the Council must take, the issues and actions identified are complex and cannot be addressed by the Council alone.

This section, *Recommendations*, includes both general recommendations relevant to all agencies who work in the Delta as well as recommendations specific to the Council. Furthermore, while the issues are presented within the three environmental justice tenets of representational, procedural, and distributive justice, the recommendations are not. Staff consciously took this approach because of the interrelated nature of the issues and the interrelated approach staff feels is necessary to address these issues. To help make the connection between the tenets and the recommendations, however, each recommendation is coded by tenet:

- R = Representational
- P = Procedural
- D = Distributive

In many instances, a recommendation could be considered to address multiple tenets and is coded accordingly.

General Recommendations for Agencies Working in the Delta

Several themes emerged that are relevant for every organization and agency working in the Delta (including the Council); this first section addresses these broader observations.

Invest in relationship- and trust-building (P): Tribes and environmental justice communities have a long history of being disenfranchised by governments, so trust must be built. Repeating interactions and establishing relationships demonstrate commitment and are important to encouraging participation and building buy-in to engagement processes. Agencies should expand their outreach to environmental justice communities and broaden their candidate pools for hiring. Agency staff should go to tribes and communities to meet people in their spaces, on their terms, and experience their events and ways of life. Reaching people effectively requires significant effort and time. Finally, agency staff are often a part of the communities that will be affected by governmental decisions, including environmental justice communities, and can play a valuable role in information sharing and encouraging engagement within their networks.

Examples include:

- Take tours of tribal lands and environmental justice communities to hear issues from their perspectives,
- Host or attend smaller group meetings to allow for "true dialogue,"
- Canvas door-to-door or table at tribal or community events or in community spaces, and,
- Build the capacity of agency tribal liaison structures through training and resources to put in the essential work of establishing agreements and partnerships with tribes that transcend the tenure of any one liaison.

Relatedly, the state government as a whole should invest in its overall capacity to support and promote public participation and engagement. Building trust takes time and an ongoing and consistent commitment to prioritize this work.

Work through trusted community partners (R, P): Each community is different, and it is important to tailor outreach to meet the unique needs and conditions of the community, which local partners will help to ensure. Work with and through community organizations that are embedded in and trusted by the community, especially, as Pozzi et al. (2024) recommend, '"broker organizations' – or those

organizations that span across otherwise disconnected groups of organizations. Connecting with a broker organization is a key strategy for accessing important knowledge and a wider community of partners."

Pozzi et al. (2024) also demonstrate the importance of supporting and investing in environmental justice-focused collaboratives because these collaboratives facilitate knowledge-sharing and strengthen relationships among organizations who might not otherwise work together. Furthermore, agency staff must talk about environmental justice issues in ways that resonate with the community (rather than jargon and technical language). For tribes, tribal-serving organizations can assist with outreach, but their expertise cannot and should not supplant direct communication and consultation with tribes.

Be intentional and justice-oriented (R, P, D): Intentional effort is needed to connect with communities that are nearly always left out of environmental planning and policy conversations, such as unhoused populations, farm workers, and tribes. Get proactively involved in different communities early, not only with those who frequently show up and engage. Be open to shifting perspectives to bring justice to the forefront of awareness. Focus on listening and hearing the concerns and ideas of community members rather than starting by presenting the agencies' ideas. In other words, talk *with* rather than *to*.

Make it easy to participate early and often (P): Conducting direct, meaningful outreach and providing resources to support tribal and community participation is essential to achieving equity in governance processes and ensuring that all communities can be represented beyond already established networks.

Examples include:

- Make it easier for agencies and tribes/CBOs to enter into contracts for services,
- Ensure language access and language support are available for meetings and important documents and information that communities should be aware of (e.g., contamination concerns or health risks),
- Ensure physical accessibility to meeting locations,
- Continue to support hybrid meetings,
- Host meetings in person in Delta communities,
- Hold meetings at different times, including in the evenings, to accommodate different interested parties' schedules,

- Be respectful of people's time by giving them enough time to review materials or proposals (i.e., longer public comment periods) and not requiring them to sit through hours-long public meetings to provide a two-minute comment on a single agenda item,
- Use a diverse set of communication tools and methods for disseminating key information to all in a timely manner,
- Provide clear and specific instructions on how to engage on different issues, including which agencies to engage with, what processes are relevant, and what opportunities there are to voice opinions and concerns,
- Improve coordination across agencies so that communities are not receiving duplicative asks,
- Make requests for input understandable to non-technical, diverse audiences (across ages, education levels, and background knowledge), removing jargon and "agency speak,"
- Communicate clearly about decision-making processes: who will be most impacted and how, what the decision-making process is, and what the timeline is; and
- Improve coordination and agency partnerships with tribes.

Tribal consultation should be undertaken on any activity that may be of interest to tribes and should be done as early as possible in the process (i.e., early enough to ensure tribes can inform both process design and initial development). Regular communication, even if agencies do not hear anything back, is helpful for tribes. In addition, agencies should work with tribes to understand their needs for consultation, such as how they prefer to convey information. Establishing a constant feedback loop is essential.

Follow through (P): Be clear, honest, and transparent regarding how input will be used. Do not hold back or be afraid to have a tough conversation. Move engagement beyond a "box-checking" exercise to co-produce and put into action ideas and

solutions, especially ones that prioritize the most disadvantaged and vulnerable communities first. Communicate how community feedback was incorporated into plans and decisions.

Enhance collaboration and connections between and within state agencies and local governments (R, P): Increase coordination between local government and state regulatory agency scientists so that state scientists can better support local community needs related to the respective state agency mission. Improve coordination among state agencies to reduce redundant processes and to align policy goals before asking the same tribes, communities, and CBOs to engage in a similar process.

Identify and fill research and data needs and effectively communicate findings (D): Increase research and data analysis on tribal and environmental justice issues to help with decision-making. Review research and data needs identified through interviews with environmental justice representatives and tribes, the Delta Adapts process, and the 2024 Delta Plan Five-Year Review. Some of the additional research and data needs in the Delta include:

- Increasing monitoring for harmful algal bloom (HAB) development and HAB toxin exposure (water and air) to create better HAB management and mitigation strategies where vulnerable communities are most exposed, using rigorous epidemiological methods,
- Using community or community science data to understand waterways and connections with drinking water and wastewater,
- Utilizing community data to help identify appropriate solutions through research,
- Increasing research and data on environmental hazards and climate change-related issues, such as evaluating environmental management decisions' public health impacts,
- Presenting research results in a tangible, easy-to-understand way that allows the community to learn and engage,
- Funding more research on community-identified science needs, and
- Developing a program or a central hub that provides accessible data and information to answer equity-related questions. For example, an online interactive map for the Delta similar to the Bay Area Equity Atlas created by the San Francisco Foundation.

Council-Specific Recommendations

The following recommendations are specific to the Council and reflect the Council's authority, scope, and mission.

Goal 1: Integrate environmental justice into the Delta Stewardship Council, consistent with the Delta Reform Act.

Strategy 1a: Commit to advancing environmental justice over the short and long term.

1. **Annually Report Progress on Actions**. Report to the Council annually on progress made in addressing the actions included in this issue paper. (P, R, D)
2. **Policy Evaluation.** Evaluate current Council planning documents (such as the Delta Plan), including policies/regulations and performance measures, to assess opportunities to advance environmental justice within them. If appropriate, recommend amendments. (P, R, D)
3. **Identify Environmental Justice Communities.** Develop a framework to identify California environmental justice communities affected by Delta policy and management decisions (including environmental justice communities both within and outside of the legal Delta). Use this framework to guide Council actions and resources targeted toward environmental justice communities. (R)
4. **Study Water Justice Issues in Communities Outside the Delta.** Identify and help fund research that improves understanding of the nexus between environmental justice and Delta water management in communities outside of the legal Delta. Use research findings to identify subsequent actions the State of California – including the Council – can take to address identified issues. (P, R, D)

Strategy 1b: Create a more inclusive workplace through creative and equitable recruitment and retention, building staff capacity and literacy on equity and tribal and environmental justice, and using inclusive language.

1. **Lead by Example.** Foster a work culture that values diversity, equity, inclusion, and belonging, where all employees feel empowered to advance tribal and environmental justice in their work. (P)
2. **Learn More About Tribal and Environmental Justice.** Increase opportunities for staff to continually build their understanding of tribal and environmental justice related to the Council's mission. (P)
3. **Enable Career Pathways to the Council.** Strengthen career pathways to the Council through new partnerships and increased organizational visibility. (P)
4. **Support Community-Based Learning.** Support K-12 schools, institutions of higher education, and CBO programs that mentor and support youth and young adults from tribal and environmental justice communities pursuing careers in policy, science, and engineering. (R, P)
5. **Define and Update Inclusive Language.** Identify and use inclusive terminology that is respectful and encourages meaningful engagement with staff and external partners. Regularly update staff guidance as needed. (P)

Strategy 1c: Support and promote representation of tribes and tribal and environmental justice communities in Delta governance and decision-making.

1. **Improve Access to Council Decisions.** Address barriers to historically underrepresented communities participating in Council decision-making processes. (R, P)
2. **Empower Tribal and Environmental Justice Voices.** Actively promote openings on Delta decision-making bodies to tribes and community organizations to increase representation. (R, P)
3. **Offer Tribal and Environmental Justice Perspectives to the Delta Plan Interagency Implementation Committee (DPIIC).** Consult with tribes and CBOs to explore tribal and environmental justice representative participation options in DPIIC. Utilize the DPIIC subcommittee structure to include tribal and environmental justice communities in DPIIC-led initiatives. (R, P)

4. **Identify/Develop Partnership Models.** Explore potential contract mechanisms and resources for tribes, community members, and CBOs to inform Council decision-making processes. (R)
5. **Seek Ongoing Advice from Tribal and Community Experts.** Explore the formation of tribal and/or environmental justice advisory group(s) to provide expertise on specific Council initiatives and activities. (R)
6. **Practice Consistent Outreach.** Compile a database of CBOs/nongovernmental organizations (NGOs) from environmental justice communities and adopt an agency-wide practice of consistently and appropriately conducting outreach. (R, P)

Goal 2: Expand opportunities for tribes to practice their subsistence and cultures, and recognize tribal rights in the Council's work.

Strategy 2a: Build and strengthen respectful relationships between tribes and the Council that practice reciprocity and recognize, honor, and promote tribal interests in the Delta.

1. **Build on Ongoing Tribal Efforts.** Support and engage in partner agency efforts to strengthen Delta tribal access and use of the Delta, co-stewardship and co-management with partner agencies, ancestral land return efforts, protection of tribal data, protection of tribal cultural resources, and partnerships. (R)
2. **Amplify Tribal Histories.** Consider recommendations from the California Truth and Healing Council's final report (expected to be released in 2025) to identify opportunities to promote and acknowledge the importance of each tribe's unique history and world views related to the Delta. (R)
3. **Host Tribal Roundtables.** Regularly invite tribal representatives to present at Council meetings to increase direct Councilmember interaction with tribes. (R)
4. **Be Humble and Ask Questions.** Provide cultural humility training for Council members and staff that addresses tribal issues and engagement best practices. (P)

Strategy 2b: Conduct proactive and early tribal consultations on Council initiatives and activities and facilitate and support meaningful tribal consultation.

1. **Seek Early Tribal Engagement.** Engage early and often with tribes, both before Council initiatives and activities begin and throughout their development, by providing ample advance notice of opportunities for consultation and engagement. (R, P)
2. **Set and Uphold Tribal Consultation Expectations.** Evaluate the Council's Tribal Consultation Policy at least every five years and update it as needed to reflect these recommendations and ensure best consultation practices are incorporated. (P)
3. **Lead Inter-Agency Tribal Partnerships.** Continue facilitating inter-agency partnerships that identify and address tribal needs and barriers for engaging in Delta science and planning. (R, P)

Goal 3: Promote visibility and understanding of tribal and environmental justice in the Delta through research, policy development, and communications.

Strategy 3a: Establish partnerships that provide ongoing and stable support for tribal- and community-engaged research that centers tribal and community identities, capacities, needs, and issues.

1. **Be a Trusted Partner.** Participate in and partner with existing tribal and environmental justice networks to build trust, increase understanding, and improve outcomes. (P)
2. **Create an Environmental Justice Research Network.** Continue building and investing in the Delta Social Science Community of Practice to include and support environmental justice and tribal knowledge practitioners and researchers. (R, P)
3. **Promote Science for Communities.** Pair tribes and CBOs with scientists to collaborate on projects that address tribal and environmental justice-related science and community needs and issues and publicly highlight successful collaborations. (R)

4. **Respect Data Ownership.** Develop a data management protocol for data collected through Council-sponsored tribal and community-engaged research that respects tribal data and community ownership of its own data. (R, P)
5. **Safeguard Human Research Subjects.** Ensure that Council-funded human subjects research projects undergo applicable ethical review and approval. (P)

Strategy 3b: Embed equity and the appropriate interweaving of Traditional Knowledge – *in partnership with originating tribes* – in Delta science to ensure that the Council's support of science-based adaptive management and decision-making promotes equitable outcomes.

1. **Embrace More Ways of Knowing.** Facilitate dialogue among tribes, agencies, and other partners (e.g., NGOs, academics, consultants) to increase the interweaving of Traditional Knowledges into the Delta science enterprise (with fair compensation provided to tribes). (R, P)
2. **Identify and Pursue Tribal and Environmental Justice Science Actions.** Prioritize science actions, including but not limited to the Science Action Agenda and Delta Science Plan, that include coordination with tribes and environmental justice organizations to incorporate environmental justice and tribal research needs in Delta science. (R, P, D)
3. **Advance Community-Based Collaborative Science.** Advance collaborative, community-based research in partnership with tribal and environmental justice communities. (R, P, D)
4. **Share Findings Together.** Develop and host accessible and relevant science communication and knowledge exchange events, outreach, and products in partnership with interested tribes and community organizations. (R, P, D)

Strategy 3c: Enhance tribal and environmental justice communities' understanding of environmental and climate risks by improving data communication and transparency.

1. **Communicate Risk.** Apply the Council's communication resources to share flood, water supply, water quality, and climate risks, and to promote adaptation policy options as identified in the Council's Delta Adapts Adaptation Plan. (P)

2. **Communicate Data and Synthesis.** Make Council-sponsored data and synthesis publicly available, accessible, and useable. (P)

Goal 4: Explore ways to address funding inequity in communities that historically have seen the least investment.

Strategy 4a: Review, adapt, and enhance the Council's funding to advance equity.

1. **Promote Opportunities that Inform and Help Tribes and Environmental Justice Communities Access Science Funding.** Continue to consult with tribal and environmental justice communities to enhance tribal and environmental justice communities' participation in science solicitations. (R, P)
2. **Establish Proposal Evaluation Criteria for Environmental Justice Issues.** Create a framework for Delta science funding applicants and reviewers to consider how projects address environmental justice issues in relevant research. (R, P)
3. **Dedicate Delta Science Funding for Tribal and Environmental Justice Research.** Explore the potential for Delta science funding for tribal and environmental justice research topics to inform decision-making in the Delta. (R, P, D)
4. **Explore an Environmental Justice and Climate Technical Assistance Grant Program.** Explore the development of a technical assistance grant program in the Delta focused on environmental justice issues and climate adaptation strategies. (D)
5. **Seek Delta-Specific Environmental Justice Appropriations.** Identify opportunities to support Delta-specific environmental justice appropriations that work to address the issues and recommendations identified in this issue paper to the legislature and Congress. (R, P)

These recommendations reflect staff's understanding of how to address tribal and environmental injustices. The remainder of this issue paper presents the information gathered and analyzed to inform the development of these recommendations: the Council's current understanding of tribal justice and environmental justice (**Section 3**), the history of tribal and environmental justice in the Delta (**Section 4**), and a summary of current known tribal and environmental justice issues in the Delta (**Section 5**).

Section 3: What is Tribal and Environmental Justice?

Environmental justice is an umbrella concept that has evolved through social activism movements, critical scholarship and research, and public policy. Broadly, environmental justice focuses on the distribution of environmental goods and harms across societal structures of power and socio-demographics, including diagnosing root causes of inequality and injustice.

Within the context of environmental justice, it is important to establish that environmental justice issues impact tribal communities disproportionately. Furthermore, environmental justice – with respect to tribes – recognizes tribal equity, and the priorities and unique status tribes have with environmental decision-making and management.

Environmental justice has been defined and interpreted in multiple ways (e.g., by social activists and academic scholars) and in different policy contexts. For example, under California state law, environmental justice is defined as "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12, subd. (e)). This definition specifies that environmental justice "includes, but is not limited to…all of the following:

- The availability of a healthy environment for all people;
- The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities;
- Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision-making process; and
- At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions." (Gov. Code, § 65040.12, subd. (e)).

The U.S. EPA has defined environmental justice similarly, specifying that environmental justice will be achieved when everyone has the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work (U.S. EPA, 2023).

Environmental justice efforts by advocates and organizers often seek both to understand and address the disproportionate burden of environmental impacts (e.g., land or water contamination) borne by certain communities and to call for equitable development and implementation of environmental laws, programs, and policies. For example, the 17 "Principles of Environmental Justice" drafted at the First National People of Color Environmental Leadership Summit (Summit) in 1991 – widely recognized as foundational environmental justice principles – call for, among other things, "the right to participate as equal partners at every level of decision-making…" and "universal protection from…extraction, production and disposal of toxic/hazardous wastes and poisons…that threaten the fundamental right to clean air, land, water, and food" ("The Principles of Environmental Justice", 1991).

The Summit is recognized as a central catalyzing event in the development of a cohesive environmental justice grassroots movement, which emerged from the coalescence of advocacy efforts for civil rights, labor protection, anti-toxics, public health protection, and tribal sovereignty (Cole & Foster, 2001; Harrison, 2019). Coalition-building across these previously disparate movements brought about sustained calls for attention to equity and social justice in environmental law and regulation, resulting in the formalized recognition of environmental justice and the

creation of the Office of Environmental Equity (later becoming the Office of Environmental Justice) at the U.S. Environmental Protection Agency (U.S. EPA) in 1992. Shortly thereafter, President Clinton's EO 12898 directed all federal agencies to integrate environmental justice principles into regulatory practice in 1994. Over the past 30 years, federal and state programs have attempted to acknowledge, assess, and address environmental injustices with varying degrees of success. In April 2023, President Biden signed EO 14096[3], which sought to embed environmental justice in the work of federal agencies and ensure that "all people - regardless of race, background, income, ability, tribal affiliation, or zip code – can benefit from the vital safeguards enshrined in our nation's foundational environmental and civil rights laws." Among various directives to federal agencies, EO 14096 established the White House Office of Environmental Justice.

Similarly, over the last two decades, environmental justice has been recognized as a California statewide priority. Equity[4] and environmental justice are stated priorities of the Newsom administration. EO N-16-22 directed state agencies and departments to embed equity analyses in their missions, policies, and practices and established the state's first Racial Equity Commission, tasked with developing a Racial Equity Framework.

[3] On January 20, 2025 President Trump rescinded President Biden's Executive Order 14096 under section 2 of Executive Order 14148 (The White House, 2025).

[4]A closely related concept to environmental justice, equity is commonly defined as just and fair inclusion in society in which all can participate (Seigerman et al., 2022). "Health equity" is defined in California statute as "efforts to ensure that all people have full and equal access to opportunities that enable them to lead healthy lives" (Health and Safety Code § 131019.5(a)(2)). "Determinants of equity" are defined as "social, economic, geographic, political, and physical environmental conditions that lead to the creation of a fair and just society" (Health and Safety Code § 131019.5(a)(1)).

Conceptual Framework

The Council uses the definition of environmental justice provided in California State law and applies a conceptual framework for environmental justice – expanded to include tribal justice – built on three interrelated tenets[5]:

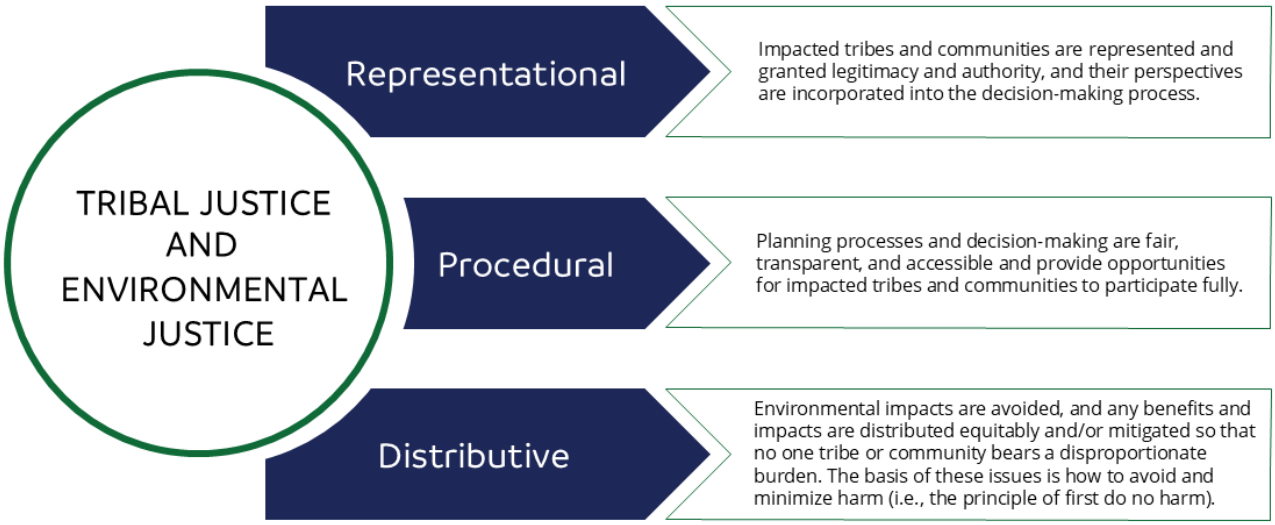


Figure 3: *Environmental justice framework*

[5]We pull from these definitions to form our conceptual framework:

Representational justice, or the fair and respectful representation of impacted communities throughout environmental decision-making (Bullard, 1993; Bullard, 2000; Schlosberg, 1999; Schlosberg, 2004; Schlosberg, 2007);

Procedural justice, which refers to a fair and open process including resources for communities to participate. "Procedural justice requires the recognition of local actors and their knowledge, inclusive participation, transparency in… planning and management, and consent from all parties involved" (Seigerman et al., 2022); and

Distributive justice, which refers to the distribution of impacts (benefits and harms) across a population over time. Distributive justice calls for "the fair allocation of resources, material benefits and burdens, risks, and opportunities" (Seigerman et al., 2022).

This conceptual framework also builds a holistic understanding of environmental justice and injustice in the Delta, recognizing the strong interdependence between these tenets of justice. Those involved in decision-making (representational justice) determine the rules, laws, and decisions (procedural justice) that, in turn, influence which and how environmental harms and benefits are generated and distributed (distributive justice). People are best positioned to speak to their own experiences, but if they have no platform from which to speak, their experiences remain unheard. At the same time, people who lack basic resources (e.g., time, money, information) are likely to have a harder time participating and are less likely to be represented in policy processes. Thus, representational and procedural injustices enable distributive injustices, while distributive injustices, in turn, exacerbate procedural and representational injustices. In other words, **environmental justice cannot be achieved unless representational, procedural, and distributive justice are met.**

How does Environmental Justice Relate to Tribes?

According to Indigenous scholar and journalist Dina Gilio-Whitaker (2019), environmental justice for tribes is forever tied to the history and legacies of Western colonial settlement. Colonization brutally dispossessed Native Americans in the Delta (and around California), displacing them from their homelands and precipitating various processes of ecological collapse that have vastly altered, and in many cases degraded, the characteristics of the lands and waters of the Delta watershed, which are the basis for tribal culture (Middleton-Manning et al., 2018; further discussed in **Section 4**).

It is important to note that tribal issues are complex and evolving (National Environmental Justice Advisory Council, 2013), and their scope often goes beyond what this issue paper or the Council can fully address. Tribal justice, when used in connection with environmental justice and in the context of this issue paper, refers to respecting tribes' unique status and recognizing the unique cultures, traditions, and rights of California tribes. It also incorporates principles of "free and prior informed consent," where tribes clearly understand how their data and information will be used and determine what and how tribal data and information is shared in state decision-making – including the appropriate interweaving of tribal Traditional Knowledge into resource management decisions and practices. As a principle of environmental justice, it is paramount that Traditional Knowledge be applied by the designated individuals of the tribe from which that knowledge originated, or with permission by and in partnership with that tribe. Tribal justice serves as a foundation for the

exercise of self-determination and the pursuit of tribal economic, social, and cultural development within their own communities and sets the tone for interactions with the Council and the state as a whole for issues and concerns on tribes' ancestral homelands.

Defining and Identifying Environmental Justice Communities

A fundamental step in incorporating environmental justice into government decision-making is identifying the most vulnerable and environmentally burdened communities – referred to throughout this paper as "environmental justice communities" – so that resources and actions can be targeted and prioritized for these communities (Lee, 2020). In the Delta and across the state, certain communities are disproportionately exposed and vulnerable to environmental hazards and continue to be inadequately represented or excluded in government decision-making processes, including but not limited to Native American tribes, communities of color, and low-income communities (Liévanos, 2009; Liévanos, 2016; and SWRCB, 2021b).

Environmental justice communities, or communities using related terms such as underserved, marginalized, or disadvantaged, have been defined variably by different scholars, environmental justice advocates, and government agencies. Environmental justice scholars have demonstrated that government agency efforts to integrate environmental justice have often diverged from the core principles that environmental justice activists have long advocated for (Harrison, 2015; Liévanos, 2012; London et al., 2013). This underscores the need for government agencies to clearly define environmental justice communities in a way that integrates those core environmental justice principles to ensure that agency actions are targeted to the most burdened communities.

Central to many environmental struggles have been disagreements over the correct geographic (or spatial) scale at which to define and address environmental justice problems (London et al., 2013), including the proper spatial scale used in indices and tools to identify environmental justice communities. Environmental justice analyses have used different units of analysis (e.g., census tracts, zip codes, or counties), which lead to differing results (Taquino et al., 2002). Most environmental justice spatial analyses in the U.S. have been at the census tract scale, which is problematic because using this scale assumes that

environmental hazards and populations are uniformly distributed throughout a tract (Fisher et al., 2006). Smaller, rural communities often do not show up in spatial analyses at the census tract scale, an issue especially relevant in the Delta, which contains a mix of large urban communities and small rural communities. **Indices used to identify environmental justice communities are also limited by data availability, which is especially a problem in rural areas and for traditionally hard-to-count populations.** As discussed in the Council's Delta Adapts Equity Technical Memorandum, many vulnerable populations are not well captured by existing indices and indicators (Council, 2021a). Furthermore, Native American tribes and other underrepresented communities have historically not been accurately reported in census data, and thus, indices that use historical census data may not accurately represent the most vulnerable and marginalized communities (Haaland & Ortiz, 2022). Given these concerns about which indicators should be used to identify environmental justice communities, the scale at which to measure the indicators, and data inaccuracies at different scales, it may be more appropriate to identify environmental justice communities within the context of specific programs or regulatory actions (Industrial Economics, Incorporated, 2016; U.S. EPA, 2013; U.S. EPA, 2016). Such an approach would allow the use of the most appropriate indicators and data to define environmental justice communities in a given scenario.

Another issue with the state's current approaches to defining environmental justice communities has been the conflation of California Native American tribes with environmental justice communities/disadvantaged communities. In these definitions and programs, tribes are often considered disadvantaged communities, but some tribal representatives have expressed that this term "erodes the self-governing nature of [tribes]" (Haaland & Ortiz, 2022). Additionally, many existing mapping tools "do not provide data from tribal lands and various other local reporting metrics which are not included in census data. Tribes may not fully participate in census and environmental quality data gathering because of historical mistrust of governmental reporting methods, leading to the inability to provide clear metrics for third-party review" (Haaland & Ortiz, 2022).

The state has established numerous statutory definitions that relate to environmental justice communities. While no statutory definition uses the specific term "environmental justice community," various statutes specify related definitions for disadvantaged communities, vulnerable communities, and various other terms. State agencies and programs similarly apply a variety of different terms and definitions related to these communities (see **Appendix B:** Definitions). It is important to note

that neither the Delta Reform Act nor the Delta Plan defines environmental justice communities.

For purposes of this issue paper, environmental justice communities are those specified in Health & Safety Code section 39711, which directs the California Environmental Protection Agency to identify the "final designation of disadvantaged communities" for Greenhouse Gas Reduction Fund allocations.

This statute specifies that:

> "[t]hese communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:
>
> > (1) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation;
> >
> > (2) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment."

Section 4: History and Context: Tribal and Environmental Justice in the Delta

The landscape of the Delta and its watershed has been radically transformed from pre-Euro-American colonization and settlement to the present day (**Figure 4**). This transformation from an Indigenous-managed marshland to the epicenter of California's industrial agricultural sector and freshwater conveyance system set into motion many of the environmental injustices that shape the region today (Dillon, 2021; Zedler & Stevens, 2018).

This historical context recognizes that the environmental injustices experienced by communities in and around the Delta today have evolved through complex and interdependent social, ecological, economic, and engineering developments across the region. This context highlights some key historical events in and around the Delta, drawing from a large body of work led by environmental justice communities, tribal communities, and academics.

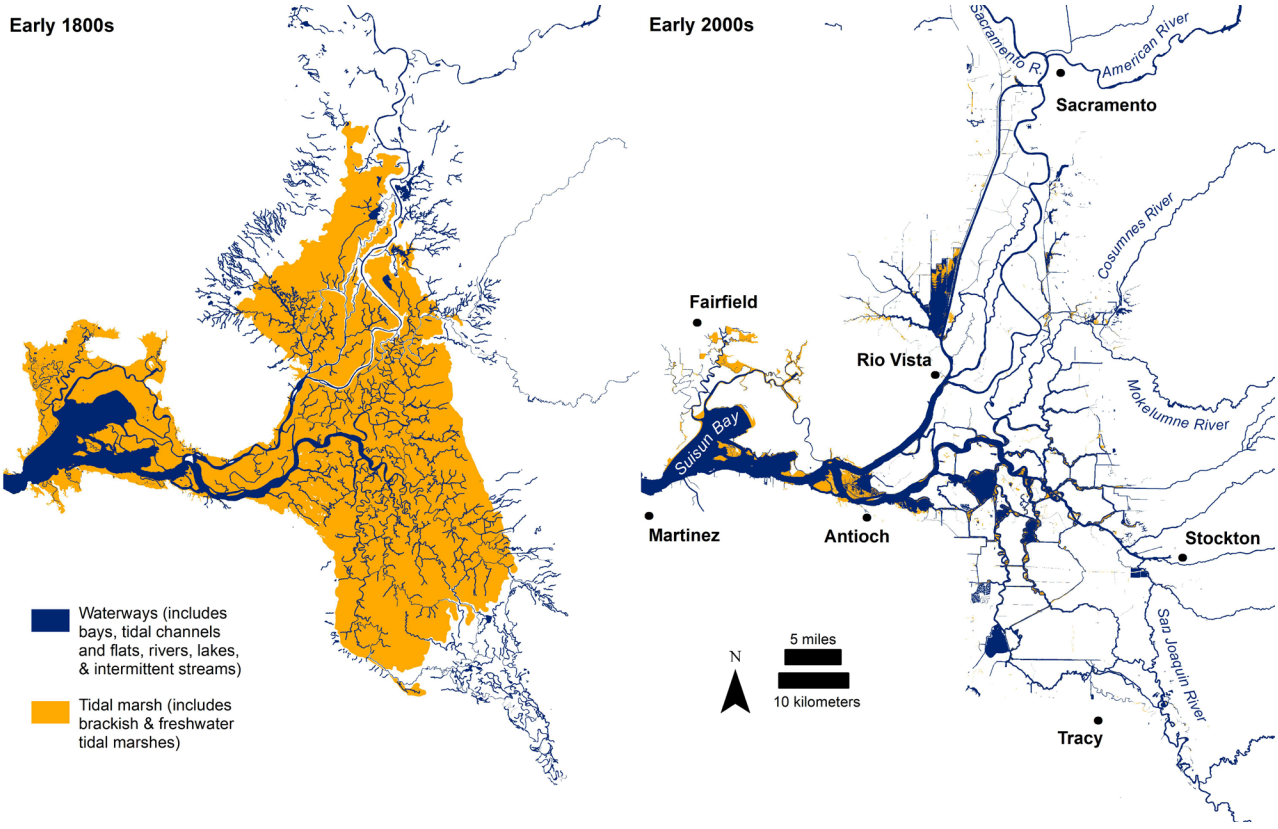


Figure 4: Comparison of the historic (early 1800s, left panel) and modern (early 2000s, right panel) Delta waterways and tidal marsh habitats. Figure created using data published in Whipple et al. (2012).

Displacement and Maltreatment of Original Inhabitants of the Delta

Indigenous peoples have lived in and managed the Delta landscape since time immemorial. The Delta watershed and larger San Francisco Bay estuary were occupied by the Native Peoples of the numerous villages and tribes of the Bay Miwok, Coast Miwok, Plains Miwok, Maidu, Nisenan, Ohlone, Patwin, Pomo, Wappo, Wintun, Washoe, and Yokuts (see **Figure 5** for a map of California tribal territories before European contact). However, it is important to note that while these tribes were physically located in and around what is defined as the Delta today, tribes throughout the California region viewed and still view the entire watershed that runs from Mount Shasta to the Tulare Basin as one interconnected, culturally sacred system that cannot be demarcated into sections (heard in tribal pre-consultations prior to release of the public draft of this issue paper).

Tribal communities fished, hunted, and carefully harvested over 500 species of plants in the region to meet cultural, spiritual, ceremonial, and subsistence needs. Active management by tribes directly supported the vast diversity and abundance of plant and animal species present in the region when settlers arrived (Stuart, 2016a; Zedler & Stevens, 2018). These tribes used water to support their cultural, spiritual, ceremonial, subsistence, and/or traditional practices. For example, as Hankins (2018) describes, “For millennia, [Plains Miwok] have asserted the ancestral responsibility to ensure the balance and stewardship of land and water is maintained. Within this context, water is a sacred element of life, and this view is shared by many other Indigenous people around the world; it is a lifegiving force to which all creation is connected.”

Euro-American settlement of the Delta devastated the Native American populations of the region. Spanish colonizers arrived in Northern California in the late 18th century, leading many coastal tribal nations to retreat to the Delta’s tule wetland and riparian corridors as places of refuge to escape Spanish militias (Garone, 2020). Malaria was introduced in 1832 and spread rapidly by the mosquitos in the Delta’s wetlands, wiping out entire tribal villages with an estimated mortality rate of around 75% of the Native population at that time (Cook, 1955a; Stuart, 2016b). Cholera (1833) and smallpox (1839) followed, with similarly high death rates (Cook, 1955b; Ingebritsen & Ikehara, 1999). Surviving tribal members were captured and forced into slavery by the Spanish in missions, where casualty rates under brutal labor conditions were extremely high (Zedler & Stevens, 2018).

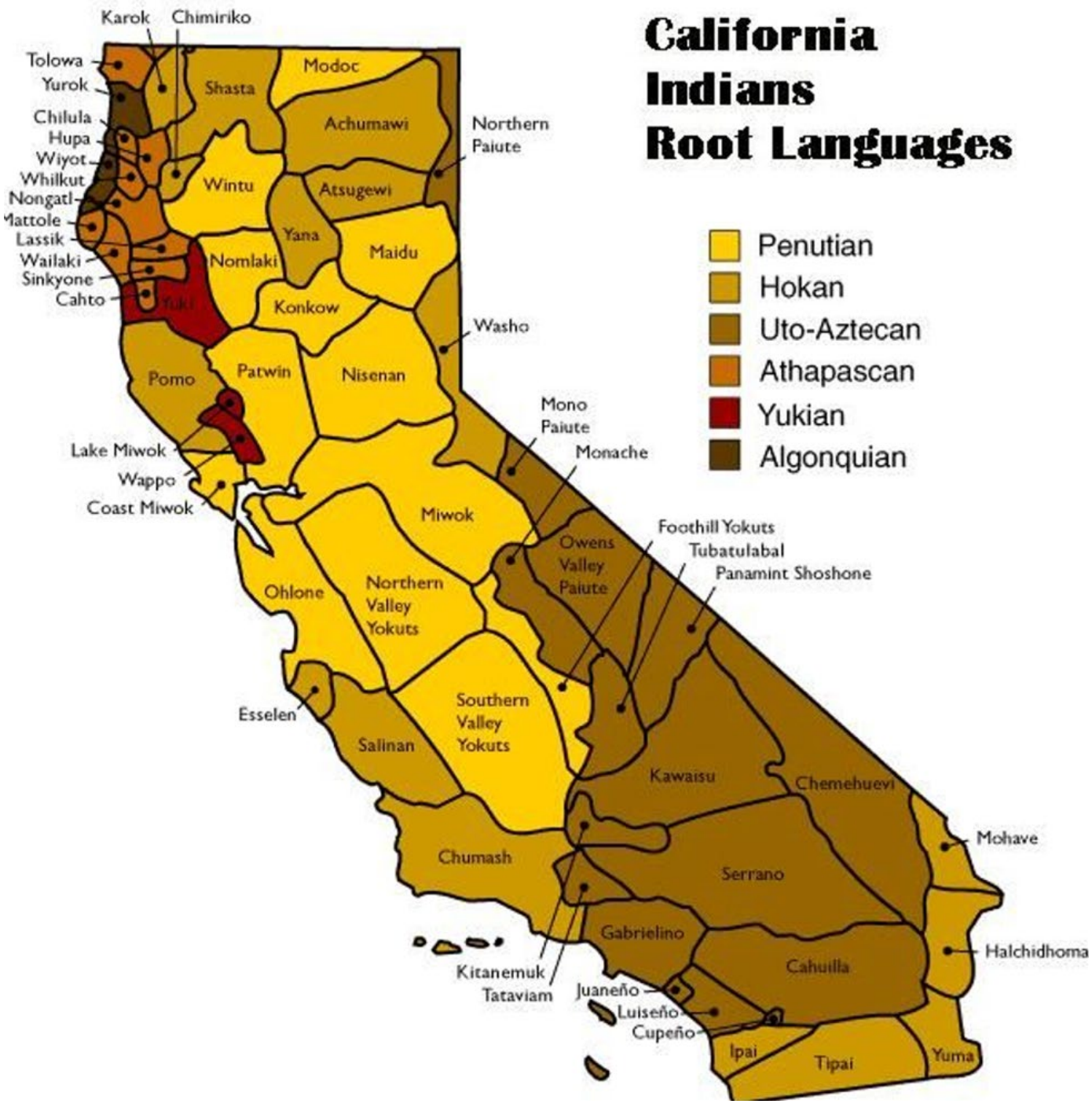


Figure 5: Map of California Indian Root Languages and Tribal Groups. Source: Hinton, 1994.

Despite active resistance during Spanish colonization, by the beginning of the California Gold Rush in 1849, the Indigenous populations in and around the Delta had been largely decimated. U.S. settlement in the American West was no less brutal, especially in California, where the state sponsored extermination campaigns against

California tribes. This included the 1850 Act for the Government and Protection of Indians and state-funded “expeditions against the Indians,” which forcibly removed California tribes from their traditional lands and separated generations of families through kidnapping and indentured servitude (Judicial Branch of California, 2025). The state also took an antagonistic approach to 18 treaties signed in 1851 and 1852 with California tribes by the federal government that reserved 7.5 million acres of land for tribes, actively convincing the United States Senate to never ratify these treaties (Judicial Branch of California, 2025). Some of these treaties were with tribes located in, and set aside land within, the larger Delta watershed, including the ancestral boundaries of the Konkow (Treaty G, Royce #290), Miwok (Treaties E and J, Royce #280 and 301), Nisenan (Treaty F, Royce #287), Northern Valley Yokuts (Treaty M, Royce #273) and Patwin (Treaty I, Royce #298) (California Indian History, 2016; US Government Treaties and Reports, 2016). In addition, the federal Relocation Act of 1956 and the state Rancheria Act of 1958 further forced tribal relocation away from traditional homelands and reservations and dispossessed many tribes of their federal recognition (Judicial Branch of California, 2025).

Still, in defiance of violent displacement and land dispossession, the introduction of disease, slavery, forced assimilation, and genocide, Native American people have survived and continue to resist colonial processes of assimilation and erasure (Dillon, 2021; Stuart, 2016b; Sze et al., 2009; Zedler & Stevens, 2018). Today, those original villages and tribes that resided in the Delta watershed and larger San Francisco Bay estuary are represented by numerous local tribes, both federally and non-federally recognized. Many Native American people live on reservations or rancherias outside of the Delta in the eastern foothills of the Sierra Nevada (Stuart, 2021), as well as in urban areas throughout the watershed. Displacements continued even after the western settlement of California, as detailed further in the discussion of water infrastructure development found later in this section.

Even as tribes in the Delta region and across California have shown remarkable resilience, the forcible removal of Native populations from their traditional homelands by Euro-American colonizers has had long-lasting implications on tribal livelihood.

Exploitation During the Reclamation Era

Coinciding with the discovery of gold in the California foothills in the late 1840s and California's statehood in 1850, the 80-year period known as the "Reclamation Era" began (Lund et al., 2007). Soon after California was granted statehood, the second of three federal "Swamp Lands Acts" ("An Act to enable the state of Arkansas, and other states to reclaim the swamp lands within their limits") transferred 2.2 million acres of federal "swamp lands" to the state of California for sale to individuals to "reclaim" (i.e., drain and cultivate), with most of these swamp lands consisting of tule marsh in the Delta (Hindle & Bhatia, 2017; Peterson, 1974). While the Swamp Lands Acts facilitated and incentivized large-scale reclamation, other factors contributed – including the presence of malaria in the Central Valley (introduced in 1832), which provided an additional incentive for draining and converting wetlands (as it was then believed that malaria came from a gas believed to be associated with swamp lands), as well as the perception by settlers that swamp lands were useless (Garone, 2020). Naming the Delta as a swamp signaled to settlers that it needed to be drained, leveed, and farmed, despite the fact that Indigenous peoples had been living in these lands for generations upon generations (Claire & Surprise, 2022; Hindle & Bhatia, 2017; Peterson, 1974). While reclamation efforts were initially spurred by the Swamp Lands Acts and sentiments that the Delta needed to be tamed, eventually settlers realized that the Delta was an ideal area for agriculture due to its fertile soils, abundant water, and access to nearby markets (Sze et al., 2009).

The Delta region, however, was prone to periodic, devastating floods, making levee-building mandatory to enable large-scale agricultural development (Bradner & Singleton, 2017; Ingebritsen & Ikehara, 1999). Practices during the Gold Rush – especially hydraulic mining – exacerbated flood risks in the Central Valley, including in the Delta (Bradner & Singleton, 2017). Hydraulic mining sent huge amounts of sediment downstream, where it was deposited in streams and rivers and caused extensive property damage and flooding downstream (Alpers et al., 2005; Bradner & Singleton, 2017).

Throughout the Reclamation Era, Chinese immigrants and Native American workers largely carried out the strenuous and dangerous labor of draining "swamp lands," dredging channels, and manually constructing a network of levees that enabled Delta wetlands to be converted to agriculture (Dillon, 2021). Many Chinese immigrants initially worked in gold mines and then on the Transcontinental Railroad (Helzer, 2015). Discrimination against Chinese miners and the completion of the

Transcontinental Railroad led to Chinese laborers being widely available for early levee-building efforts in the Delta (Helzer, 2015). Through these actions, the Delta landscape, and consequently, its ecosystems, were fundamentally altered. The reclamation efforts that began in the 1850s and 1860s continue today via levee maintenance and drainage actions, carried out in large part by today's Reclamation Districts along with federal and state agencies. **Today, 1,100 miles of levees protect against flooding and related hazards, but the resulting patchwork of islands and channelized waterways has also resulted in the dramatic loss of marshland, tidal species, and habitats.** As a result of human modifications, only approximately 3% of the Delta's historical tidal wetlands remain today (Whipple et al., 2012).

Draining and farming the Delta's historical wetlands also initiated a process of land subsidence, mostly due to the oxidation of peat soils but also from wind erosion (Council, 2013b; Council, 2022a). Drainage and cultivation dried the saturated peat, reducing its volume by approximately half; it is estimated that drainage of the Delta's peatlands has led to the loss of half of the Delta's soil carbon stock (Windham-Myers et al., 2023). Early cultivation practices also included burning, which further reduced the volume of the soil and altered its structure (Council, 2013b; Council, 2022a). Because of this historic and ongoing subsidence, much of the central Delta today is below sea level, with some islands as low as 9 meters below sea level (Windham-Myers et al., 2023). Ongoing subsidence continues today across much of the Delta; negative impacts from subsidence include worsening flood risks and increased levee maintenance costs, increased risks to water quality and water supply reliability, reduced extent of areas suitable for restoration of tidal marsh habitat, and significant greenhouse gas (GHG) emissions (Council, 2022a). Deverel et al. (2020) estimated that the total annual GHG emission from organic-matter oxidation in the Delta is 2 million metric tons of carbon dioxide equivalent – approximately 1% of the state's total GHG emissions, 6% of the state's agricultural emissions, and 21% of the state's non-animal agricultural emissions.

The degradation of the Delta landscape – through the draining and conversion of its wetlands to farmland – has been detrimental to many ecosystems, and, from an ecocultural perspective, it further eroded the basis of Native cultures and lifeways. After levee building and reclamation efforts were complete, some Chinese immigrants remained in the Delta to work as tenant farmers and low-wage farm laborers. However, Chinese immigrant presences diminished due to the absolute 10-year ban on immigration through the 1882 Chinese Exclusion Act. Many Chinese immigrants found refuge in the Delta's "Chinatowns". One unique example is the

Delta legacy community of Locke, originally named Lockeport – the only town in the U.S. that was built exclusively by Chinese Americans for Chinese Americans (Visit CA Delta, 2025). Today, the town of Locke still stands and remains much the same as it was when it was built over one hundred years ago, even having withstood flooding, poverty, racial discrimination, and neglect (DOI, 2018; The Locke Foundation, n.d.). One such instance of neglect pertains to Locke's water system, which reportedly has arsenic levels far above the state and federal standards (Kitagaki, 2018). For communities like Locke experiencing water quality and infrastructure concerns, solutions like overhauling a system or adding a new water connection are often costly and inaccessible.

Given the impacts of the Chinese Exclusion Act on California's workforce, Japanese immigrants became a major source of labor. Particularly adept at farming, Japanese immigrants were seen as a significant threat to the white agricultural industry. Largely in response to the successes of Japanese immigrants in this sector, California passed the 1913 Alien Land Law (Chin & Ratner, 2023). Most notably, the law excluded Asian immigrants and others ineligible for citizenship from agricultural property ownership. California's Alien Land Law, which was not ruled unconstitutional until 1952, isolated and disenfranchised Asian immigrants and prevented the building of generational wealth in the state's agricultural sector. Because the state's water rights system is, in many ways, tied to property ownership, this exclusionary legal landscape also had legacy impacts on the water access of many other immigrants of color seeking to own land in California (Cho, 2024).

The U.S. federal and California state governments' long history of violence forced removal of, and discrimination against Indigenous communities in California, has also had lasting impacts on tribal access to water. As the State Water Board writes in its Resolution No. 2021-0050, "[t]he colonization, displacement, and genocide of Native American people in the United States have contributed to the loss of water resource and watershed management practices that supported Native American people's traditional food sources and ways of life....Historical land seizures, broken promises related to federal treaty rights, and failures to recognize and protect federal reserved rights, have resulted in the loss of associated water rights and other natural resources of value, as well as cultural, spiritual, and subsistence traditions that Native American people have practiced since time immemorial....As a result, California Native American Tribes continue to face barriers to defining, quantifying, accessing, protecting, and controlling their ancestral lands, water rights, instream flows, cultural resources, and beneficial uses" (SWRCB, 2021b).

Exclusionary and Extractive Industrialization and Pollution

The California Gold Rush, Reclamation Era, and subsequent regional industrialization resulted in significant economic development for the Delta and Delta watershed. Economic development also created large amounts of pollution that have had negative impacts on natural ecosystems and the communities living and working in and around the Delta from the early 1900s through the present day. Following the Gold Rush era, many decades of intensive metal and mineral mining across the Sierra Nevada foothills and Coastal Range followed. Mining operations created runoff of sediment, chemicals, and heavy metals throughout the watershed, with lasting impacts on the estuary as contaminants have accumulated in the sediment that settled in the Delta and out through the San Francisco Bay (van Geen & Luoma, 1999). Similarly, industrialized, input-intensive agricultural systems across the entire Central Valley have precipitated a pronounced increase in pesticide and fertilizer runoff into the Delta watershed (Delta Independent Science Board, 2018). Today, more than 100 industries, wastewater treatment plants, and urban stormwater discharges drain into the Delta and San Francisco Bay, contributing to poor water quality (Luoma et al., 2015). Poor water quality throughout the Delta watershed, driven by these legacy and current contamination sources, continues to impair terrestrial and aquatic ecosystem functions, spur the development of HABs, contaminate drinking water systems, and threaten public health, especially for recreationists and subsistence fishers in the Delta. See the callout box for a more detailed list of current contaminants and their sources in the Delta and San Francisco Bay. (Environmental justice issues related to water quality are discussed in greater detail in **Section 5**.)

Delta and San Francisco Bay Contaminants

Luoma et al. (2015) summarized contaminants in the Delta and San Francisco Bay along with their sources:

- "Mercury from historic mining sources contaminates food webs.
- Selenium from Central Valley irrigation drainage and Bay refineries affects reproduction of native predator species in the Bay.
- Organic chemicals remaining in sediments from historic use accumulate in food webs, including DDT and its breakdown products, and polychlorinated biphenyls (PCBs).
- Pharmaceuticals, flame retardants, and personal care products from waste treatment facilities disrupt endocrine systems of aquatic organisms and birds.
- Multiple, changing pesticides from agriculture and urban uses cause toxicity at least near their points of release.
- Nutrient inputs from wastewater treatment facilities and other sources affect Delta food webs.
- Nitrogen, phosphorous, and other nutrients stimulate nuisance or toxic algal blooms and water weeds, as turbidity of water declines."

Redlining and Correlation with Present-Day Exposure to Environmental Hazards

In the 1930s, under the New Deal, the Federal Housing Authority (FHA) initiated programs aimed at addressing housing shortages, which furthered racial segregation in cities across the U.S. These programs created racialized patterns of segregation, housing discrimination, and disproportionate exposure to environmental harms that remain in place today. The process of "redlining" allowed for the Home Owners Loan Corporation (HOLC) and FHA to assess maps of metropolitan areas across the country and assign neighborhoods color codes (green, blue, yellow, or red, from most to least desirable) to indicate where financial investment and home mortgages were deemed "safe". The explicitly race-based classification system enabled systematic discrimination against Black and other homebuyers of color, who were denied access to credit and home mortgages because their neighborhoods were "redlined" as undesirable (CalEPA, 2021b; Rothstein, 2017).

A significant and growing area of research seeks to illuminate the patterns of exposure to environmental harms and present-day socio-demographic characteristics of neighborhoods in relation to the 1930s HOLC neighborhood classification maps (CalEPA, 2021b). **Across multiple states and metropolitan areas, research consistently reveals correlations between historically redlined neighborhoods and present-day areas experiencing the highest levels of exposure to environmental hazards** and the greatest vulnerability to those hazards based on socio-demographic factors of race, income, immigration status and languages spoken (Bullard, 1993; Cushing et al., 2015; Merchant, 2003). This growing body of evidence points to the legacy of racialized and discriminatory urban development and urban planning histories that have created conditions in which low-income communities and communities of color are more likely to live and work in more hazardous environments (CSIWG, 2018; OPR, 2017; Rothstein, 2017; Shonkoff et al., 2011).

In the Delta, studies have examined the correlation between formerly redlined areas and present-day exposure to environmental hazards in the metropolitan areas of Sacramento and Stockton. In Sacramento, while not in the legal Delta, redlined neighborhoods were located in the western reaches of the city adjacent to the Sacramento River, close to shipping ports and railroad throughways (see **Figure 6**). Continual industrial development near the Port of West Sacramento creates heavy pollution exposure in these neighborhoods today. In Stockton, redlined neighborhoods were predominantly located in the southern parts of the city (see

Figure 7). Today, industrial sites, distribution centers, and trucking routes are heavily located in South Stockton, causing significant air pollution concerns (CalEPA, 2021b). In all eight California cities included in the HOLC assessments, including Sacramento and Stockton, formerly redlined neighborhoods have the highest CalEnviroScreen 3.0 scores, meaning these neighborhoods today experience high levels of pollution burden or vulnerability (CalEPA, 2021b). Nationally, formerly redlined neighborhoods (including those in Stockton and Sacramento) experience disproportionately higher risks of current and future flooding and extreme heat compared to neighborhoods that were not redlined (Katz, 2021; Salazar-Miranda et al., 2024).

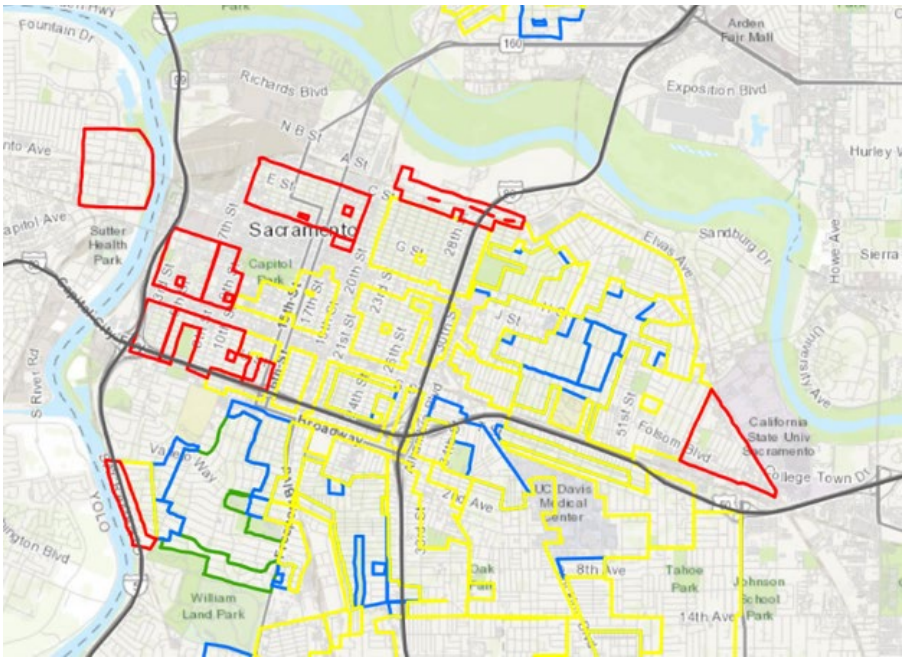


Figure 6: Downtown Sacramento redlined neighborhoods. Map shows HOLC color classifications, with neighborhoods outlined in red being those that were "redlined" from financial investment. Map from CalEPA's "Pollution and Prejudice" (CalEPA, 2021b).

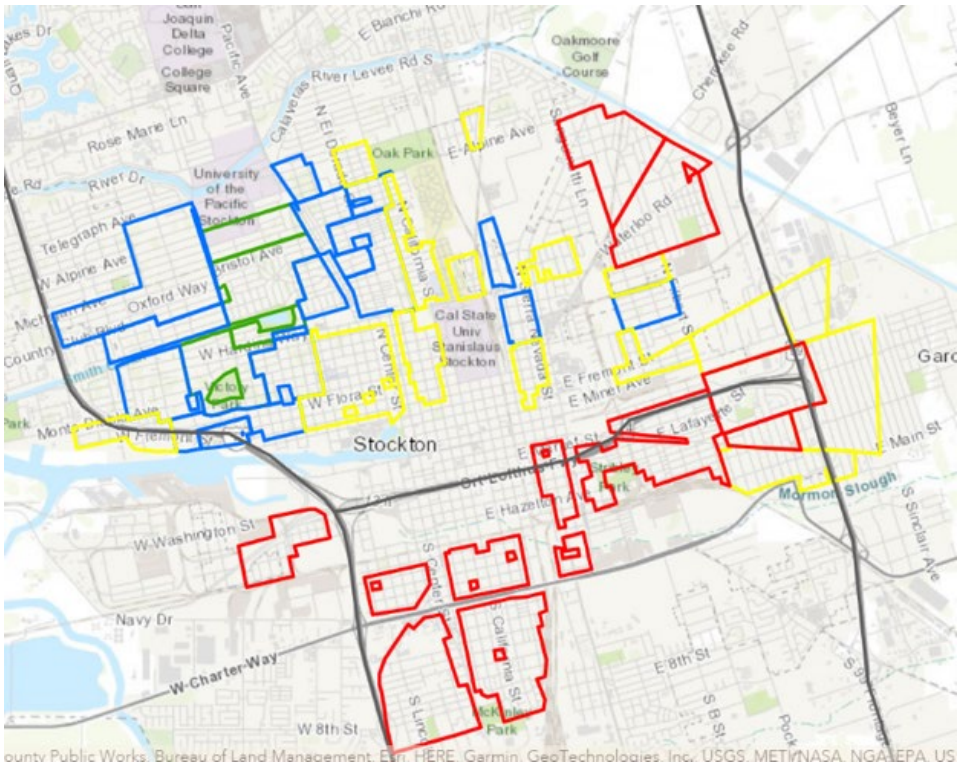


Figure 7: *Stockton redlined neighborhoods. Map shows HOLC color classifications, with neighborhoods outlined in red being those that were "redlined" from financial investment. Map from CalEPA's "Pollution and Prejudice" (CalEPA, 2021b)*

Water Infrastructure

In addition to industrial and municipal development, the Delta was transformed dramatically throughout the 20th century as large-scale water infrastructure was developed throughout the state. To provide more reliable water supplies despite the state's hydrologic variability and diverse geography, state, federal, and local agencies built a vast water infrastructure system throughout California. The Delta, because of its geographic location sitting at the confluence of the Sacramento and San Joaquin rivers and its role today in conveying water supplies, is the central distributional node in California's current water system. Rivers and dredged channels act as conveyance canals, and pumping plants provide the momentum to move stored water to areas south. California's overall system includes a range of surface reservoirs, aqueducts, pumping plants, operable gates, groundwater wells, and water treatment facilities constructed over the last hundred-plus years (Council, 2018).

Pushed to meet these water supply demands, the Delta has been vastly transformed over time with the development of this water infrastructure system, including the development of the State Water Project (SWP) and federal Central Valley Project (CVP)

– the two largest water systems in the state (CNRA & DWR, 2023) – as well as other water infrastructure for upstream diversions and in-Delta water use. The existing state and federal water systems were designed principally to address the state's geographic imbalance between abundant, seasonal water supplies north of the Delta and agricultural, municipal, and industrial water demands to the south (Council, 2018).

During the past 150 years, human activities – including water diversions, reclamation of tidal marsh, and channelization of Delta waterways – have resulted in increased salinity levels in the Delta compared to historical levels (Contra Costa Water District, 2010; Whipple et al., 2012). The location, extent, and dynamics of the freshwater-saltwater gradient in the Delta have been altered by landscape modification, water management, and flood management infrastructure such as dams and conveyance facilities, levees, and channel dredging (Council, 2013c). Present-day communities and economic activity within the Delta, as well as people and economic activity that rely on Delta water exports, depend on Delta water quality being maintained to adequate standards.

Upstream Diversions

About half of the state's runoff flows through the Delta watershed. Many diversions in the Delta watershed occur in the upper watershed. On average, approximately 31 percent of the flow from the Delta watershed is diverted before it ever reaches the Delta. These diversions are done through an extensive network of locally constructed dams, canals, and diversion structures that have been built over the past century and a half on nearly every stream and drainage within the Delta watershed. Some of the water diverted from Delta tributaries is returned to the tributaries through wastewater effluent and agricultural return flows, albeit at a degraded quality. Water from these diversions sustains the economies of the residents, businesses, and growers who live in the areas where the water comes from, as well as the economies in the export areas. Some of these historical diversions occur through two large aqueduct and reservoir systems that were constructed early in the 20th century to serve the growing water demands of San Francisco and East Bay Area communities. These facilities – the Hetch Hetchy and Mokelumne River aqueducts and associated infrastructure – divert water before it reaches the Delta and convey it directly to reservoirs, treatment facilities, or customers in the Bay Area region.

In-Delta Water Use

Within the Delta, growers and residents have historically relied on Delta water. Most of this water is used for agricultural irrigation, as well as to supply water for small and large communities throughout the Delta (Council, 2018). Over 1,800 in-Delta diversions remove water directly from channels and sloughs for irrigation use. At the same time, many in-Delta water users also have to actively de-water their land by pumping water off islands to lower groundwater levels to below crop root zones (Council, 2021c). Some Delta water is diverted to provide water for human communities within the Delta; a number of water systems supplying Delta communities use groundwater (either solely or in conjunction with surface water). Delta surface water and groundwater are connected to varying degrees depending on the specific area; surface and groundwater interaction in a given area depends on a variety of factors, such as local hydrology and geology (Council, 2018; SWRCB, 2023c). Surface water quality can directly affect groundwater quality (SWRCB, 2023c).

Delta Water Exports

Delta water exports now provide water to more than 27 million Californians (including environmental justice communities throughout the state) and provide irrigation water for about 3 million acres of farmland (Council, 2023d; DWR & Berkeley Research Group, 2023). About two-thirds of the state's population in urban areas receive at least a portion of their water supply from Delta water exports (CNRA & DWR, 2023). As part of the CVP and SWP, a massive network of dams, canals, pipelines, and other associated infrastructure exports Delta water for use across much of the state – including the San Joaquin Valley, Southern California, central California coast, as well as the San Francisco Bay Area (**Figure 8**). A report prepared by Berkeley Research Group in collaboration with DWR has estimated that, depending on the definition used, between 6.6 and 8.2 million people residing in areas considered disadvantaged communities are served by SWP water, with most of these individuals residing in Southern California (DWR & Berkeley Research Group, 2023).

While the primary purpose of the CVP and SWP is to provide water for municipal, industrial, and agricultural use, the projects also provide flood control benefits, generate electrical power, and provide water to wildlife refuges (DWR, n.d.; USBR, 2023). Using water provided by these projects, especially the CVP, water availability expanded dramatically from the early 1900s through the 1950s for irrigated agriculture in the Central Valley (Claire & Surprise, 2022; Sze et al., 2009).

Figure 8: The Delta watershed and areas that receive Delta water. From Council, 2013a.

Water Infrastructure and Associated Environmental Justice Issues

Alongside its water supply and other benefits, including its essential role in maintaining Delta water quality for human uses today, this system of water infrastructure and conveyance has had associated negative impacts on the physical environment (both within and outside of the Delta) and people, including the original Indigenous inhabitants of California. For example, prior to the 1970s, the construction and operation of water infrastructure, including the SWP and CVP, were not required to consider or mitigate impacts on native species (Council, 2018). In redistributing access to freshwater resources across the state, the CVP, for example, caused major disruptions to the Central Valley's ecological and hydrological systems; most CVP facilities were constructed before major federal natural resources and environmental protection laws were enacted (Dunning, 1993; Stern et al., 2023). However, beginning in the 1970s, with the passage of a host of environmental protection laws, the protection of the ecosystem became an explicit legal obligation for the SWP and CVP in addition to the delivery of fresh water for agricultural and urban use (Council, 2018). Furthermore, the Public Trust Doctrine protects the state's navigable lakes and streams as resources held in trust for the public for navigation, commerce, fishing, recreational, ecological, and other public values (Council, 2018). The California Supreme Court has held that the state "has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible" (*National Audubon Society v. Superior Court*, (1983) 33 Cal. 3d 419, 658 P.2d 709, 189 Cal. Rptr. 346). Today, much of the debate related to the continued operation of the CVP relates to how to address its impacts on ecosystems and the hydrologic system that were not mitigated when the project was initially constructed (Stern et al., 2023).

Water infrastructure – along with other uses and development of land by non-native people today in the Delta and across the state – sits on unceded land, in most cases with no compensation given to the Indigenous people who had inhabited it. The ethos that all available water should be put to "productive" use for agriculture and urban development through storage and human control of the system – the dominant worldview at the time of the initial construction of much of California's water infrastructure, including the CVP and SWP – is fundamentally at odds with an Indigenous worldview, including the knowledge and practices that were embedded within the Delta's historical ecology (Middleton-Manning et al., 2018). Expansion of irrigated agriculture in the Central Valley, facilitated in large part by the CVP, led to further displacement of native Californian peoples, as well as disruption of cultural

resources, historical and traditional practices, and subsistence livelihoods across the Central Valley, as the landscape was transformed to benefit commercial and industrial agricultural development (Middleton-Manning et al., 2018).

The environmental justice implications of government-funded water infrastructure and conveyance systems in California extend beyond impacts to California tribal communities. For example, strategist Amy Vanderwarker (2012), citing other literature, describes how federal water infrastructure, including the CVP, has subsidized industrial agriculture while investing much less in the surrounding communities who bear its burdens, noting that much of these subsidies go to large-scale corporate agriculture, rather than small family farmers as initially intended. Vanderwarker (2012) states,

> "Even though the federal government spends billions on water, energy, and crop subsidies, it does not authorize enough money to help provide safe drinking water to small systems in the same agricultural areas. In some areas of California, farms receive federally subsidized irrigation water piped from hundreds of miles away, while low-income communities next door cannot drink their tap water due to agricultural contamination…".

For instance, a number of agricultural water districts south of the Delta rely on substantial amounts of water exported from the Delta. An analysis of available data on the use of Delta water exports, through a review of submitted Agricultural Water Management Plans, found that of 33 agricultural water districts south of the Delta that had data available to assess reliance on Delta exports, 17 are highly reliant on Delta exports (defined as receiving more than 50% of their total water supply from the CVP or SWP) (Noble et al., 2023). The infrastructure that delivers water to these agricultural water districts is located near a number of small community water systems that are currently out of compliance with drinking water standards (Noble et al., 2023). Water system consolidation is considered financially feasible when systems are within three miles of each other (London et al., 2018). It was found that within three miles of the 17 highly reliant agricultural water districts, 30 out-of-compliance water systems serving unincorporated communities were providing water to 191,692 people (Noble et al., 2023). Supplying these communities with water for one year would take just 0.7% of the total water supply of the nearby, highly reliant agricultural water districts (Noble et al., 2023). While raw Delta export water must be treated to be suitable for drinking water, contaminated groundwater – which most out-of-

compliance water systems rely on as their primary water source – is usually more difficult to treat than surface water (Chappelle et al., 2021).

This analysis suggests there is both a large need and a relatively feasible opportunity for Delta water to be more equitably distributed to address drinking water needs. However, additional funding and technical assistance would be needed to fund water system consolidation and adequate water treatment infrastructure for these small water systems, which often lack the necessary financial, technical, and managerial capacity (Chappelle & Hanak, 2015). When other solutions are not feasible, physical consolidation of small water systems with larger systems can be a cost-effective way to address water supply and water quality issues in small water systems (Hanak et al., 2019). When small water systems are too dispersed to make physical consolidation feasible, on-site solutions (e.g., water treatment infrastructure) are needed; administrative consolidation (providing smaller water systems with technical and managerial economies of scale), such as through a joint powers authority, can help address lack of capacity (Hanak et al., 2019).

There has been continued debate and litigation for decades over proposals to further alter water conveyance infrastructure and increase reliability for water exports from north to south (e.g., the Delta Peripheral Canal proposal, the Bay Delta Conservation Plan, California WaterFix project, and the current Delta Conveyance Project). This remains an active debate, with the distributional benefits and impacts of these projects central in conflicting perspectives. Delta water management, more broadly, has always been political and contested, but environmental justice narratives are increasingly being brought from margin to center, largely through the work of tribes and CBOs. An example of this is the *Title VI Complaint and Petition for Rulemaking for Promulgation of Bay-Delta Water Quality Standards*, brought forward by the Shingle Springs Band of Miwok Indians, the Winnemem Wintu Tribe, Little Manila Rising, Restore the Delta, and Save California Salmon against the State Water Resources Control Board. The petition asks the U.S. EPA to initiate an investigation into the State Water Resources Control Board's water management policies and practices in the Bay-Delta and initiate a rulemaking to adopt Clean Water Act-compliant water quality standards for the Bay-Delta, including designating Tribal Beneficial Uses and adopting flow-based, temperature, and HAB criteria that protect beneficial uses and tribal reserved rights. The petition was filed on December 16, 2022, and was accepted by the U.S. EPA on August 9, 2023.

Past and Ongoing Statewide and Delta Environmental Justice Initiatives

Statewide Environmental Justice Policy Efforts

Catalyzed by environmental justice activism and scholarship, the past twenty years have seen an increase in public policy interventions to address the inequitable distribution of environmental goods and harms across the country, including in California (Harrison, 2019). Across California's state government, multiple environmental and natural resource management agencies are devoting increasing attention toward inequities in the environment that fall along racial, class, and socio-economic lines. Many state agencies have convened environmental justice advisory groups, established environmental justice policies and programs, hired dedicated environmental justice staff, developed environmental justice grant programs (e.g., CalEPA's environmental justice Grants Program), and conducted quantitative analyses to assess the distribution of environmental goods and harms across different communities (e.g., Office of Environmental Health Hazard Assessment's CalEnviroScreen). See the callout box below for more information about state agency environmental justice efforts.

Critiques of State Efforts

Initially, the state's environmental justice efforts primarily focused on improving opportunities for public participation (Liévanos, 2012; London et al., 2008). Improving equitable participation processes and ensuring all communities, not just those with political power, have a voice in important environmental decision-making processes is central to procedural and representational justice. However, researchers have concluded that it is not sufficient for environmental justice policy efforts to focus on process alone (Dobbin & Lubell, 2019; Liévanos, 2012; London et al., 2008); rather, they called on the state agencies to expand their environmental justice work to push for measures (e.g., monitoring, regulatory enforcement, selective permitting) that materially address disproportionately distributed environmental goods and harms and reduce health, economic and well-being disparities driven by unequal living, working, and recreational conditions (Harrison, 2019; London et al., 2008).

Other aspects of state environmental justice initiatives have been critiqued. For example, environmental justice advocates and scholars have persistently criticized California's choice of a market-based mechanism to achieve GHG reduction goals (i.e.,

the California Cap and Trade system, regulated by the California Air Resources Board (CARB)), as market-based systems give polluters the power to pay to pollute and local environmental impacts such as air pollution continue to burden the most vulnerable communities (Cushing et al., 2018; Liévanos, 2012; London et al., 2013; Sze et al., 2009). This illuminates that communities are disproportionately empowered or burdened by the selection of different policy instruments (Howlett, 2009). Furthermore, academic critics have observed that environmental justice advisory groups and committees usually have no formal authority, limiting their influence over policy design and implementation, with some research concluding that many environmental justice advisory groups are merely symbolic, fostering the appearance that the state is working to integrate environmental justice into policy goals, but lack the power and resources to produce tangible change (Liévanos, 2012; London et al., 2013; London et al., 2008; Sze et al., 2009).

The California Environmental Justice Alliance (CEJA), a coalition of community-based and statewide advocacy groups who work together to advance environmental justice goals across the state, publishes annual assessments of several California state agencies' efforts to develop, implement and monitor policies that affect low-income communities and communities of color. CEJA recognized positive actions these agencies have taken to reduce pollution sources and spend more time with impacted communities. From 2016-2020, however, CEJA found an overall decline in agencies' performance across multiple categories, including protecting human well-being, respecting community expertise, and meaningfully conducting community engagement (CEJA, 2020).

Examples of State and Federal Agency Tribal and Environmental Justice Efforts

Tribal Justice

- Governor Executive Orders: EO B-10-11 and EO N-15-19
- California Truth and Healing Council
- 2020 Statement on Administration Policy on Native American Ancestral Lands (Office of the Governor, 2020)

Environmental Justice

Policies and Procedures

- The San Francisco Bay Plan, Environmental Justice and Social Equity findings and policies (2019b)
- The California State Lands Commission's Environmental Justice Policy (2018)
- The California Coastal Commission's Environmental Justice Policy (2019)
- The Ocean Protection Council's Equity Plan (2022)

Racial Equity Plans

- California Department of Water Resources' Racial Equity Action Plan (2022)
- California Strategic Growth Council's 2023-2025 Racial Equity Action Plan (2023)
- San Francisco Bay Conservation and Development Commission's in-progress Racial Equity Action Plan (2024)
- State Water Resources Control Board's 2023-2025 Racial Equity Action Plan (2023b)

Advisory and Interagency Groups

- San Francisco Bay Conservation and Development Commission's Environmental Justice Advisors program (2019a)
- The California Air Resources Board's Environmental Justice Advisory Committee (2006)
- The U.S. EPA's National Environmental Justice Advisory Council (1993)
- The White House Environmental Justice Advisory Council (2021)
- The California Natural Resources Agency's Equity and Environmental Justice Roundtable
- The National Oceanic and Atmospheric Administration's environmental justice Coastal Resilience Interagency Coordination Group (2021)

Funding

- The State Water Resources Control Board's Safe and Affordable Funding for Equity and Resilience (SAFER) Program (2023d)
- CalEPA's Environmental Justice Action Grants (2023) and Environmental Justice Small Grants programs (2021a)
- The State Coastal Conservancy's JEDI Guidelines in Action (2020)
- The Ocean Protection Council's Equity Plan (2022)

Legislation

- AB 2616 (2016)
- AB 685 (2012)

Resolutions

- State Water Resources Control Board's Resolution No. 2021-0050: Condemning Racism, Xenophobia, Bigotry, and Racial Injustice and Strengthening Commitment to Racial Equity, Diversity, Inclusion, Access, and Anti-racism. (2021b)

Frameworks

- The Governor's Infrastructure Strike Team "Equity Bridge" framework consisting of 5 pillars: tribal consultation and partnership, community engagement and partnership, community benefits, jobs and contracts.

Delta-Specific Environmental Justice Efforts

Environmental governance in the Bay-Delta has seen an evolution of agency arrangements aimed at fostering collaboration and finding areas of compromise in order to manage the estuary for both ecosystem health and water supply reliability. Two Delta-specific governance efforts preceded the Delta Reform Act and the establishment of the Council: the California Bay-Delta Program, also known as CALFED, a cooperative planning effort among federal and state agencies, and the state-sponsored Delta Vision process. The 1994 federal EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) required the integration of environmental justice into federal agency actions. This led environmental justice to be included in the CALFED Record of Decision that laid out the program goals and objectives (Little Hoover Commission, 2005). Following the disintegration of CALFED[6], the Delta Vision process and its Delta Vision Blue Ribbon Task Force provided recommendations that led the California state legislature to pass the Delta Reform Act of 2009 (Council, 2013a).

In both of these initiatives, however, efforts to incorporate environmental justice were marginalized in comparison to other priorities, a sentiment shared by environmental

[6] CALFED exists today for the Bureau of Reclamation under the California Bay-Delta Authorization Act (P.L. 108-361), which in 2004 authorized federal participation, allowing Reclamation to fund and implement projects in the Delta (CALFED Bay-Delta Authorization Act, 2004).

justice advocates who participated in the planning processes, researchers who observed these processes unfold, and an independent state agency report that examined the integration of environmental justice into CALFED (Little Hoover Commission, 2005; London et al., 2008; Shilling et al., 2009; Sze et al., 2009).

During the CALFED era, the California Bay-Delta Authority had a Public Advisory Committee, within which nine subcommittees were formed, including an environmental justice subcommittee that was tasked with integrating environmental justice across the entire CALFED program (Little Hoover Commission, 2005). Both statewide and Bay-Delta-focused environmental justice organizations participated in the environmental justice subcommittee for five years before ultimately withdrawing support and boycotting all CALFED processes to demonstrate their dissatisfaction with the process and their belief that the CALFED process lacked genuine commitment to environmental justice (Shilling et al., 2009). As concluded by the Little Hoover Commission's report on CALFED, multiple factors contributed to the environmental justice subcommittee's frustration. It was unclear how effective any of the subcommittees were in informing and influencing the CALFED process; the report highlights the environmental justice subcommittee as an example, stating that the environmental justice subcommittee was not adequately funded to carry out its charge of developing a plan for integrating environmental justice across the CALFED program (Little Hoover Commission, 2005). While the environmental justice subcommittee was singlehandedly charged to advise on the integration of environmental justice into all relevant CALFED programs and policies, the subcommittee was granted no formal authority to provide input on specific programs (Shilling et al., 2009). The subcommittee was also understaffed and operated without a designated chair who would represent the subcommittee on the larger Public Advisory Committee (as other subcommittees had), and it had insufficient funding, compared to the funding provided for the rest of the CALFED program, for research and coordination (Shilling et al., 2009). The dearth of research created by insufficient institutional investment itself undermined the subcommittee's legitimacy in CALFED decision-making spaces, where research and technical expertise were privileged over practical, traditional, and local knowledge (Shilling et al., 2009). The lack of resources and influence, combined with the institutional complexity of CALFED, led to disenfranchisement of the environmental justice subcommittee members and the subcommittee's eventual unanimous resignation (Shilling et al., 2009). The Little Hoover Commission report concluded that CALFED failed to achieve many of its goals, especially in its integration of environmental justice (Little Hoover Commission, 2005).

After CALFED dissolved, the state legislature commissioned the Delta Vision Blue Ribbon Taskforce to develop a strategy for managing the Delta to support both ecological function and sustainable economic development. This process (known as Delta Vision) opened a unique window of opportunity for visioning priorities in the Delta. However, Sze et al. (2009) concluded, based on fieldwork and interviews to trace the Delta Vision process, that environmental justice was "marginalized within the Delta Vision process, understood as a 'special interest,' rather than a term that has particular legal/regulatory meaning...." Ultimately, the Delta Vision Strategic Plan included recommendations that environmental justice issues should be included in the recommended "California Delta Ecosystem and Water Plan" and in future Delta decision-making, and to seek the counsel of the recommended Public Advisory Group to enhance public participation and address environmental justice concerns (Delta Vision Blue Ribbon Task Force, 2008).

Recognizing shortcomings of past environmental justice policy processes, particularly efforts in the Delta and the legacy institutions that preceded the Council, provides important context for ongoing environmental justice efforts throughout the Delta, including the development of this issue paper.

Section 5: Current Tribal and Environmental Justice Issues in the Delta

This section summarizes current tribal and environmental justice issues identified in the process of developing this paper. Issues are presented by key topics, which were identified and characterized based on content from 22 research interviews conducted with tribal-serving and environmental justice CBOs, 5 Traditional Knowledge-focused interviews with tribes, and the analysis of past public comments. To triangulate the interview and public comment data, this section is substantiated with additional data as available from:

- Review of best available peer-reviewed environmental justice literature, agency reports, and publicly available data and analysis tools,
- Nineteen meetings with the environmental justice expert group from November 2021 through early 2024,
- Community outreach conducted between Fall 2022 – Fall 2024, and
- Consultation with five tribes across pre-consultation (before the public review draft was released) and consultation on the public review draft, the Council's tribal listening session held in April 2023, and a tribal roundtable held in October 2024.

See **Appendix C** and the *Summary of Delta Environmental Justice Interviews: Report on Methods and Findings* (Council, 2022b) for more details on each of the above data sources and the mixed-methods approaches used to analyze and integrate information from these multiple data sources.

Tribal justice issues are presented first, followed by environmental justice issues organized around the three core tenets of environmental justice – representational, procedural, and distributive justice – and then into key sub-topics within each tenet. As previously described, most, if not all, environmental justice issues speak to more than one environmental justice tenet, as these issues are intersectional in nature and manifest at different scales. Given this intersectionality, there is some repetition throughout this section to demonstrate the connectivity amongst issues and environmental justice tenets.

A wide range of tribal and environmental justice issues affect the Council's work and the Delta more broadly. This issue paper is an important first step in acknowledging and responding to the concerns of tribes and tribal and

environmental justice communities. Additionally, part of the Council's role is to coordinate and guide the work of the many other agencies that work in the Delta. Considering this role, we are documenting all tribal and environmental justice issues identified through staff's research process.

Tribal Justice Issues

While other environmental justice issues in this paper are discussed in separate sections for representational, distributive, and procedural issues, tribal justice issues are discussed in their own section because tribes' unique status merits a separate focus. The Council consulted directly with five tribes with a relationship with the Delta, either in pre-consultation or consultation on the public draft, on this issue paper. Additionally, several interviewees representing primarily tribal perspectives engaged in discussions highlighting issues affecting both federally and non-federally recognized tribes in the Delta and around the state. Other interviewees – whose organizations also serve non-Indigenous communities – spoke to issues affecting Native Americans both in and outside the formal tribal context, the latter including urban (Sacramento) Native Americans and Native American Delta residents who are not members of Delta-regional tribes. The Council held a tribal listening session with four tribes at its April 2023 Council meeting and staff hosted a tribal roundtable in October 2024, which also inform this section. Scholarly literature is also drawn upon.

Tribes and interviewees discussed tribal and Indigenous environmental justice issues that touch on representational, procedural, and distributive injustices but noted that these three categories are tightly interwoven. In broad strokes, California Native American peoples have been displaced from their ancestral lands in the Delta and across California and thereby restricted from practicing their cultures. Failure to provide meaningful consultation or other forms of engagement (procedural) also represents a failure to honor and uphold tribal sovereignty (recognition). This paired procedural-representational injustice perpetuates distributive injustices created by development and other environmentally damaging landscape modifications, which cause debilitating physical and psychological health/wellbeing impacts to native communities (distributive). Tribes also noted that the privatization of water and other natural resources has made it difficult for those they are consulting with to value tribal priorities and often leads to tribes being excluded from decision-making.

For purposes of discussion, tribal environmental justice issues are grouped into the following interrelated types: recognitional (tribal sovereignty and preservation,

Traditional Knowledge), procedural (marginalization and exclusion, consultation), and distributive (environmental hazards, water system).

Representational

Tribal sovereignty and preservation: Tribes have inherent rights, including the right to harvest, to teach, and to put down prayers. Interviewees expressed that tribal rights are being actively impinged upon by environmental (e.g., flood risk, climate change) and socio-ecological (e.g., the Delta Conveyance Project, urban development) changes that impact the land, which is the basis for tribal cultures. Interviewees also noted that recreational access conflicts with tribal sovereignty, priorities, and preservation when recreational activities are prioritized over tribal beneficial uses. Often, recreational uses (e.g., ATVs, boats in rivers) have environmentally damaging effects that also preclude tribes from exercising their inherent rights, including access to ceremonial areas that are in the public realm. Tribes seek the protection of their cultural resources and the use of their ancestral homelands in perpetuity, which is often met with dismissal, no reaction, or in extreme cases, threats of violence. Several interviews with tribes included references to disrespect and dismissiveness.

Tribes also described challenges with attempts to purchase land they originally held in and around the Delta in an attempt to restore portions of their original homelands. In many cases, tribes have experienced attempts at price gouging, which "further exploits cultural sites." In other cases, particularly related to the return of publicly owned land, bureaucratic hurdles have presented what are often insurmountable barriers for tribes with limited capacity.

Lastly, tribes expressed concerns about how public agencies understand the concept of tribal sovereignty in relation to cultural sites. Tribal interviewees see that they are not treated or paid as experts, although they are the primary holders of Traditional Knowledge. As one tribal representative put it,

> *"Public agencies often rely on their own archaeologists to determine whether a site is culturally significant. Tribes should be the only ones who can say whether a site is culturally significant to them. It doesn't make sense, from a tribal sovereignty perspective, to think otherwise."*

Traditional Knowledge: Closely intertwined with tribal sovereignty and preservation is the repression of tribal/Indigenous cultural beliefs, practices, and knowledge (referred to here as Traditional Knowledge, but may also be referred to as Traditional Ecological Knowledge or Indigenous Knowledge). Traditional Knowledge, using the White House Office of Science and Technology Policy's definition:

> *"…is a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. [It] cannot be separated from the people inextricably connected to that knowledge. It applies to phenomena across biological, physical, social, cultural, and spiritual systems. Indigenous Peoples have developed their knowledge systems over millennia, and continue to do so based on evidence acquired through direct contact with the environment, long-term experiences, extensive observations, lessons, and skills" (Daniel et al., 2022).*

Members of the environmental justice expert group, representatives at the tribal listening session, and interviewees expressed the importance of recognizing that Traditional Knowledge is best available science, based on thousands of years of observation and application, working parallel to the scientific method. They stressed that it is Traditional Knowledge that fostered the biodiversity that is enjoyed, celebrated, and valued by many Bay-Delta communities today.

Traditional Knowledge is beginning to be supported at the federal and state level. The federal Office of Science and Technology Policy and the Council on Environmental Policy released *Indigenous Traditional Ecological Knowledge and Federal Decision Making* on November 15, 2021, elevating the treatment of Traditional Knowledge to be coequal to Western scientific knowledge and calling for Traditional Knowledge to inform federal decision-making. On November 30, 2022, the Office issued instructional guidance to all federal agencies to implement this memorandum. California has further elevated Traditional Knowledge in decision-making, especially for the protection of tribal cultural resources.

Barriers to the utilization of Traditional Knowledge, according to interviewees, include lack of access to land and waterfronts for stewardship, subsistence, and cultural practices, both due to colonial displacement and present-day cost of land; repression of language and associated loss of cultural/place-based knowledge; lack of understanding of tribal cultural practices (e.g., burning) fostering public resistance;

and the risk of commercial appropriation (e.g., plant species harvested for health food stores) when culturally significant areas become publicly known. These result in reduced physical health and well-being for tribal communities and have negative fallout effects for the broader regional community. For example, among the benefits of the practice of cultural burning is the control of fleas, ticks, and mosquitoes. Two interviewees explicitly linked repression of Traditional Knowledge to implications for tribal sovereignty and preservation. One interviewee discussed how agency representatives often do not understand the sacredness of the entire "creation area" – as evidenced by Delta jurisdictional boundaries that do not include the full watershed – and lack of recognition for (in the interviewee's words) "all our relations," (animals, plants, land, air, water) as community members. The tribal perspective of the Delta existing as an entire watershed from the Sierra Nevada mountains to the San Francisco Bay was expressed in the tribal listening session and the 2023 Adaptive Management Forum. Additionally, tribes have shared their preference for agency staff to acknowledge their ignorance where it applies regarding Traditional Knowledge, and to ask questions and learn from tribes (Council, 2023b). Interviewees stated that to the extent that agencies do not recognize or respect this knowledge, they fail to honor tribal sovereignty and undermine tribal preservation. In another interview, repression of Traditional Knowledge about the interrelated risks of various toxins (on humans, other animals, food, etc.) was described as an extension of cultural genocide.

In addition, several interviewees, as well as tribes in pre-consultation, discussed the lack of access to tribal cultural resources, which is an issue of both representational and distributive injustice. For example, an interviewee discussed the placement of the Los Vaqueros Reservoir and Clifton Court Forebay, which are located within the Miwok ancestral territory, as an example of a lack of access to tribal cultural resources. As this interviewee noted, the construction of these permanent infrastructure projects has degraded or destroyed a sacred landscape containing culturally significant species frequently identified in stories, ceremonial places, gathering sites, and much more (Hankins, 2018). The psychological impacts of such loss and disruption have been described by Cunsolo and Ellis (2018) as "ecological grief" and, according to Hankins (2018), have created discontent among Plains Miwok traditional cultural practitioners for generations. Tribes also expressed concern with cultural sites on levees, and within the path of the proposed Delta Conveyance Project. It has also been expressed that while the recognition and use of Traditional Knowledge is necessary and increasing, this also brings the risk of misuse and

appropriation. Concerns were expressed regarding the use of Traditional Knowledge by non-tribal people who use the information without proper context, consent, and guidance. Traditional Knowledge should be applied by local tribes and cultural practitioners. Environmental justice expert group members shared this passage from the "Good Fire" report, recently updated in 2024 (Clark et al., 2024):

> *"Care must also be taken to ensure the confidentiality and non-disclosure of Traditional Knowledge when such confidentiality is requested by a tribe or knowledge bearer … many tribes are currently developing Traditional Knowledge and data sovereignty protection processes, policies, and protocols and/or agreements. While these are not all yet fully formulated, it is important that agency staff inquire about their existence and comply with any such policies, protocols, and agreements. This may also require agencies to modify or amend their own such policies and procedures."*

Procedural

Marginalization and exclusion: In concert with the examples outlined in the recognition section above, interviewees and tribes noted that California tribes and tribal communities are marginalized and excluded in ways that inhibit their engagement in policy processes. Two interviewees explicitly expressed that tribes face discrimination, including both individual and institutional racism and systemic oppression: this manifests, for example, in the failure to recognize tribal experts who do not have credentials (e.g., a PhD). In addition, two interviews highlighted exclusion as a representational/procedural issue for specific communities: 1) non-federally recognized tribes, who are not included in formal tribal consultation and whose inherent rights are not respected; and 2) Native American people who live in the Delta but are not members of Delta-regional tribes, who might be unrepresented in tribal consultation, and who do not feel welcome or valued in other engagement processes. As explained by one interviewee,

> *"We have an audience of nearly 700 tribal members that aren't necessarily part of a Delta tribe (urban-native) and many have felt that their opinion hasn't been valued, so don't want to get involved."*

Tribes also expressed marginalization from those who view them as "roadblocks" to development or a group that always says no. As one tribal representative has put it,

> *"We want to work with projects to make them work. But when we are ignored or only consulted at the last minute, that's when I have to make phone calls people don't like. It's about respect."*

Consultation: Closely related to marginalization is the lack of meaningful or "good faith" consultation with tribes. In one interview, this was traced to the history of broken promises, starting with unratified treaties in the 1800s and the subsequent murder of Native American people, which established a precedent of unfulfilled commitments and non-enforcement of regulatory requirements to uphold tribal rights. These historic power imbalances and injustices continue to affect tribes today, resulting in sentiments of distrust. Interviewees shared that tribal engagement is often sought too late for meaningful input. In the words of one interviewee,

> *"This has become agencies telling the tribes what they intend to do, but not providing opportunity for 'free and prior informed consent' to the action."*

This was echoed during the tribal listening session and 2023 Adaptive Management Forum, as participants shared the desire for tribal consultation to happen before a project's design phase (Council, 2023a; Council, 2023b). Interviewees noted that tribal consultations can also be adversarial, with agency representatives showing disrespect for or distrust of tribal representatives, and that, at times, tribal words are misreported or misconstrued. One interviewee commented that agencies often send biologists or archaeologists who lack an understanding of tribal rights or procedural requirements to tribal consultations. This sentiment was also expressed in the Council's April 2023 tribal listening session. Another interviewee observed there is broad ignorance of and, at times, disregard for tribal law, as well as Federal Indian law, among agency staff and the general public. In addition, interviewees noted that because agency staff sent to tribal consultations are often not high-ranking in their organizations, tribal input provided through tribal consultation is frequently ignored by decision-makers. Even when trust is built with agency staff, those staff are often not there very long, and the process must start anew because the agency doesn't have a framework to continue that trust-building.

Tribal consultation was identified as a critical entry point for tribes but also one that has been weaponized against them when used perfunctorily as a "box-checking" exercise rather than an ongoing process to meaningfully address tribal concerns and needs. Participants in the tribal listening session also shared that tribes are exhausted from saying the same thing over and over to various agencies, and that agencies need to figure out how to make it easier for tribes to understand which agency is responsible for which project (Council, 2023b). Tribes are also frustrated when tribal thoughts and history, provided in tribal consultations, are paraphrased to the point where all meaning is lost. Similarly, tribes hope that agencies can find new ways to receive public comments rather than through comment letters, which also tend to prioritize the paraphrasing of tribal history and context.

Barriers: Interviewees discussed procedural barriers to their work on Indigenous environmental justice issues. For one interviewee, the procedural issues themselves (marginalization and exclusion, lack of meaningful tribal consultation) are also barriers, along with threats of violence, agency staff turnover, and agencies implicitly or explicitly pitting tribes and rancherias against one another. Two interviewees converged in expressing the frustration that change – with tribal consultation processes and in government response to input provided – is very slow:

> *"It's critical to be patient; some of our [consultation] work has taken 15 years to get 25% complete."*

In tribal pre-consultation, tribes also expressed capacity barriers to be able to engage with the "hundreds to thousands" of projects that federal, state, and local agencies are working on that tribes should have say in. They expressed a need to be compensated for their time consulting on projects, and that the disparity between staff paid to work on these projects every day and tribal staff's ability to keep up is immense. Tribes noted that Traditional Knowledge holders should be treated as experts in their fields and financially compensated accordingly. Tribes expressed that funding mechanisms also need to be creative as the "red tape" associated with contracting with agencies often adds up to more cost than the compensations might be worth. It was noted, however, that creating official contracts with agencies provides some leverage for tribes, giving them an official platform for participation.

Distributive

Environmental hazards: Interviewees discussed a variety of environmental hazards facing tribes and tribal communities, including pollution exposure through ceremonial use of water, construction-related soil contamination, and chemical contamination from sprayed fire retardants. In addition to negative health impacts, these hazards also impinge on tribal sovereignty, priorities, and preservation. One interviewee whose organization focuses on urban Native Americans and other underserved communities in Sacramento listed a myriad of exposures, including soil/water contamination, wildfire smoke and other air pollutants, heat exposure (urban heat islands, lack of shade trees), and noise pollution. Tribes have also shared concerns about regular conflicts with homeless encampments where traditional waterways and sacred sites are occupied and polluted. These health hazards are exacerbated by community racism/redlining and amplified by climate change (see **Section 4** for more information on community racism/redlining and later in this section for more information on climate change impacts).

Water system: One interviewee highlighted the commodification of water as an injustice linked to corruption. Rather than being treated as a life-supporting necessity for humans and ecosystems, or a member of the Indigenous community and part of Indigenous peoples' spirituality, water is treated as a resource and sold for wealth generation:

> *"A day will come when water is the highest-cost commodity. Those who can afford it will, and those who can't will get substandard water to drink."*

Representational Justice Issues

Key findings identify and focus on three core representational justice issues: who "counts" as an environmental justice community, agency environmental justice competency, and the underrepresentation of environmental justice communities in decision-making bodies and processes.

Who "counts" as an environmental justice community: As discussed in **Section 3**, defining environmental justice communities is a challenging task. There are many different definitions and tools used to identify environmental justice and disadvantaged communities. Being more inclusive of who these communities encompass reduces the possibility that certain groups or individuals are left out.

Interviewees identified the communities most impacted by environmental and social justice issues as: “disadvantaged communities or DACs,” “low-income communities,” “Indigenous communities,” “tribes,” “youth,” “at-risk youth,” and “foster youth,” “minority communities” and “people of color,” “vulnerable communities,” “unhoused communities,” “immigrant communities” including Hmong, Filipino, and Latino immigrants, “undocumented immigrants,” “renters,” “environmental justice communities,” “elders” and “seniors,” “people with disabilities,” “farmworkers,” “Legacy town residents,” and “food insecure communities”.

Available literature concurs that these populations are known to be underrepresented in government decision-making bodies and processes and likely to experience a disproportionate share of environmental burdens and exclusion from environmental goods (CalEPA, 2021b; CSIWG, 2018; Cushing et al., 2015; OPR, 2017; Liévanos, 2016; Liévanos, 2020; OEHHA & CalEPA, 2021; Shonkoff et al., 2011). It is important to note that not all Delta legacy communities meet all criteria that staff have elected to use to define environmental justice communities. While many Delta legacy communities have a majority of residents with socioeconomic disadvantages, some legacy communities have affluent and well-resourced residents.

Agency competency in environmental justice: Multiple interviewees identified barriers that are created when agencies do not understand what environmental justice means. As explained by interviewees, it is important to understand all the dimensions in which communities are underprivileged or disproportionately burdened by the environment (e.g., low-income and unhoused communities), but too often, agencies assume environmental justice to only be about race. Interviewees felt that agencies also often lack understanding and acknowledgment of tribal government and tribal law and do not involve knowledgeable staff in tribal consultation and engagement. Participants in the community outreach events emphasized the need for government agencies, consultants, and academic research staff to be trained on matters of diversity, equity, and inclusion (DEI) and best practices for engaging with tribes. Participants noted that science staff at government agencies and consultancies need a better understanding of how environmental justice issues connect with their work and of the cultural, tribal, and environmental justice policy context at their respective agencies so that these staff are not operating in silos within their own agencies.

Finally, interviewees identified systemic racism and resistance to change as key barriers to progress. Although interviewees noted that they sometimes see racism

acknowledged in environmental justice discussions, they have not seen these acknowledgments translate into institutional actions or change. One interviewee felt that agencies are uncomfortable with change because they think it will be expensive and don't know how to work with the populations in need of greater support.

Representation of environmental justice communities in decision-making bodies and processes:

Interviewees also expressed that disadvantaged communities are consistently underrepresented or inadequately represented in decision-making processes. For example, multiple interviewees discussed disadvantaged communities being inadequately accounted for or included in climate change planning processes. A few interviewees also discussed representational water justice concerns related to involvement in water decision-making processes and which communities are legitimized as having a stake in water distribution decisions. Many interviewees indicated that certain communities – notably tribes and disadvantaged communities – are excluded from or not adequately represented in water management decision-making. For example, multiple interviewees described communities excluded or marginalized in the Delta Conveyance Project process, including tribes, rural residents, and Delta agricultural communities. One interviewee's statement illustrates this sentiment:

> "*In the Delta, it feels that there is a push for these tunnels because the people in this agricultural community aren't savvy enough to speak out. The state acts like they just don't hear anything from the Delta.*"

Interviewees also identified representational justice issues related to unhoused community members and community members with disabilities, sharing that unhoused communities feel underrepresented in planning and policy processes and that "people in disability communities need to be meaningfully reached out to, to participate in meetings" with reasonable accommodations.

Recent literature supports that environmental justice communities are inadequately represented in decision-making processes, both across California and within the Delta. For example, small, disadvantaged communities have historically been inadequately represented in local, regional, and state water management (Dobbin, 2021; Firestone & Francis, 2011; Ranganathan & Balazs, 2015).

More broadly, environmental justice communities have been shown to be vastly underrepresented in scientific research, news media, and legislation in California. A review by Fernandez-Bou et al. (2021) of California-related scientific papers, newspaper articles, and California legislative bills from 2017-2020 found that while about 25% of Californians live in a disadvantaged community (defined as census tracts in the 75th percentile of CalEnviroScreen 3.0 scores), only about one in 2,000 scientific and newspaper articles and only 2% of legislative bills covered them. While the coverage of disadvantaged communities across all three platforms (news media, scientific papers, and legislation) has increased in the past 20 years, these communities remain understudied and underrepresented (Fernandez-Bou et al., 2021). Studies focused on Delta governance, while limited, specifically have shown that environmental justice communities have historically not been – and still are not – adequately represented in Delta governance and decision-making (Little Hoover Commission, 2005; London et al., 2008; Sze et al., 2009; Triyanti et al., 2020).

Procedural Justice Issues

Key themes emerged from the interviews and other sources reviewed for this issue paper that highlight multiple procedural justice issues well-documented in environmental justice literature, including lack of opportunities for meaningful involvement in decision-making processes, lack of transparency in decision-making, and lack of capacity to engage in multiple policy forums perceived as redundant.

Barriers to meaningful involvement: Multiple interviewees identified limited resources and funding among environmental justice organizations as key barriers to meaningful involvement in Delta governance. Climate adaptation professionals at the 2023 California Adaptation Forum reiterated the best practice that short, one-year grant periods are not sufficient when working with new CBOs, as it takes time for trust to develop, and the organizations do not operate on the same timelines as agencies often do (California Adaptation Forum, 2023). Available literature supports that funding for CBO participation, data support, and accessible public participation practices are integral to the success of environmental justice policy efforts but are often insufficient (Petersen et al., 2006).

Interviewees also discussed challenges within engagement practices, saying that agencies' public engagement is often more of a "box-checking" exercise than something that actually influences decisions. Interviewees expressed that environmental justice parties are often left out of public processes or included only due to relationships they have built with individual agency staff members, which don't carry forward if staff members leave. As one interviewee described:

> *"If the few people I communicate with eventually leave, that relationship could be gone."*

In the 2023 Delta Residents Survey, residents reported that their top barriers to engaging in Delta issues included not having enough time (being too busy with other obligations and priorities), feeling like one's input will not affect decision-making, not knowing how or when to engage, and being unfamiliar with the issues (Rudnick et al., 2023). This underscores the importance of addressing these barriers, including institutionalizing equitable public participation practices that ensure the most impacted communities are consistently targeted in outreach.

Lack of transparency: Multiple interviewees wanted to better understand how decisions are made, seeking decision-making transparency. Transparency in government refers to processes or conditions that enable individuals to obtain clear, accurate, and timely information about the activities of government entities, particularly regarding decision processes and management actions that will impact their environment, health, or daily lives. As past literature documents, previous environmental justice policy efforts in the Delta have been obfuscated by complicated technicalities, failure on the part of government agencies to acknowledge the government's role in perpetuating inequities, the complexities of proving that adverse environmental impacts are inequitably distributed across race and class lines, and the established strength of private industry lobbies pursuing policy solutions that benefit industry (Petersen et al., 2006). In sum, *transparency* as to how and why environmental decisions are made and who benefits or is harmed by those decisions has been limited to date.

Lack of coordination and alignment across agencies: Both interviewees and participants at community outreach events noted that there is a disconnect between state and local governments' efforts and a lack of coordination across entities working on similar issues. Both interviewees and participants at community outreach events noted a need for better coordination among agencies, more consistency and

alignment of goals and processes across different agencies, and consolidation of similar processes to make it easier for environmental justice organizations and community members who are asked to participate in many different agency processes. The 21 environmental justice- and tribal-serving organizations interviewed reported engaging with 31 different agencies/departments at the federal, state, and local levels, as well as the state legislature.

Lack of trust in government agencies: The 2023 Delta Residents Survey found that a majority of Delta residents trust scientific experts, local residents, and community advisory groups more than policy makers at local, state or federal levels, to make decisions in the best interest of the Delta (Rudnick et al., 2023). This underscores the importance of government agencies working with local community groups, community leaders, and scientists when engaging residents.

Distributive Justice Issues

Distributive justice considers how environmental burdens and benefits are distributed across communities and, specifically, how these distributions correlate with socio-demographic characteristics. Based on topical analysis from the interviews, the following discussion is organized around seven core areas of distributive justice concern in and around the Delta:

- climate change,
- flood risk,
- water,
- air quality, pollution exposure, and public health,
- housing and unhoused communities,
- food security and access, and
- recreation and outdoor access.

Within each of the core areas, the concerns of interviewees are summarized alongside external data sources that provide additional perspective on how the harms and opportunities under each of these topics are distributed across the social landscape. These topics interact and intersect with one another. As such, the distinction between core areas or how specific concerns are classified is somewhat arbitrary (e.g., water quality concerns could be classified as both climate change and water issues).

Note: Some of these issues are outside the scope of the Council's authority. All issues that came up in the interviews and other sources reviewed for this issue paper,

however, are included in order to provide a more complete picture of tribal justice and environmental justice in and around the Delta and to inform other agencies whose authority in the Delta may intersect with these issues.

Climate Change

General climate change concern was a key environmental justice issue among interviewees. It is well documented that the impacts of long-term climate trends and extreme events disproportionately impact the health, safety, and well-being of some communities over others due to differences in exposure, sensitivity, and adaptive capacity, or the capacity to respond to climate hazards (Mendez, 2020; Sze, 2020; U.S. EPA, 2021). The most vulnerable populations are those that are exposed, are highly sensitive, and have low adaptive capacity to climate hazards (Council, 2021a; Council, 2021b). Tribes and socially vulnerable groups are more likely to be impacted by climate change because they tend to have lower adaptive capacity and higher sensitivity to impacts, among other compounding factors. For example, across the U.S., Native American individuals are 48% more likely to be inundated by sea level rise and experience labor loss due to climate change and increases in high-temperature days in areas that these communities live in (U.S. EPA, 2021). Low-income individuals and those without a high school diploma are 15% more likely to currently live in areas projected to see the highest increases in childhood asthma diagnoses due to increased particulate air pollution as a result of climate change (U.S. EPA, 2021). **Climate change affects everyone, but a growing amount of evidence demonstrates that climate change disproportionately affects low-income communities of color because they are more likely to experience higher exposure to climate hazards and have lower capacity to adapt due to lower financial assets, compounding effects of existing community burdens, and lack of representation in risk mitigation decisions.** As a result, these communities are least equipped to anticipate, cope, and recover from climate impacts (U.S. EPA, 2021).

The Council's Delta Adapts Vulnerability Assessment developed a social vulnerability index (SVI) to identify Delta communities with higher sensitivity and/or lower adaptive capacity to climate hazards relative to other communities in the Delta, using 14 indicators at the census block group level representing factors that would increase an individual's or population's vulnerability (Council, 2021a; Council, 2021b). Results from the SVI indicate that the communities most vulnerable to climate change are concentrated in Stockton, Pittsburg, and Antioch. Sacramento, Tracy, West

Sacramento, and unincorporated areas of San Joaquin County also have highly socially vulnerable communities.

The interviews conducted for this issue paper provided additional insights regarding which populations are likely to experience higher exposure to climate threats. Regarding heat and wildfire smoke, interviewees emphasized that unhoused individuals experience the greatest exposure while residing outdoors, followed by agricultural workers and those who do manual labor in outdoor settings. Low-income individuals and renters may be less likely to have in-residence air conditioning and air filters, making them more vulnerable as well. Analyses from the U.S. EPA (2021) show that individuals working in extreme heat outdoors or indoors without air conditioning are at risk of experiencing health and cognitive effects, especially if the individual is low-income. Low-income individuals working in outdoor sectors can earn up to 48% less income than the median worker and will likely work through multiple extreme heat day events to earn income to meet basic necessities (U.S. EPA, 2021).

In 2024, Yolo County released its Climate Action and Adaptation Plan, which included partnering with the De Colores Resource Center to record the perspectives of Yolo County farmworkers (Yolo County, 2024). By way of these interviews, farmworkers shared: “We have to work in bad weather, dust, smoke, rain, and high temperatures. We work fewer hours and we don’t earn enough to support our families, and we stress a lot. All this makes us work in unsafe conditions.” Farmworkers also expressed fear of retaliation when reporting health issues due to unsafe conditions. One community member stated: “One time, my coworker wasn’t feeling well, and she went to go sit under the shade, but the foreman came and told her that if she didn’t get back to work, she couldn’t come back to work the next day.”

Interviewees also identified other communities likely to be highly vulnerable in the face of other climate disasters, including the elderly, youth, and people with disabilities, who can face more challenges in disaster evacuations, as well as low-income, minority, and immigrant communities who may not have access to alternative places to stay during evacuations. For example, studies have shown that the elderly and young children are especially sensitive to heat exposure; older individuals are more likely to experience cardiac strain from heat exposure, and young children regulate body temperature less effectively because they sweat less (U.S. EPA, 2021). Interviewees highlighted how long-term climate trends disproportionately burden some communities over others: for example, power shutoffs for fire prevention purposes place a higher burden on low-income communities; wildfire smoke exacerbates health risks in regions that already

experience poor air quality and high heat (e.g., Central Valley and eastern Delta); and sea level rise places greater flood risk on some communities. Additionally, low-income individuals have been found to experience higher rates of climate change-related mortality because of a lack of access to quality healthcare (U.S. EPA, 2021).

This understanding of climate vulnerability is also supported by available literature. Regarding extreme heat, it is well documented that in urban areas, impervious surfaces and scarcity of vegetation create urban heat islands – regions that are hotter than surrounding rural areas (Altostratus Inc., 2015; Oke, 1982; Oke et al., 1989). Low-income communities and communities of color are overrepresented in urban areas that have higher rates of impervious cover and less tree cover and are, therefore, more likely to be exposed to the urban heat island effect (Shonkoff et al., 2011). **In the Delta, the urban heat island effect is greatest in Tracy and South Stockton and along the Highway 4 corridor in East Contra Costa County** (Council, 2021b).

According to interviewees, there are varying levels of preparedness and response during extreme climate events such as floods, fires, and droughts. For example, some Delta islands lack adequate evacuation routes and emergency resources. The Delta Residents Survey found that 20% of Delta residents report no access to personal motorized vehicles (Rudnick et al., 2023). Tribal communities may also be disproportionately impacted by climate change due to their close relationship with the environment. This is supported by literature that documents how, in many cases, because of the cultural disruptions wrought by Western colonial settlement, tribes have been deprived of the social and material resources they have relied on since time immemorial to adapt to past environmental change (U.S. EPA, 2021; Whyte, 2016). In the Delta, processes, and practices that restrict tribes from their ancestral homelands and repress their cultural practices also challenge tribes' abilities to respond and adapt to climate change impacts (see further discussion in the Tribal Justice Issues section above).

Finally, interviewees described political resistance to change as one of the largest barriers to climate justice. Examples interviewees highlighted included local land use planning processes that neglect to consider anticipated climate impacts such as flooding due to sea level rise and local elected officials who are unwilling to take action because they think their constituents may not believe in climate change. Data from the Delta Residents Survey, however, directly refutes this point: **more than 85% of Delta residents believe climate change is happening and human-caused, and greater than 75% are concerned about the impacts that climate change will**

cause in the Delta in the future. Furthermore, the majority of respondents support further action by the government to prepare for climate impacts (Rudnick et al., 2023).

Flood Risk

The Delta region is expected to face increased flooding due to more frequent and excessive rainfall in the next century due to climate change (Council, 2021b; U.S. EPA, 2021). Multiple interviewees identified **allocation of levee investments, flood insurance access and affordability, land use planning and development, and subsidence as key distributive injustices**. Indeed, the federal government evaluates the economic consequences of flooding rather than the risk to human life and community sustainability. Most urban levees are federal and subject to U.S. Army Corps of Engineers policies and practices for evaluating levee improvements (USACE, 2009).

Interviewees identified that minority and low-income communities are frequently located closer to levees that have received comparatively lower levels of investment than levees in high-income and white communities. Literature supports that both low-income and minority groups have historically been (and continue to be) underrepresented in flood risk investments, which can both impact flood-fighting investments and impair preparedness and relief efforts during emergencies and disasters (Liévanos, 2020; U.S. EPA, 2021). In the Delta, flood risk is higher in formerly redlined areas that today are home to lower-income communities of color (see **Section 4**, *History and Context* for more discussion of formerly redlined areas and present-day exposure to flood risk and other environmental hazards; Katz, 2021; Liévanos, 2020). In Stockton, for example, areas with higher populations of people of color, low-income communities, and formerly redlined or areas targeted by subprime lending have higher flood and sea level rise risk (Liévanos, 2020).

Much of the Delta is protected from flooding by levees. According to the Delta Adapts Vulnerability Assessment, under current conditions, approximately 9,000 Delta residents are exposed to flooding by levee overtopping during an event with a one percent annual chance of occurrence (primarily in unincorporated San Joaquin County); 34% of those exposed live in areas identified as having “high” or “highest” social vulnerability to climate change (Council, 2021b). Sea level rise and changes in hydrologic patterns are not expected to have a significant effect on residents’ flood risk exposure in the next decade, but as sea levels rise and high-flow events become more common, the likelihood of levee overtopping will increase. Without

improvements, by 2050, the combined effect of sea level rise and changes in riverine inflows are projected to expose almost 66,000 Delta residents to flooding due to levee overtopping during an event with a one percent annual chance of occurrence. **The vast majority of exposed residents in 2050 would be in San Joaquin County, and 65% of exposed residents would live in areas identified as having "high" or "highest" social vulnerability to climate change** (Council, 2021b).

Interviewees also discussed the intersection between disproportionate flood risk and the housing crisis, explaining that residents in high flood risk zones often are unable to relocate even if they would like to, due to unaffordability of housing:

> *"The housing crisis intersects with flood risk because there's nowhere for people who live right next to levees to move."*

Interviewees also expressed concern regarding local land-use planning and zoning processes that allow low-income or affordable housing development in high flood-risk areas or fail to account for future sea level rise projections. This was described as an "impending" environmental justice disaster, as people who move into affordable housing developments in these high flood-risk areas then become more likely to face damages, clean-up costs, and/or experience displacement during future extreme events – impacts that low-income communities are less able to cope with because they have fewer resources (U.S. EPA, 2021). Though not a low-income housing development, proposed new construction on Bethel Island was mentioned as a concern, due to the island's existing flood risk and recent flooding that has occurred from water coming up from underneath properties and roadways. Interviewees also noted the issue of homeless encampments being located near levees, raising significant safety concerns for these highly vulnerable populations. Large encampments can also compromise the stability of levees and hinder emergency response operations on levees.

Interviewees also noted that communities with higher numbers of elderly residents, residents with physical disabilities, or residents without personal vehicles are more vulnerable to flood risks because of mobility constraints that make evacuation challenging during extreme events. Additionally, the U.S. EPA (2021) states that individuals older than 65 are more likely to live in high-impact flood areas and are less likely to move, partly due to having greater ties to their community.

Finally, interviewees identified barriers to flood insurance as another element of flood risk issues. Flood insurance is expensive, often even unaffordable to low-income residents who live in high flood risk zones. Recent literature has shown that many communities in the Delta are unaware of their flood risk or do not know how to navigate the process of acquiring flood insurance (Fransen et al., 2008; Ludy & Kondolf, 2012); **in 2023, less than 20% of Delta residents reported having flood insurance** (Rudnick et al., 2023). Income levels affect how people perceive flood risks and their willingness and ability to evacuate in response to warnings (Bell et al., 2016). Linguistically isolated households may not be as aware of flood risks or receive timely warnings (Bell et al., 2016). This illustrates the importance of better communication about flood risks and flood evacuation warnings, as well as the challenges and limitations of traditional flood insurance.

As part of the Council's **2024 Science for Communities** program, the Sacramento Regional Coalition to End Homelessness—in partnership with academic and state agency collaborators—conducted an analysis to better understand emergency housing available to vulnerable Delta communities during times of flood. The analysis found that Delta legacy communities face many barriers in developing emergency action plans, and identified a need for deeper analysis of the intersecting demographic and housing data in order to more fully explore this issue. Results of the team's analysis are presented in an **online StoryMap**.

For example, the National Flood Insurance Program (NFIP) often has high premiums with sometimes insufficient coverage, and Federal Emergency Management Agency programs such as the Community Rating System often provide limited benefits in already resource-limited communities. Additionally, the NFIP approach to risk management is based on broad flood zone classifications that do not account for specific, localized characteristics and may not adequately capture the real level of flood risk. To address these limitations, alternatives to traditional flood insurance are being explored in the Delta. For example, the City of Isleton is exploring the formation of a Geologic Hazard Abatement District (GHAD) to proactively manage these flood insurance challenges. A GHAD is a unique government entity in California designed to mitigate large-scale hazards like floods and landslides, allowing a community to receive funds according to flood triggers (rather than damages), to collectively manage and mitigate risks with reduced costs, and to have more flexibility in how the funds are spent.

Water

Water is both a defining feature of the Delta's landscape and culture and was named by a majority of interviewees as central to environmental injustice in the Delta. **Water issues included water supply, water quality, and water affordability challenges, with a focus on which communities have access to clean, reliable, and affordable water and which do not.** With regards to current water management systems, interviewees described the water rights priority system as not representative of all water users, politically corrupt, and responsible for the unequal distribution of water access and benefits. Interviewees are not alone in calling attention to challenges with the current water rights system. Following multiple recent severe droughts, academic researchers, non-governmental organizations, governmental research entities such as the Legislative Analyst's Office, and even state regulatory agencies have engaged in discussions acknowledging the challenges with the current water rights system allocating more water than is available on average water years and perpetuating the historic inequities that resulted in the present-day distribution of senior water rights (Grantham & Viers, 2014; Lee et al., 2022; LAO, 2009; SWRCB, 2021c). Participants in these forums have called for modernizing and increasing transparency in water rights data collection and accounting, reforming water rights allocations to account for likely precipitation futures under changing climate regimes, and addressing other longstanding inequalities.

In the 2023 California Water Data Challenge, these conversations were pushed further by a research team's efforts to draw on publicly available datasets (e.g., SWRCB (2022) eWRIMS) to estimate representational injustices in the state's water system. While the uncertainty associated with the approach and dataset are not reported, the researchers' analysis suggests that water decision-makers at state (state agency executives), local (water agency directors), and individual (individual water rights holders) levels are not representative of California's overall population on the basis of race and gender demographics. For example, while approximately 35% of the state's population identified as white and not Hispanic or Latino on the 2020 Census, the research team reported 69% of state agency executives, an estimated over 80% of local water agency board directors, and an estimated over 90% of individual small water rights holders identified as white and not Hispanic or Latino (Fidell & Shipman, 2023), suggesting a large discrepancy in racial and ethnic representation with respect to water decision-making.

Beyond water rights and decision-making representation, several interviewees noted that when through-Delta freshwater flows are low, both in-Delta and south-of-Delta communities experience a wide range of water challenges, including drinking water contamination, water hardness, increased concentration of pollutants, decline in terrestrial and aquatic ecosystems and their ecosystem services, and HABs. Three interviewees specifically discussed their concerns that HABs are getting bigger, lasting longer, and affecting areas many people visit.

The Delta is experiencing more frequent and severe HAB events (Lehman et al., 2017), which can cause indirect deleterious effects by decreasing dissolved oxygen and creating fish kills as well as through direct effects of toxin production. The Center for Disease Control and Prevention lists the most common routes of exposure as skin contact through direct exposure to water (i.e., swimming) or ingesting contaminated water or food. The effects of breathing in HAB toxins are still emerging in Delta research (CDC, 2024b). HABs in the Delta are dominated by *Microcystis,* which produces toxins that are harmful to humans and animals, causing diarrhea, vomiting, and liver damage if ingested. Tissue lesions consistent with liver toxin exposure have been documented in juvenile Striped Bass during *Microcystis* blooms (Lehman et al., 2010), indicating a potential human food exposure pathway.

As part of the **2024 Science for Communities** program, CBOs, tribes, and research scientists expressed the need to continue addressing water quality issues in the Delta, including raising awareness of and providing better information related to water quality to their own communities. For example, at the 2024 Science for Communities workshop, staff with Shingle Springs Band of Miwok Indians presented on the tribe's HABs monitoring program, emphasizing the importance of continuing to test for HABs, expanding testing locations to better identify and address HABs, protect the health of tribal members during cultural and recreational uses of water, and the importance of tribal data sovereignty. Also, as part of the 2024 Science for Communities program, Restore the Delta developed and promoted materials integral to its HABs program, to inform the public of how to recognize the indicators and signs of HABs, and to provide tangible actions that tribes and Delta communities can take to stay safe.

Two interviewees discussed how drought further exacerbated these water supply and water quality concerns. There has been increasing scientific attention to drought impacts in the legal Delta, and recent research has documented reductions in overall water quality, increased salinity intrusion, increased occurrences of HABs, and widescale ecosystem decline (CCST, 2021; Interagency Ecological Program Drought MAST, 2022). Additional research has demonstrated that Black and Latino communities across the Bay-Delta face disproportionately greater risk of surface water contamination (Liévanos, 2016), suggesting that drought impacts too may fall more heavily on disadvantaged communities.

Another interviewee stated that, while creating impacts outside of the Delta, a reduction in water exported south of the Delta influences demand on groundwater pumping in the Central Valley, which has led to over-pumping, depletion of groundwater levels, well outages, and increased groundwater quality concerns in the Central Valley. These concerns are corroborated by recent research showing that the impact of drought and reduced surface water resources available to export via the SWP and CVP have resulted in groundwater depletion, leading to significant domestic and municipal well failures in the Central Valley (Bostic et al., 2023; Pauloo et al., 2020).

Additionally, multiple interviewees and community members who provided input at community events discussed concerns related to water conveyance in the Delta generally and the proposed Delta Conveyance Project specifically. Many interviewees and community members shared concern that the Delta Conveyance Project could negatively impact in-Delta water quality by reducing through-Delta flows. The shared concern and distrust of the project among interviewees is well-illustrated by one comment:

> "*[Current exports already] send water away from the Delta, while communities in the Delta…[have] water barely above acceptable standards for drinking*."

Additional interviewees mentioned water quality issues independent of the proposed Delta Conveyance Project as well, pointing out how poor water quality conditions impact drinking water quality and recreational activities such as swimming and fishing, and can expose unhoused community members – who may be bathing and drinking directly from waterways – to toxins. One major source of poor water quality exposure is from HABs. Although there are statewide established toxin action levels for different water uses (i.e., recreational, fish consumption, water intake by dogs or

cattle; OEHHA & CalEPA, 2012), these action levels are recommendations, and there is a lack of routine monitoring in areas, with a high risk of potential exposure. Routine HAB toxin monitoring has been implemented in Clifton Court Forebay and at the Banks Pumping Plant.

Regarding drinking water impacts, data from the Water Board's SAFER program dashboard confirms that a number of drinking water systems within the Delta are failing or at risk of failing Human Right to Water standards. **As of April 2024, within the legal Delta and Suisun Marsh, 11 drinking water systems serving 306,537 people were failing Human Right to Water standards, and 27 systems serving 96,705 people are at risk of failing these standards** (SWRCB, 2024; **Figure 9**). Note that the population served by these systems likely includes some residents who live outside of the legal Delta and Suisun Marsh boundaries.

In addition to these known out-of-compliance regulated water systems in the Delta and across the state, about two million residents statewide rely on unregulated water systems of unknown quality (Firestone & Dobbin, 2021). Additional research in California has demonstrated the inequitable distribution of water risks across race and class. For example, **water systems serving communities with a higher percentage of Black and Hispanic/Latino populations have been found to have higher cumulative cancer risks** (Uche et al., 2021). In the San Joaquin Valley, water systems serving Disadvantaged or Disadvantaged Unincorporated Communities have greater rates of contamination and are more likely to be in violation of safe drinking water standards than water systems serving non-disadvantaged communities (Balazs et al., 2012; London et al., 2018).

Interviewees also expressed that other communities highly impacted by poor water quality include tribes, whose members are exposed to contaminated water through cultural practices, and unhoused individuals who lack access to clean water for drinking, cooking, bathing, and sanitation.

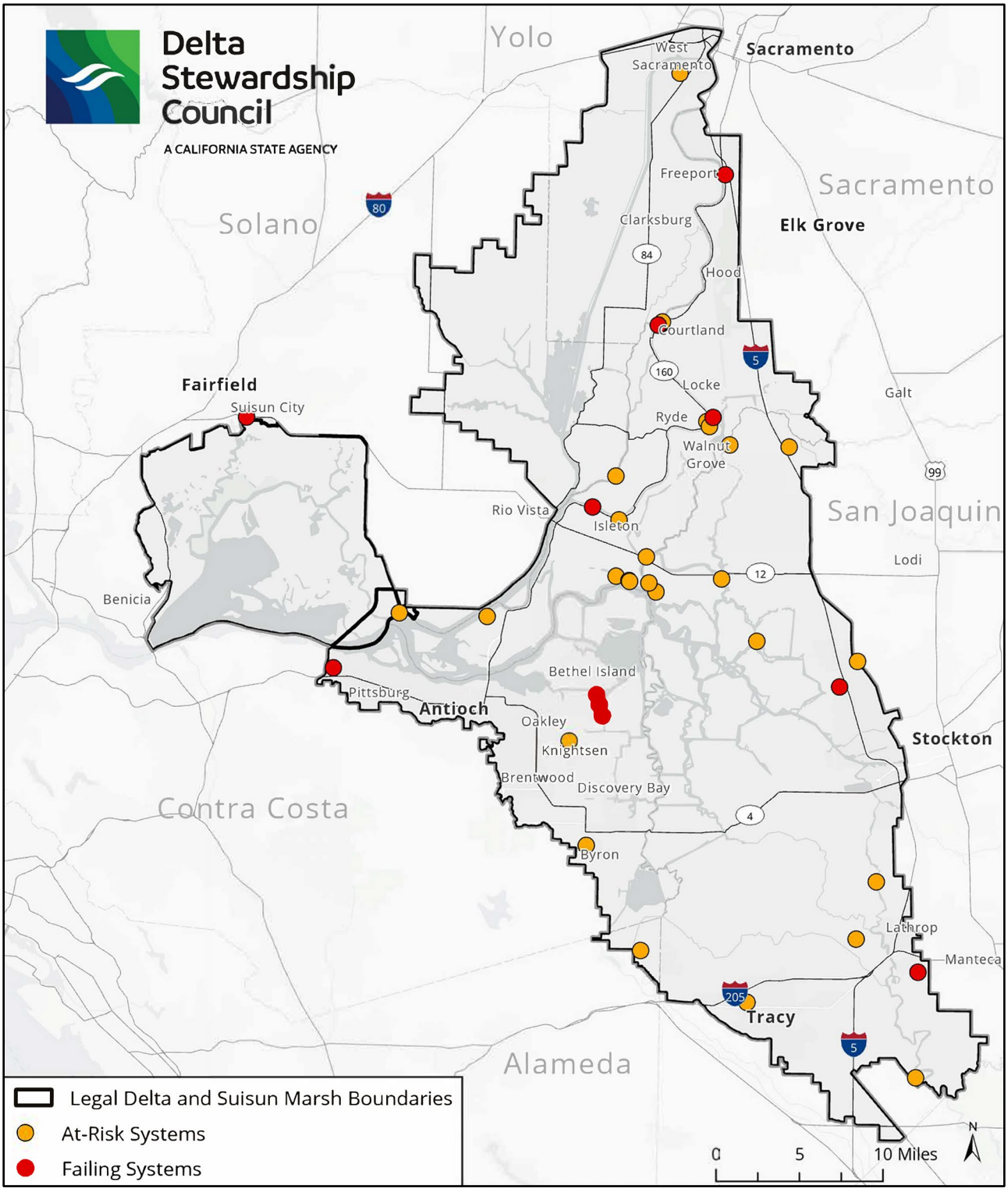


Figure 9: *Water systems within the legal Delta and Suisun Marsh that are (as of April 26, 2024) failing (shown in red) and at-risk of failing (shown in orange) human right to water standards, as identified by the SAFER program dashboard. Data is from SWRCB, 2024.*

Water affordability: Multiple interviewees identified water affordability concerns. One interviewee discussed water rates and rate structures in depth, sharing that many water ratepayers cannot afford their monthly water bill. According to this interviewee, water affordability issues are also exacerbated by current inflation and are difficult to address due to regulatory restrictions preventing water districts from establishing variable water rates for different customers. Several interviewees emphasized that small and disadvantaged communities, including some Delta legacy communities, often lack funds to address poor water quality concerns or secure access to a water system with adequate treatment. One interviewee noted that in Contra Costa County, underserved communities living on the shoreline and those relying on small water systems or wells (such as communities on Bethel Island) are particularly affected by water quality issues because they lack funds to adequately treat and supply their own water. Participants at community outreach events noted that many residents in Stockton lack adequate and reliable access to water and electricity, often because utility bills are too expensive.

Water affordability has gained increased attention as a water justice issue in California over the past few decades, as drinking water costs have continued to rise. The retail price of water has outpaced inflation in California over the last decade, and water rates are expected to rise across many community water systems in California (SWRCB & UCLA Luskin Center for Innovation, 2020). Although, at present, water may be considered affordable for median-income households, water bills in California are frequently unaffordable for people living in poverty and communities served by small water systems, as well as low-income households in larger water systems (Goddard et al., 2021). In its 2023 Drinking Water Needs Assessment, the State Water Board found that only 39% of community water systems faced no affordability burden (SWRCB,

2023a). Statewide, as of February 2024, the SAFER program identifies 738 water systems with high water affordability risk, with 75 of those systems within the five Delta counties (Contra Costa, Sacramento, San Joaquin, Solano, and Yolo), including a number of systems within the legal Delta (SWRCB, 2024)[7].

Another measure of affordability evaluates what percentage of households pay a relatively large proportion of their monthly income on an average residential water bill; **in the Delta counties, 21% of the population falls into high affordability risk according to monthly water bills (SWRCB, 2023d).** When water bills are unaffordable, and service is shut off, there are health and economic costs. Shutoffs create concern for water-related illnesses such as skin and soft tissue diseases and can result in additional economic burdens to the state, as low-income families incur additional healthcare costs caused by water shutoffs (SWRCB & UCLA Luskin Center for Innovation, 2020).

Air Quality, Pollution Exposure, and Public Health

Interviewees frequently mentioned air quality, pollution exposure, and public health as key environmental justice concerns for Delta communities. According to interviewees, low-income, minority, unhoused, and tribal communities, as well as renters, youth, and elderly people, bear disproportionate impacts of air, land, and water pollution. Interviewees cited concern for long-term respiratory health impacts, the stress of unknown long-term impacts of exposure to pollutants, as well as other health impacts from prolonged exposure to contamination and environmental hazards, such as HABs and mercury (see the Food Security and Access section for a discussion of concerns about mercury-contaminated fish).

Interviewees associated HABs with health concerns in surrounding communities, as well as worsening local air quality when cyanotoxins aerosolize. As of late 2023,

[7] Water affordability risk was calculated using three indicators: household socioeconomic burden (a composite indicator using data on both poverty prevalence—defined as the percent of the population living below two times the federal poverty level—and housing burden (the percent of households in a census tract that are both low income (making less than 80% of the Housing and Urban Development Area Median Family Income) and severely burdened by housing costs (paying greater than 50% of their income to housing costs); percent of median household income (the annual system-wide average residential water bill for six hundred cubic feet per month relative to the annual Median Household Income within a water system's service area); and extreme water bill (drinking water customer charges that meet or exceed 150% of statewide average drinking water customer charges at the six hundred cubic feet level of consumption) (SWRCB, 2023a).

research is currently underway studying the aerosolization of cyanobacteria and their toxins in the Delta (Thronson, 2022). Aerosolization from cyanotoxins has been extensively documented in saltwater bodies; however, aerosolization in freshwater systems needs to be further studied (Plaas & Paerl, 2020). A few studies and anecdotal evidence from human exposures have suggested that aerosolized HABs may be more toxic than previously understood. According to the Centers for Disease Control and Prevention, people can become ill through inhaling aerosols contaminated with cyanobacteria and may experience respiratory irritation such as wheezing, coughing, and sore throat, and aerosols may cause irritation to the eyes, nose, and skin (CDC, 2024a). With climate change, cyanobacteria have increased and are most strongly influenced by wind speed, direction and humid conditions (Plaas & Paerl, 2020).

The growing threat of Valley Fever was another concern brought up by a community organization at an outreach event. Valley Fever, a disease caused by inhaling fungus spores from soil, disproportionately impacts communities in the Central Valley and Central Coast (CDPH, 2024). This disease can cause respiratory symptoms and primarily impacts those living and working near contaminated soil, such as farmworker communities (CDPH, 2024). More cases of Valley Fever occur after periods of intense drought, which are likely to occur more frequently in the future due to climate change (CDPH, 2024). Valley Fever cases have risen significantly across California recently; San Joaquin County is among the counties that has seen the biggest increases (Rust, 2024).

Research has shown that air pollutants can adversely affect communities in other ways, even impacting the academic performance of children (Pastor et al., 2006). These impacts are compounded by the barriers many of these communities face in accessing public health services, public transportation, healthy food, and general services that contribute to a state of well-being.

Interviewees attributed disproportionate pollution exposure patterns to land use decisions and redlining practices that placed marginalized communities in closer proximity to industrial land uses, freeways and noise pollution, toxic waste, illegal dumping, and other pollutants of concern (see **Section 4** for more discussion of formerly redlined areas). For example, interviewees noted an area in South Sacramento (adjacent to the legal Delta) that is surrounded by three freeways and the executive airport, has high levels of poverty, and is home to large Latino and Asian

populations. High pollution exposure, lack of air quality monitors, and lack of green spaces or buffers leave the communities in this corridor disproportionately burdened.

Similarly, interviewees noted that the underserved community of South Stockton faces some of the worst air quality in the Central Valley due to the concentration of freeways, industry, trucking routes, and the Port of Stockton on the south side of the city. South Stockton and parts of South Sacramento are among a number of communities throughout the state selected to be part of the CARB Community Air Protection Program, which aims to reduce exposure in communities most impacted by air pollution (CARB, 2024). Interviewees explained that these areas are sometimes the only option available for low-income housing. Furthermore, as noted by interviewees, many people in these communities have few options other than to work outside or in industrial jobs that expose them to high rates of pollution. Moreover, other factors that affect health, including drug use, societal racism, poor mental health, and the COVID-19 pandemic, compound these environmental health impacts, demonstrating how the intersections of many aspects of living create high cumulative pollution burdens in specific communities. As an interviewee put it,

> *"Everything in environmental justice is intersectional – affordable housing, vulnerable communities, public health, air pollution, inequity."*

Climate change is also expected to have an impact on air pollution, altering how particulate matter pollution affects vulnerable populations. For example, climate-driven changes in air pollution are predicted to lead to more premature deaths and increased childhood asthma rates (U.S. EPA, 2021).

Housing and Unhoused Communities

Affordable housing and the health and safety of unhoused individuals (i.e., people experiencing homelessness) were also frequent concerns among interviewees. Both interviewees and environmental justice expert group members noted that people who disproportionately suffer from issues related to housing and homelessness are often members of low-income communities, people of color, undocumented immigrants, Native Americans, people with disabilities, LGBTQ+, and people transitioning out of foster care. This finding is supported by recent research in Sacramento County, for example, that reports that 58% of unsheltered adults indicated in 2022 that they have one or more disabling health conditions that prevent them from being employed and/or maintaining stable housing (Baiocchi et al., 2022).

In addition to not having stable or safe housing, interviewees explained that these individuals are also likely to face health and safety concerns in shelters, lack access to sanitation resources, and have increased exposure to poor water quality, extreme heat, and climate change impacts. Furthermore, interviewees felt that local governments are not being proactive about the housing crisis. As one interviewee put it in reference to their county government:

> "*Be fully engaged with homeless issues in general, step up and provide leadership.*"

Interviewees and attendees at community outreach events identified several areas within and adjacent to the legal Delta with large and growing populations of unhoused individuals: the cities of Vallejo, Stockton, Sacramento, Antioch, and Benicia, as well as more broadly across Contra Costa, Yolo, Solano, and Sacramento counties. Recent data corroborates interviewees' concerns for growing unhoused populations across the Delta. For example, in Sacramento County, an estimated 9,278 individuals experienced homelessness in 2022, which represents a 67% increase from 2019 (Baiocchi et al., 2022). Lack of shelter and sanitation resources, including bathrooms, places to bathe and wash hands, and trash services, create health and environmental hazards for unhoused people (Leibler et al., 2017). A survey conducted by the Sacramento Regional Coalition to End Homelessness (2018) showed that, at the time of the survey, fewer than 20% of Sacramento City parks had public restrooms, and of the parks that had restrooms, 21% were locked.

Interviewees expressed concern that unhoused people along the American River Parkway are often blamed for starting fires, which are used for warmth or cooking but also fuel nearby communities' concerns for air quality and safety. Interviewees voiced concerns that encampments near levees are located in immediate flood risk zones, raising significant safety concerns for these highly vulnerable populations. Large encampments can also compromise the stability of levees and hinder emergency response operations on levees.

In addition to homelessness, interviewees described the high cost of living and access to affordable housing as challenges across the region. These concerns are substantiated by a growing body of recent research. For example, a poll conducted by Valley Vision, a public interest think tank serving the greater Sacramento area, found that low wages relative to the cost of living are one of the top five issues cited by residents in the Sacramento region (Avanceña et al., 2022). The poll reports a few staggering figures: a third or more of residents are struggling to afford what they need to live, 30% of residents cannot or can barely afford adequate food supply, 41% of residents cannot or can barely afford rent or mortgage or other bills, and 65% cannot afford to put money into a savings account. Recent data from the Delta Residents Survey found that **25% of Delta residents report household incomes of $50,000 annually or lower and report affordability of basic needs (housing, food, utilities, transportation) to be a key challenge to their well-being living in the region, with people of color experiencing these challenges at significantly higher rates than white residents** (Rudnick et al., 2023).

One Delta Residents Survey respondent expressed these compounding concerns:

"I worry that with the declining economy, income inequality, lack of affordable housing, and continued gentrification of the entire state... the Delta as we know [it] (or knew it...once upon a time I could eat fish out of certain waterways I no longer can) will be nearly non-existent due to overuse and climate change"

(Rudnick et al., 2023).

Food Security and Access

Interviewees identified lack of access to healthy and nutritious foods as issues of food security and food access. They identified three main drivers for these issues: inability to engage in subsistence activities, lack of transportation to access stores selling healthy foods, and concerns with the larger food system.

Interviewees explained that subsistence activities, including fishing, foraging, and gardening, are limited by barriers to access to gathering/harvesting areas and agency requirements to purchase licenses for subsistence activities. Sometimes, people also refrain from subsistence activities because they are concerned about dangerous

contaminants in soils and waterways; a salient example is the concern for mercury-contaminated fish in the Delta. According to interviewees, subsistence fishers continue to face significant health risks because they often lack information about the dangers of consuming fish sourced from polluted waters (see the callout box to the right for more information about this issue).

In addition to the pollution and health concerns raised by interviewees, research in the last decade has also identified mercury as a toxin Delta residents are exposed to by consuming contaminated fish. Specifically, among the Delta's diverse ethnic communities, subsistence fishing is an important cultural and economic practice, and as such, anglers may be exposed to mercury in amounts well above what the U.S. EPA deems to be acceptable for public health (Shilling et al., 2010). While efforts such as the Delta Mercury Exposure Reduction Program have helped raise awareness about the need to avoid consumption of mercury-contaminated fish, this is still an ongoing issue of concern (OEHHA & CalEPA, 2022; Sacramento-San Joaquin Delta Conservancy, 2023).

Interviewees also discussed healthy foods as integral to the health and well-being of communities. By contrast, food insecurity and lack of access to healthy foods lead to health impacts and community decline. These concerns have been well-documented in recent research. In 2020, 9.1% of California's population experienced food insecurity, defined as the lack of access, at times, to enough food to support an active, healthy life. **Among Delta counties, San Joaquin County (12.1%), Sacramento**

As part of the **2024 Science for Communities** program, the California Indian Environmental Alliance – in partnership with private sector, government and academic research scientists – updated and promoted a pamphlet explaining how to safely consume wild fish exposed to mercury. The pamphlet covers the type of fish to eat, safe serving sizes, and impacts of mercury on the human body. Mercury contamination in wild fish is both a water quality and food security issue. Methylmercury can easily enter the food chain and be found in wild fish that are consumed (California Indian Environmental Alliance, 2013). Native Americans have been identified as a group at high risk from toxins in fish. Pregnant women, developing fetuses, and children are most affected by mercury in the body, so it is essential to provide adequate outreach to inform these communities about the risks (California Indian Environmental Alliance, 2013). It is important to continue highlighting the impacts from mercury and how to eat fish safely.

County (11.7%), Yolo County (10.6%), and Solano County (9.4%) had a food insecurity rate higher than the statewide average, while only Contra Costa County (8.5%) ranked below (Gundersen et al., 2022). Often, lower-income communities and communities of color cannot readily access healthy foods, so they instead rely on more accessible unhealthy food sources (Hilmers et al., 2012). In the Delta-adjacent City of Sacramento, for example, food access disparities exist across neighborhoods: several areas, especially in North Sacramento, Arden Arcade, and South Area, are low-income neighborhoods in which more than 33 percent of residents live more than a mile away from the nearest large grocery store (City of Sacramento, 2020). Low-income residents in Sacramento have higher rates of food insecurity and are less likely to have access to community gardens or farmers' markets (City of Sacramento, 2020). In Stockton, 12 census tracts – predominantly located in South Stockton – are low-income tracts in which a significant portion of residents live more than a mile away from the nearest supermarket (USDA, 2019).

Finally, in reference to the larger food system, multiple interviewees expressed concerns that agricultural losses from water shortages would lead to food shortages and possible food contamination caused by the use of recycled water for irrigation.

Recreation and Outdoor Access

Significant research demonstrates that recreation and outdoor access, often described as “green space,” has many positive health, social and community, educational, and economic benefits. For example, access to green space can regulate air and water pollution, increase physical activity, and promote economic stability (Jennings et al., 2016). As noted in **Section 4**, the concept of public trust serves as a key safeguard for public outdoor access to natural resources. Interviewees identified inequitable access to green space as a key concern, with minority and low-income urban communities being less likely to have access to green and open spaces for recreation. These communities then suffer the physical and mental health impacts associated with being unable to access green and open spaces or form a relationship with the land. Other research supports that areas without green space also have higher air temperatures and poorer air quality, with associated health impacts.

Interviewees named South Sacramento, South Stockton, parts of Vallejo, Delta legacy communities, the Sycamore area in Antioch, and small towns in the western Delta as areas lacking access to green and outdoor spaces. Interviewees’ concerns are further corroborated by the Healthy Communities Data and Indicators Project, which maps the percentage of the population residing within ½ mile of a park, beach, open space,

or coastline for California cities, towns, and census-designated places (CDPs). **In the Delta, communities with a percentage of the population within ½ mile from a park, beach, open space, or coastline (i.e., easy accessibility) that is *lower* than the state average include many of the Delta's communities: Clarksburg, Courtland, Walnut Grove, Rio Vista, Thornton, Isleton, Terminous, Lincoln Village, Country Club, French Camp, Discovery Bay, Byron, Knightsen, and Bethel Island** (CDPH, 2017). Delta communities with the lowest population-weighted tree canopy coverage, compared to other Delta cities, towns, and CDPs, include Rio Vista, Thornton, Terminous, French Camp, Lathrop, Manteca, Mountain House, and much of the portion of Contra Costa County within the Delta: Discovery Bay, Knightsen, Bethel Island, Oakley, Brentwood, Antioch, and Pittsburg (Bodenreider et al., 2022).

One interviewee noted,

> *"Sacramento has always prided itself as the City of Trees, but that's not for everyone. It's not in all areas…This leads to more heat impacts in areas with less trees. We need to change the mindset of the city to expand the canopy into Latino neighborhoods as well."*

Furthermore, despite water dominating the Delta landscape and being what most people think about in terms of recreation in the region, two-thirds of Delta residents report recreating on land (Rudnick et al., 2023). Interviewees also noted that feelings of safety and belonging are also central to achieving equitable outdoor and green space access and that certain community members don't feel welcome in some outdoor recreation areas.

Section 6: Moving Forward

What began as a response to a finding in the legislatively mandated 2019 Five-Year Review of the Delta Plan has grown into a thought-provoking and humbling exploration for the Council on what it means to live and work in and around the Delta today. Now, with a greater understanding of the painful history of marginalization and racism in the Delta, the Council is uniquely positioned and committed to working to improve the situation.

Understanding the urgency of these issues, the Council did not want to wait until the completion of this paper to begin to address tribal and environmental justice issues. Since 2019, the Council has:

- Increased focus on collaborative science and social science integration, including funding a Delta Residents Survey aimed at better understanding Delta community needs,
- Begun to regularly include CBOs and tribes in planning events,
- Led workshops on issues related to equity,
- Hosted a public environmental justice webinar series featuring talks by environmental justice scholars,
- Increased community engagement and outreach by participating in community events,
- Hosted a listening session with Delta tribes to hear about their ties to the Delta, their sovereignty and relation to the state, and their perspectives surrounding Delta management,
- Developed partnerships with tribes toward incorporating Traditional Knowledge into decision-making and increasing engagement within the Council's activities,
- Included environmental justice-related scoring criteria and tribal engagement elements in the 2023-2024 and 2025 Delta Research Proposal Solicitation Notices,
- Created a new unit and hired a program manager and environmental scientist to focus on environmental justice and climate change, and
- Created a new position to support tribal consultations and coordinate justice, equity, diversity, and inclusion efforts.

Building from and on these efforts and the knowledge gained by the development of this issue paper, the Council will grow its tribal and environmental justice work into the future.

Appendices

A. Issue Paper Limitations
B. Definitions
C. Issue Paper Development Process
D. Public Comments Analysis

Appendix A: Issue Paper Limitations

During the development of this paper, Council staff operated with a limited framework of environmental justice knowledge and on a restricted timeline. As such, the timeline for developing this paper was shorter than some experts may recommend is necessary for relationship building, resulting in limited relationship development and trust building with tribal and environmental justice community organizations and individual community members. Additionally, this work occurred within a setting of historical disenfranchisement and broken trust through CALFED's failed environmental justice process (see Shilling et al., 2009). These historic tensions came up in Council staff's initial discussions with environmental justice community groups in June 2021.

Additionally, staff requested input from organizations that are perpetually strapped for resources. Despite paying environmental justice expert group members for their time, CBOs are nearly always limited in the resources and staff capacity available to engage in government processes. State and federal agencies are often competing for the same community organizations' time, which was the case for the CBOs on the Council's environmental justice expert group.

Several limitations underlie the analyses done for this issue paper. Primary data collection focused on the areas within and adjacent to the legal Delta boundaries, which are arbitrary in the context of environmental justice issues. This work does not represent a comprehensive assessment of environmental justice in the context of how the Delta influences the entire state. For example, it does not address environmental justice issues in communities in Southern California and the Bay Area receiving Delta water, communities at the Delta headwaters, and communities in the Central Valley who may be affected by Delta water management decision-making.

The COVID-19 pandemic added an additional layer of hardship to environmental justice organizations' ability to participate in interviews conducted in this process. These are generally under-resourced and small-staffed organizations serving the communities that were disproportionately impacted by the pandemic. Despite postponing the interview research during two separate COVID spikes (winter 2021 and spring 2022) and conducting follow-up outreach, several organizations responded that they simply did not have time to participate despite their interest in the work. These organizations included groups that represent education, religious and faith-based, farmworkers, and LGBTQ+ communities.

The recommendations included in this paper focus on actions that are within the Council's authority and control. The Council's authority is created in statute, and there are several intersectional environmental justice issues that stretch beyond the Council's authority and scope. The complex governance system of the Delta includes many levels of government (e.g., local, state, and federal) operating in the same geography, leading to differing and sometimes conflicting policy goals and priorities and varying expertise (Lubell et al., 2014). This presents an ongoing challenge (and opportunity) not unique to the Council for coordination and collaboration across agencies on environmental justice recommendations.

Additional challenges – well documented in environmental justice literature as common across government agency efforts to adopt environmental justice policies and plans – influenced the Council's process of developing recommendations from this paper. These included:

- Limited data on environmental injustices,
- The limits of analytical tools and approaches to reliably demonstrate a causal relationship between racism and oppression and the presence of environmental harms,
- Limited budget, resources, and timelines allocated to conduct environmental justice work,
- Agency staff having limited experience in truly implementing co-production processes with environmental justice communities, and
- Agency staff lacking formal training in this subject matter (Buford, 2017; Cole, 1999; Harrison, 2014; Konisky, 2015).

As many government agencies across federal, state, and local levels strive to adopt and integrate tribal and environmental justice principles into their work, all grapple with how to optimally prioritize and allocate limited resources to continue fulfilling ongoing requirements while also embracing the new ways of thinking, new data collection needs, and new approaches to analysis and decision-making that a true commitment to environmental justice demand. The Council is no different in this regard and views this issue paper as the beginning of a journey to understand and best address tribal and environmental justice issues as they relate to its mission and the management of the Delta.

Appendix B: Definitions

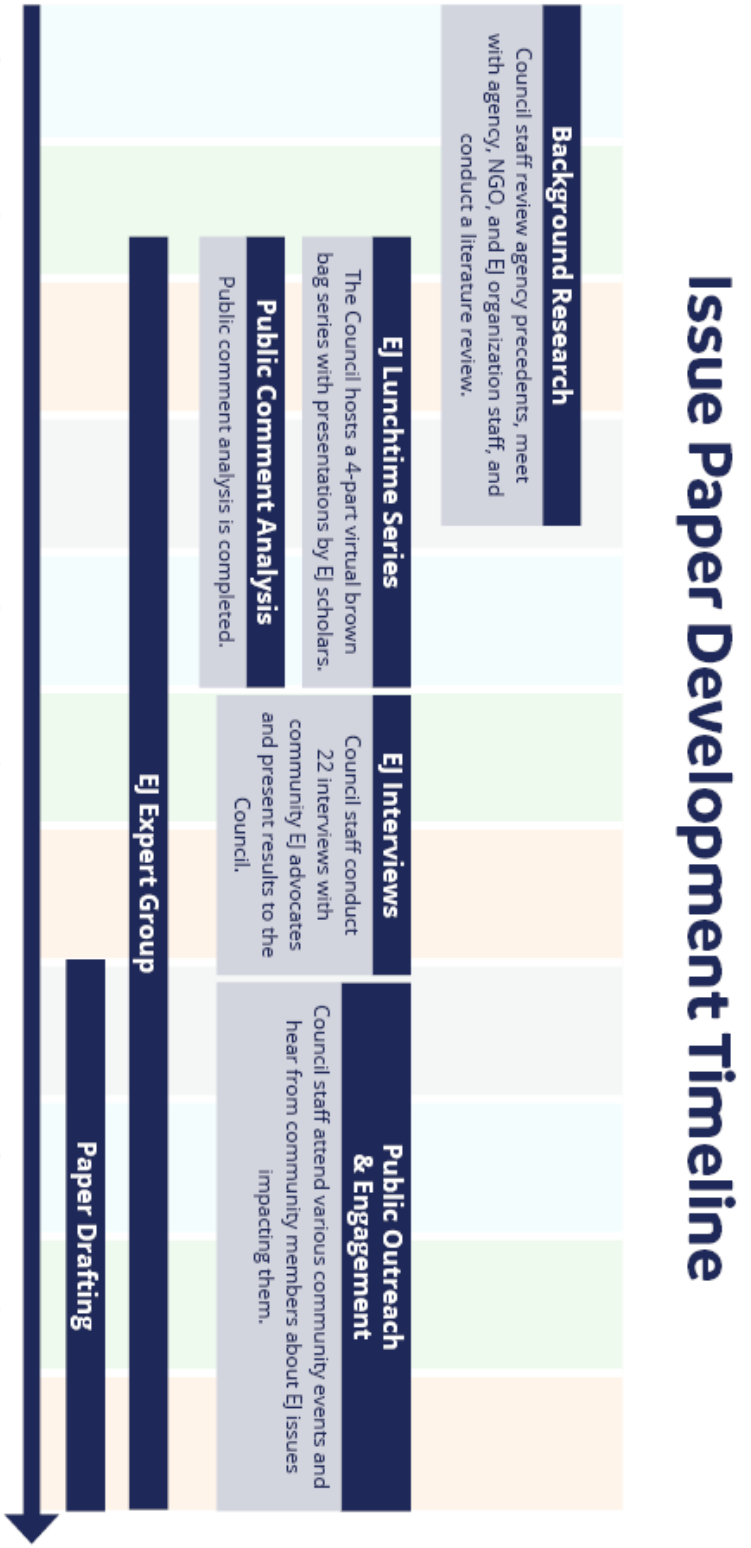
Table 1: *Selected definitions related to environmental and tribal justice, including California state codified definitions*

Term	Definition	Source
Environmental Justice	The fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. (2) "Environmental justice" includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision-making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions.	Gov. Code, § 65040.12, subd. (e); Cal. Code Regs., tit. 23, § 5001, subd. (w)
Environmental Justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys: • The same degree of protection from environmental and health hazards, and • Equal access to the decision-making process to have a healthy environment in which to live, learn, and work.	U.S. Environmental Protection Agency (U.S. EPA 2023)
California Native American Tribe	Native American tribe located in California that is on the contact list maintained by the California Native American Heritage Commission.	Public Resources Code 21073, Chapter 905 of the Statutes of 2004.
Tribal Community	A community within a federally recognized California Native American tribe or non-federally recognized Native	Water Code 13149.2(f)(3), Chapter 905 of

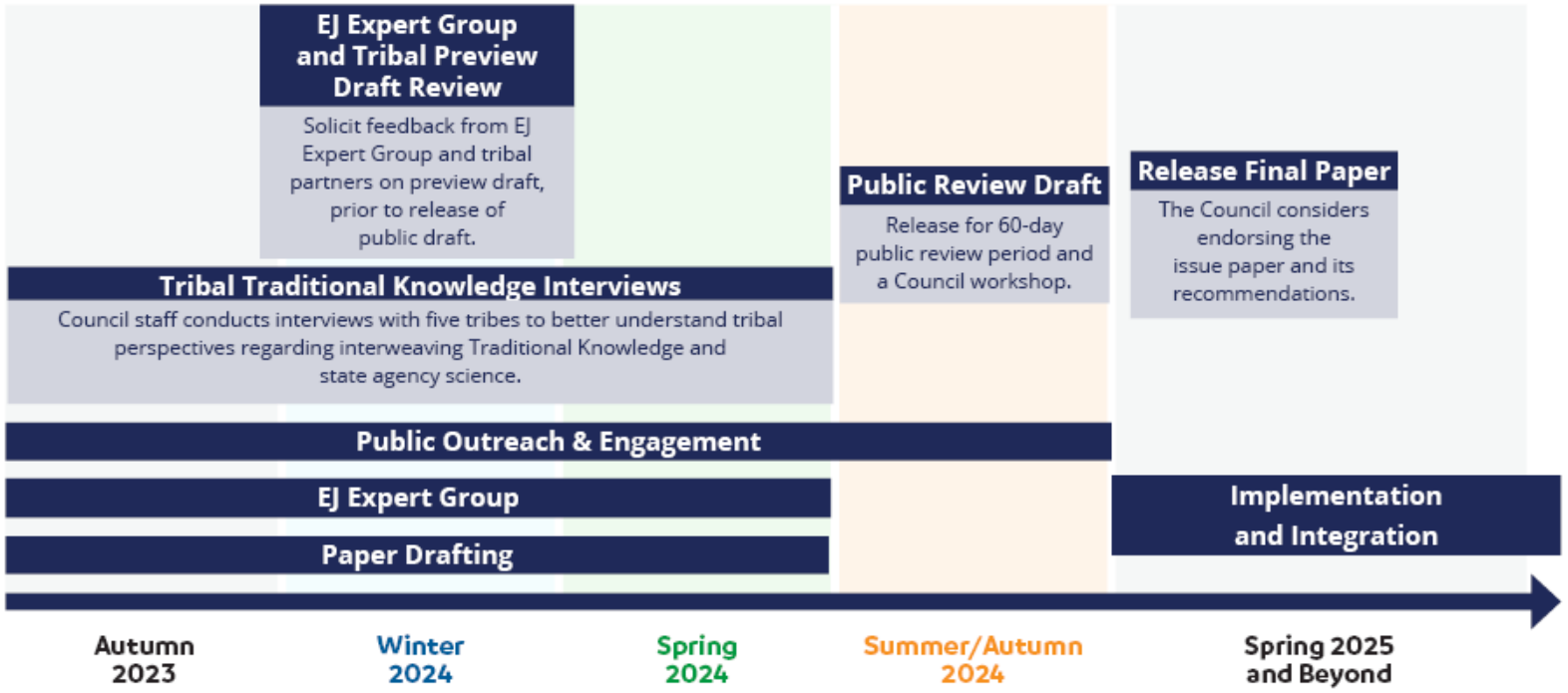
	American tribe on the contact list maintained by the California Native American Heritage Commission.	the Statutes of 2004
Tribal Knowledge	"...a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. [It] cannot be separated from the people inextricably connected to that knowledge."	Daniel et al., 2022
Traditional Knowledge	"Tribal traditional knowledge means knowledge systems embedded and often safeguarded in the traditional culture of California Indian tribes and lineal descendants, including, but not limited to, knowledge about ancestral territories, cultural affiliation, traditional cultural properties and landscapes, culturescapes, traditional ceremonial and funerary practices, lifeways, customs and traditions, climate, material culture, and subsistence. Tribal traditional knowledge is expert opinion."	Health and Safety Code 8012 (p) Defined as part of California Native American Graves Protection and Repatriation Act
Equity	Just and fair inclusion in society in which all can participate	Seigerman et al., 2022
Vulnerable communities	Women; racial or ethnic groups; low-income individuals and families; individuals who are incarcerated or have been incarcerated; individuals with disabilities; individuals with mental health conditions; children; youth and young adults; seniors; immigrants and refugees; individuals who are limited English proficient; and Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning communities, or combinations of these populations	Health & Saf. Code, § 131019.5
Vulnerable places	Places or communities with inequities in the social, economic, educational, or physical environment or environmental health and that have insufficient resources or capacity to protect and promote the health and well-being of their residents	Health & Saf. Code, § 131019.5
Access and functional needs population	Individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking, seniors, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant	Gov. Code, § 8593.3, subd. (f)
Disadvantaged community	An area disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation, or with concentrations of people who are of	Health & Saf. Code, § 39711

	low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment. (These communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, the above criteria).	
Disadvantaged community	A community with a median household income of less than 80 percent of the statewide average	Wat. Code, § 79505.5; Cal. Health & Saf. Code, § 116275, subd. (aa)
Severely disadvantaged community	A community with a median household income of less than 60 percent of the statewide average	Health & Saf. Code, § 116760.20
Disadvantaged unincorporated community	Unincorporated inhabited territory, within which there reside 12 or more registered voters, that constitutes all or a portion of a “disadvantaged community,” meaning a community with an annual median household income that is less than 80 percent of the statewide annual median household income	Gov. Code, § 56033.5

Appendix C: Issue Paper Development Process



Issue Paper Development Timeline, Continued



Background Research

To inform the issue paper scope and environmental justice expert group design, Council staff began background research in early 2021, which included reviewing precedents from other state and local agencies and meeting with agency staff, CBOs and environmental justice groups, and environmental NGOs to discuss their experiences and advice in addressing environmental justice. Staff reviewed precedents from and/or met with the following agencies:

- California Air Resources Board
- San Francisco Bay Conservation and Development Commission
- CalEPA
- California Coastal Commission
- Sacramento-San Joaquin Delta Conservancy
- Local agency general plan environmental justice elements (Contra Costa County, Sacramento County, City of Pittsburg)
- Governor's Office of Planning and Research
- California State Coastal Conservancy
- San Francisco Bay Restoration Authority
- State Lands Commission
- State Water Resources Control Board

As part of the background research, Council staff also reviewed a comprehensive list of environmental justice literature.

Environmental Justice Expert Group

Recruitment process: The selection of the environmental justice expert group members happened over a series of months, beginning with initial outreach to more than 60 CBOs and 100 tribes or tribal-serving organizations in the spring of 2021. Experts were invited to participate in a kickoff meeting in June 2021, which approximately 20 experts attended, representing expertise in social justice, Indigenous perspectives, people experiencing homelessness, subsistence fishing, and other areas related to environmental justice and Delta management. During that meeting, staff received constructive input from participants on the best approach to use for forming and working with the environmental justice expert group. Beginning in June 2021, four organizations participated in the staff-led environmental justice expert group and had the opportunity to meet with Council staff approximately monthly from November 2021 to Spring 2024.

Members

- **Gloria Alonso Cruz** is the Environmental Justice Advocacy Coordinator for Little Manila Rising, a health equity nonprofit in Stockton that works with partners to address the most urgent public health risks in South Stockton while also working to preserve the legacy of marginalized communities in Stockton.
- **Barbara Barrigan-Parrilla** is the Executive Director of Restore the Delta, a nonprofit in Stockton that works to empower community members to have a direct impact on water management decisions in the Delta through public education and outreach.
- **Bob Erlenbusch** is the Executive Director of the Sacramento Regional Coalition to End Homeless, a nonprofit in Sacramento that works to end homelessness in the Sacramento region through policy analysis, community education, civic engagement, and advocacy. Bob has worked as an advocate on homelessness and housing issues at the local, state, and national levels for more than 35 years. He is an adjunct professor in the Division of Social Work at the California State University of Sacramento.
- **Matt Holmes** was formerly the Environmental Justice Director for Little Manila Rising. Matt was formerly Little Manila Rising's representative on the environmental justice expert group; Gloria Alonso Cruz and Jasmine Peterson replaced Matt as the representatives in May 2023.
- **Sara Medina** is the Sustainable Agriculture and Land Manager for Restore the Delta.
- **Sherri Norris** is the Executive Director of California Indian Environmental Alliance, a statewide nonprofit that works to empower California Indian communities in environmental health, land advocacy, and youth empowerment.
- **Jasmine Peterson** is the Environmental Justice Internal Director for Little Manila Rising.

Role

The environmental justice expert group was formed through a transparent and inclusive process to help develop a range of options to address environmental justice concerns reflecting community values and priorities. The role of the environmental justice expert group was to:

- Provide expert knowledge, guidance, and recommendations regarding environmental justice considerations in the Delta to Council members and staff;
- Bring community insights and perspectives to the agency environmental justice discussions and
- Build a strong relationship with Council staff, fellow environmental justice expert group representatives, and other community groups and leaders.

The environmental justice expert group was comprised of representatives from four CBOs whose work includes community advocacy, building partnerships, tribal concerns, social and environmental sciences, and topics relevant to the Delta, such as water supply and quality, ecosystem restoration, flood risk reduction, and cultural, recreational, agricultural, and natural resource values. Through the environmental justice expert group, these groups were able to develop closer relationships and understandings of each other's work as relevant to the Delta. The group provided comments and feedback to staff on a range of issues, including public participation, the design of the interview process and guide, outreach to interviewees, and interview data analysis. The environmental justice expert group also led discussions on topics including housing and the unhoused and tribal sovereignty.

Environmental Justice Webinar Series

From September to December 2021, the Council hosted four virtual lunchtime webinars featuring environmental justice scholars. These webinars were open to the public and explored topics covering water justice, Indigenous justice, climate justice, and environmental regulatory agencies' environmental justice reforms. The four webinars included:

- **Water Justice: Linking local, regional, and state responses for implementing the Human Right to Water**. With Laurel Firestone, SWRCB board member, and Dr. Kristin Dobbin, formerly a post-doctoral scholar at UCLA and currently an Assistant Professor of Cooperative Extension at UC Berkeley.
- **Environmental Regulatory Agencies' Environmental Justice Reforms: Progress, Challenges, and Recommendations**. With Dr. Jill Lindsey Harrison, Associate Professor at the University of Colorado, Boulder.
- **Indigenous Stewardship: Indigenous Peoples and Environmental Justice**. With Dr. Kyle Whyte, Professor of Environmental Sustainability at the University of Michigan.

- **Climate Justice: Racialized disparities related to sea level rise, flooding, and foreclosure risk in Stockton**. With Dr. Raoul Liévanos, Associate Professor at the University of Oregon.

Public Comments Analysis

Council staff collected and analyzed public comments received by the Council from 2011 - 2021 to identify environmental justice issues that have been brought to the Council's attention across a variety of projects. The list of issues identified in past comments was used to inform the discussion of tribal and environmental justice issues in the issue paper and as a prompt in the environmental justice interviews. **Appendix D includes detailed information about the public comment analysis.**

Environmental Justice Interviews

Council staff partnered with California Sea Grant (CASG) to conduct qualitative interview-based research with environmental justice organizations and advocates working across the Bay-Delta to serve as a primary data source informing the issue paper development. Between January and May 2022, the CASG and Council environmental justice research team conducted 22 interviews with a wide range of organizations and individuals working on the ground and in the communities most impacted by social and environmental issues in the Delta. The interviews aimed to build a better understanding of environmental justice issues from the perspective of environmental justice communities and advocates to educate Council members, Council staff, and those external to the Council but working in the Delta of the most pressing environmental justice challenges in the region. **For more information on the environmental justice interviews and interview results, see the *Summary of Delta Environmental Justice Interviews: Report on Methods and Findings* (Council, 2022b).**

Interviews with Tribes Regarding Interweaving Traditional Knowledge

In addition to the interviews with environmental justice- and tribal-serving organizations and advocates described above, an additional set of interviews was conducted with tribes to better understand tribal perspectives regarding interweaving Traditional Knowledge and state agency science. These interviews were co-developed, co-led, and co-created by staff at Buena Vista Rancheria and the Delta Science Program. Tribal representatives also provided perspectives regarding recognition and

procedural challenges when working with public agencies. Interviews were conducted between November 2023 and April 2024 with five tribes.

Interviewers

The Tribal Historic Preservation Officer at Buena Vista Rancheria brought his expertise on Traditional Knowledge, knowledge of governance processes in state agencies, and long-term trust and relationships with tribes and state agencies. This expertise was essential for both synthesizing Traditional Knowledge and to ensure participation from tribes. Staff from the Delta Science Program brought their expertise as scientists in developing the data collection protocol, analyzing the data, and writing a White Paper with detailed interview results (pending publication).

Participants

The authors solicited interviews from 14 tribes throughout the Delta watershed between November 2023 and April 2024. Of those, the interview team heard from and conducted interviews with five (5) tribes (a response rate of 35%). Interviews included one or two individuals, per interview, ranging from Tribal Historic Preservation Officers to Cultural Resources Directors.

Data Collection Protocol

Interviews were considered exempt from review as human subjects research by the Independent Review Board (IRB). Research is defined as "a systematic investigation…designed to develop or contribute to generalizable knowledge." Federal regulations specifically exclude certain activities for program improvement. These types of activities involve interactions with humans and data gathering but do not meet the definition of research because they are not designed for generalizability but for something else such as program improvement, in this case for the Delta Science Program. In addition, there were minimal to no social, psychological, legal, or economic risks involved with this study.

All interviewees filled out an informed consent form detailing the purpose of the study, background about the Council, information on the interview process, details about confidentiality, data use, sharing, and storage and detailing minimal risks involved with this study. The interview team also refrained from recording any of the interviews, which could be subject to Public Records Act requests. Instead, the interview team took detailed notes during the interviews which were combined into a narrative. To the best of the interview team’s ability, notes were kept free of any identifying information including name, role, and tribal affiliation to preserve anonymity.

Semi-structured interview questions were iteratively co-developed with Buena Vista Rancheria and Delta Science Program staff, including questions on six primary themes: (1) the current state of interweaving; (2) the value of Traditional Knowledge; (3) barriers to interweaving; (4) lessons learned from unsuccessful collaborations; (5) exemplary collaborations; (6) next steps for California state agencies. Follow-up questions were also asked when there was ambiguity or further interest. Interviews lasted between an hour and an hour and a half in length. Interview notes were then shared with interviewees to ensure that information was accurately portrayed.

Data Analysis

Interviews were reviewed and analyzed individually by two staff in the Delta Science Program to ensure intercoder reliability, using an iterative process of content and thematic analysis. Researchers used the open coding technique for thematic analysis, allowing themes and codes to emerge from the notes. Researchers generally followed a six-step process detailed in Braun and Clarke (2006): familiarization with the data, coding, searching for themes, reviewing themes, defining and naming themes, and write up. These codes were entered into the qualitative software QDA Miner Lite to analyze results, and to create comparison diagrams. To report back results, all parent and child codes include the frequency, the definition, and exemplary quotes.

Tribal Consultation & Engagement

Council staff actively engaged with tribal representatives throughout development of this issue paper to solicit feedback. Tribal consultation was conducted in addition to the interviews with tribes regarding Traditional Knowledge and interviews conducted with environmental justice and tribal-serving organizations described above. All requests for consultation were sent to tribes with cultural affiliation to the Delta via email and US mail.

Engagement started with consultations held before starting on this issue paper, or “pre-consultations,” that began in Spring 2021. Council staff started report writing in Fall of 2022 but continued to hold pre-consultation meetings with tribes through Summer 2023, conducting four tribal pre-consultations in total. The Council also held a tribal listening session in April 2023 that informed the development of this paper. Once a first draft was completed, Council staff solicited feedback on the paper from its environmental justice expert group and tribal partners between Fall and Spring of 2024. A public review draft of the paper was released in Summer 2024 for a 60-day public review period and released for an additional round of consultation to all Delta-affiliated tribes for 90 days. Council staff also held a hybrid tribal roundtable during

the tribal consultation period for the public review draft in October 2024. In total, the Council formally consulted with five tribes throughout paper development.

Community Engagement

From 2022 to 2024, Council staff participated in more than 20 community events (Table 2). Staff participation at these events was intended to raise awareness of the Council's tribal and environmental justice work in Delta communities and to receive additional input from community members on environmental justice issues that affect them and what they would like to see local and/or state governments prioritize to improve their communities. These community events were also used to share and discuss the Council's Delta Adapts initiative.

Table 2: Community outreach events and presentations

Event	**Month/Year of Event**
Science for Communities Workshop	October 2022
Restore the Delta's Where the Future Flows: Next Generation Visioning for the Delta (virtual symposium)	October 2022
Filipino American History Month (FAHM) Fest	October 2022
Delta Heritage Forum	November 2022
Restore the Delta's Holiday Open House	December 2023
Pittsburg Candy Cane Parade	December 2023
Stockton AB 617 Community Steering Committee Meeting & HABs Subcommittee Meeting	February and May 2024
Delta Stewardship Council Meeting	March 2024
City of Pittsburg Community and Economic Development Sub-Committee Meeting	April 2024
Conway Homes Resident Council Meeting	April 2024
Contra Costa County Resilient Shoreline Committee Meeting	April 2024
Rise Stockton Coalition Meeting	June 2024
Honored Elders Day	June 2024
Antioch City Council Meeting	June 2024

Science for Communities Workshop	July 2024
Antioch Movie Night	July 2024
National Night Out at Yosemite Street Village	August 2024
Bethel Island Municipal Advisory Council Meeting	September 2024
Hood Community Council Meeting	September 2024
Antioch Big Truck Day	September 2024
Native American Day	September 2024
West Sacramento Cinema at Sundown	September 2024
Sacramento-San Joaquin Delta Conservancy Board Meeting	October 2024
West Sacramento Arts in the Heart	October 2024
Walnut Grove Rotary Club Meeting	October 2024
Delta Heritage Forum	November 2024
Delta Region Geological Hazard Abatement District Meeting	November 2024

Community Outreach Formats

These 27 outreach events spanned a wide range of formats and locations, aiming to connect with diverse audiences, including the public, government agencies, and regional organizations.

- **Presentations:** Staff presented at in-person, virtual, and hybrid meetings like Board and Council meetings, as invited. These presentations focused on updating interested parties about ongoing initiatives, with a focus on this issue paper and the Council's Delta Adapts initiative and seeking input regarding community priorities.
- **In-person tabling or "pop-ups":** Tabling at community events provided an opportunity for Council staff to engage with community members in informal settings within their communities. The informal nature of these events helped foster relationships and build trust between local agencies and the communities they serve. The events were also useful in raising awareness about the Council in general, as many community members were not familiar with the Council. Key outreach events included tabling at existing community gatherings like the National Night Out at Yosemite Street Village in Stockton,

Pittsburg Candy Cane Parade, and Antioch's Big Truck Day. At these events, Council staff engaged with attendees on topics such as climate resilience, flood risk, and environmental justice. Outreach included educational activities for children, such as trivia and hands-on arts and crafts at events such as West Sacramento Arts in the Heart. Cultural events, such as the Honored Elders Day and Native American Day, allowed staff to directly engage with tribal members, providing an opportunity to advertise tribal consultation events and discuss issues such as cultural land access and water quality.

- **Hybrid workshop:** The Science for Communities Workshops facilitated hands-on discussions between CBOs, tribes, and scientists from various sectors. These sessions resulted in actionable insights and the development of resources for further outreach and engagement with vulnerable populations.
- **Raffle:** At two of the events – Where the Future Flows: Next Generation Visioning for the Delta and FAHMfest Stockton – participants were entered into a raffle for a chance to win a $25 gift card (sponsored by CA Sea Grant) for answering questions. The raffle provided a good incentive that encouraged more people to participate in the activity.

Key Takeaways on Tribal and Environmental Justice Issues

The outreach events convened and/or attended by staff covered a range of critical issues related to environmental justice. Discussions revealed both concerns and aspirations around managing injustices and integrating effective solutions for the future. Several key themes emerged from discussions with community members and partners which are broken down into subcategories below. Most of the issues identified were consistent with the issues identified in the environmental justice interviews and other sources staff reviewed as part of the issue paper development.

1. *Climate Resilience, Adaptation Strategies, and Agency Response*
   - **Need for Localized Information:** Community members, especially those in rural and underserved areas, expressed a desire for more localized and accessible information on climate risks, including flood preparedness, water quality, and emergency response. Many attendees wanted clearer guidance on how this work can directly benefit their communities and specific actions that can be taken to improve resilience.
   - **Government Alignment:** Many participants emphasized the importance of multi-agency alignment and collaboration.
   - **Council Role & Clarity:** At the Hood Community Council and Walnut Grove Rotary Club meetings, participants expressed confusion between the Council and other Delta agencies, emphasizing the importance of clarifying the role of the Council.
   - **Funding:** The need for targeted funding was emphasized for specific efforts like salinity monitoring, which is essential for understanding water quality changes. Event participants highlighted the importance of increased funding for programs supporting agricultural communities given rising costs due to climate impacts. Additionally, data-driven monitoring was recommended for effective adaptation.

2. *Water Quality*

   Water quality for both drinking water and recreational water sources in the Delta emerged as a concern, particularly at Honored Elders Day. Discussions at the Science for Communities Workshops and others emphasized water quality issues as well, especially around HABs. Workshop participants discussed the need to increase public awareness about HABs, the need for more research on HABs and impacts on people, and the need for better understanding of HABs impacts to air quality. Workshop participants also highlighted mercury contamination and other emerging contaminants of concern (e.g., PFAS or microplastics) that might enter the food chain. Attendees also shared other concerns related to water quality, such as salinity intrusion, aquatic invasive species, dissolved oxygen levels, and the negative impacts of poor water quality on drinking water and recreation.

3. *Flooding and Sea Level Rise*
    - **Community-Centered Approaches:** Discussions highlighted the importance of engaging local communities in sea level rise and flood adaptation strategies, with suggestions for fostering better communication channels and ensuring that outreach efforts help shape the design and implementation of adaptation initiatives.
    - **Emphasis on Riverine Flooding:** Attendees at several meetings raised concerns that riverine flooding, particularly in the San Joaquin and Sacramento River systems, could pose a greater risk than sea level rise alone, prompting discussions around addressing both types of flood risks.
    - **Flood Risk Reduction:** Some attendees shared the need for better flood management actions, particularly along the San Joaquin River to better protect the cities of Stockton, Manteca, and Lathrop, such as through a Paradise Cut flood bypass. Attendees of the Bethel Island Municipal Advisory Council meeting presentation shared concerns about flood risks to new housing developments and existing roadways on the island, especially from water that can come up from beneath the soil.

4. *Emergency Preparedness and Information Dissemination*

    At the Council's March 2024 meeting and the Delta Region GHAD meeting, there was a clear focus on improving flood preparedness, with calls for better emergency response systems and more effective communication methods, especially for vulnerable populations. Concerns were raised about the reliability of traditional communication methods, such as landlines, during emergencies. Given concerns about timely flood risk information, developing more agile systems for disseminating real-time updates, particularly in emergencies should be prioritized. Attendees at the Hood Community Council meeting noted that many residents do not speak English well and some do not have internet. These accessibility considerations are especially important when it comes to ensuring public safety in emergencies. Hood Community Council meeting attendees also shared concerns about roadway congestion and prompt emergency response. In response to past crises, some Council meeting attendees suggested developing flexible, scalable evacuation systems tailored to local community needs, ensuring better preparedness for future flood events.

5. *Community Awareness and Cultural Competency*

   Discussions during the Hood Community Council meeting emphasized the importance of cultural awareness in planning and the need to recognize and address community concerns in planning processes. These conversations reinforced the need for inclusive planning that respects and acknowledges the specific needs of vulnerable communities. Additionally, attendees at the 2022 and 2024 Science for Communities workshops emphasized the need for intersectionality between agency, academic researchers, and CBO staff to better understand how environmental justice issues impact their work. Attendees also expressed the need for required DEI and tribal cultural competency trainings for agency and academic staff, trainings on how to integrate citizen science and best practices for data sovereignty, and more diverse research topics. Lastly, attendees suggested state agency staff need to work more closely with local governments to support local needs and address disconnects between how science is created and used.

6. *Other Tribal and Environmental Justice Issues:*

   - **Environmental Health Concerns:** Many of the previously mentioned topics of extreme heat, water quality, and air quality were brought up as particular concerns during events with communities in rural and underserved areas. At the AB 617 Stockton Community Steering Committee meeting, participants discussed concerns about climate change impacts, noting the importance of educating residents about environmental issues and environmental justice and meaningfully engaging with environmental justice communities. Hood Community Council meeting attendees noted that illegal dumping is a major pollution issue in Hood.
   - **Environmental Literacy:** The call for improving environmental literacy, especially in underserved communities, was a recurring theme across events. Participants emphasized the need for clear, accessible information to help communities prepare for and respond to climate risks. Participants shared that engaging vulnerable populations in these discussions is critical for developing effective, equitable solutions that will protect all residents in the Delta.

- **Unhoused Populations:** Others highlighted how unhoused communities are highly vulnerable to heat waves and flooding from living along waterways.
- **Recreation:** Delta waterways should be made accessible for recreation for the public and specifically those with disabilities. Access to greenspace was raised as an issue at the Bethel Island Municipal Advisory Council meeting, as accessible local open spaces are limited due to private land ownership.
- **Water Management:** Participants emphasized the need for more modernized and efficient water management technologies and policies to reduce reliance on Delta water exports in communities outside the Delta and improve regional water resilience. Multiple people shared concerns about the Delta Conveyance Project and potential impacts to their communities from construction, including to traffic, soils, odors, and flood risk.
- **Farmers:** Other issues brought up included the importance of farming in the Delta, but that overregulating farmers will make farming untenable.

Paper Drafting

To identify the key issues and develop the recommendations for this issue paper, Council staff reviewed and synthesized information from the various data sources – including new primary data as well as secondary data – discussed above in this Appendix. This approach entailed first conducting background research, including reviewing scholarly literature and agency precedents and holding informational meetings with peer agencies, CBOs, and non-profits. Council staff also hosted the environmental justice webinar series in which five environmental justice scholars and practitioners based across the U.S. explored topics covering water, climate, and Indigenous justice, and environmental regulatory agencies' environmental justice policy efforts. Staff reviewed and analyzed past public comments submitted to the Council (over the period 2011-2021) to identify environmental justice and tribal justice issues that have been brought to the Council's attention across a variety of projects. The list of issues identified from the review of past public comments informed the development of the interview process and guide--used to conduct the 22 interviews with environmental justice and tribal-serving organizations--and was also used to identify preliminary issue areas for further exploration. To supplement and further refine these preliminary issue areas, staff reviewed and synthesized information from a number of additional sources, as discussed in more detail earlier in this Appendix, including:

- Discussions with the environmental justice expert group;
- Results from the 22 interviews with environmental justice and tribal-serving organizations, as well as the interviews with five tribes on interweaving Traditional Knowledge;
- Review of additional environmental justice and tribal justice literature and data;
- Input from community outreach events (presentations and tabling) conducted between Fall 2022 – Fall 2024;
- Tribal consultations and other tribal engagement (the Council's April 2023 tribal listening session and October 2024 tribal roundtable); and
- Information from other ongoing Council efforts and Council-hosted events, including but not limited to the in-progress Delta Adapts Adaptation Plan (2024a), 2024 Five-Year Review of the Delta Plan (2024b), 2023 Adaptive Management Forum (2023a), and 2023 Delta Restoration Forums (2023c).

Key findings from these different data sources were woven together following a mixed-methods approach, which is widely accepted and applied in health and social sciences to integrate rigorously collected quantitative and qualitative data sources (Creswell et al., 2011). To develop the recommendations, staff drafted initial draft recommendations building from the above sources.

Addressing public review draft feedback for the final issue paper: The environmental justice expert group members, tribes, and a number of state agencies were offered the opportunity to review a pre-public version of the issue paper draft. Staff reviewed – and where feasible incorporated – comments received on the public review draft during the 60-day public comment period and 90-day tribal consultation period – including written public comments, verbal comments heard at the September 2024 Council meeting, as well as input received from the Delta Independent Science Board, at community outreach events, tribal consultations, and the October 2024 tribal roundtable.

Appendix D: Public Comments Analysis

This memo was written in November 2021. Since then, our understanding of the word "stakeholder" has changed. In particular, scholars note that this term overlooks the cultural and spiritual significance of land and non-human species to the decision-making process (Reed et al., 2024).

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TECHNICAL MEMORANDUM

Date: November 4, 2021

To: Environmental Justice Expert Group Representatives

From: Sarah Hayroyan, California Sea Grant State Fellow; Jennica Moffat, California Sea Grant State Fellow

Subject: Review of Environmental Justice Comments – Preliminary Results

Purpose

As part of the effort to develop an Environmental Justice Issue Paper, Council staff collected and analyzed public comments received by the Council over the past ten years (2011-present) to identify environmental justice issues that have been brought to the Council's attention across a variety of projects. The list of issues identified in past comments will be used to inform the breadth of the Issue Paper and as a prompt in future interviews with community-based and environmental justice organizations. The interviews are planned to collect further information about the environmental justice issues associated with Delta management.

Summary of Preliminary Results

A total of 368 comments were reviewed: 278 comment letters, and 90 oral comments made at Council meetings. Comment letters were associated with specific Council projects, while oral comments covered more varied topics including Council projects, presentations by other agencies and organizations to the Council, specific covered actions, and other concerns. Of the 368 total

comments reviewed, 53 raised issues related to environmental justice. A list of issues raised is provided in **Table 1a**.

Table 1a. Environmental Justice Issues Identified in Past Comments

Representational Justice	Procedural Justice	Distributive Justice
Delta communities Environmental justice communities Disadvantaged communities (DACs) Vulnerable communities Tribal sovereignty Terminology	Meaningful involvement Language access Meeting support Transparency	Climate change impacts Cultural resources Drinking water supply Flood risk Food access Harmful algal blooms Human right to water Job access Levee investments Public health Subsistence fishing Tribal cultural resources Urban development Water affordability Water quality

Methods

Council staff compiled comment letters associated with formal public comment periods on the following projects: the 2013 Delta Plan, amendments to the Delta Plan (including completed amendments to Performance Measures and Chapter 3 (Conveyance, Storage, and Operations of Both), in-progress amendments to Chapter 7 (Delta Levees Investment Strategy), and proposed amendments to Chapter 4 (Ecosystem Amendment)), Delta Adapts, and the Council's Public Participation Plan. Delta Stewardship Council meeting summaries since 2011 were also compiled for review.[8]

Staff read each letter and meeting summary to determine if they contained environmental justice-related comments. Comments that used phrases such as

[8] Compiled comments represent only a subset of all comments submitted to the Council since 2011. Among other topics, this dataset omits written comments on Delta Science Program plans and projects, comments to the Delta Independent Science Board, comments submitted in response to appeals of covered actions, and informal comments shared at workshops or stakeholder listening sessions.

"environmental justice," "equity," "disadvantaged communities," "disproportionate impacts," or "human right to water" were entered into the dataset and coded as explicit environmental justice comments. However, staff also looked for themes related more generally to fairness, distribution of environmental benefits and harms, cost burden, and access to information and decision-making, and coded these comments as potentially related to environmental justice. If a particular letter raised multiple distinct points related to environmental justice, these were logged separately in the data set.

Points determined to be clearly or potentially EJ-related were then coded with a primary and secondary category. Under the primary categorization, each point was coded for the tenet (or principle) of environmental justice evoked by the comment:

- "**Representational justice**" if the point related to the representation of impacted communities in Council work products or in the decision-making process;
- "**Procedural justice**" if the point discussed the need for planning processes and decision-making to be fair, transparent, and accessible for impacted communities to participate; or
- "**Distributional justice**" if the point discussed the equitable distribution of environmental benefits and impacts so that no one community bears a disproportionate burden.

Each point was then coded with a secondary category based on the specific issue discussed. Issues identified in Shilling et al. (2009), issues raised in the Council's 2019 Five-Year Review of the Delta Plan, and issues identified through the Delta Adapts public engagement process were used as an initial list for secondary coding[9]. As points were reviewed and new issues were identified, these were added to the coding list.

[9]Shilling et al. (2009) Marginalization by collaboration: Environmental justice as a third party in and beyond CALFED. Environmental Science & Policy (12): 694–709; Delta Stewardship Council (2019). Five-Year Review of the Delta Plan. Endorsed by the Council on October 24, 2019. Available at: **https://deltacouncil.ca.gov/pdf/council-meeting/meeting-materials/2019-10-24-item-10-attachment-1.pdf**; Delta Stewardship Council. (DSC, 2021a; DSC, 2021b; DSC, 2021c). Delta Adapts Vulnerability Assessment, Appendices, and Technical Memoranda, available at: **https://deltacouncil.ca.gov/delta-plan/climate-change**

The coding team met five times during data development to review, discuss, and standardize the issue codes being used to improve consistent interpretation of points across different staff. Once coding was completed, the team met for a final quality control check. Comments labeled as potentially related to environmental justice was re-reviewed and re-assigned as either clear environmental justice points or not EJ points10. Staff then analyzed the data set to determine the prevalence of different issues.

Results

A total of 368 comments were reviewed, comprised of 278 comment letters, and 90 oral comments made at Council meetings. The comments reviewed were submitted by 175 unique organizations and 70 unique unaffiliated individuals. The organizations with the greatest number of comments in the dataset were California Water Research (n = 26), followed by Local Agencies of the North Delta (n = 18) and MBK Engineers (n=10).

Most letters and meeting summaries reviewed did not contain environmental justice-related points. Of the total comments reviewed, 53 raised issues related to environmental justice. These 53 comments were submitted by 34 unique organizations (including three tribal governments, three municipalities, two state agencies, and six water agencies) and 13 unaffiliated individuals. The organizations with the greatest number of comments containing environmental justice points were Restore the Delta (n = 4) and California Water Research (n = 4), followed by Local Agencies of the North Delta (n = 3).

From these 53 comment letters and oral comments, 123 individual points related to environmental justice were identified and analyzed. Environmental justice points were identified for every Council project for which comment letters were included in the dataset. Points identified from oral comments covered these same Council projects as well as other topics, including Delta Conveyance, the use

[10] The greatest area of disagreement among coders was whether issues of fairness or distribution of water rights and water supplies should be coded as environmental justice issues. The vast majority of such comments pertained to fairness among municipalities, public agencies, or regions of the state. Ultimately, the coding team decided to exclude comments generally discussing fairness and distribution when no specific impacted populations or communities were identified. Comments that were re-assigned as clear environmental justice comments mentioned impacts to environmental justice communities, disadvantaged communities, vulnerable communities, or other specific impacted communities.

of social science in Delta management, and the Council's public comment process.

Environmental Justice Issues

When analyzing the 123 individual points for the tenet of EJ evoked, ~55% of points discussed distributional justice issues, 27% discussed procedural justice issues, and 18% representational justice.

Secondary categorization allows us to identify the issues of highest interest to stakeholders with greater specificity.

Representational Justice

Within representation-focused points (n = 22), references to socially vulnerable communities were most frequent (n = 8), followed by references to environmental justice communities (n = 5), Delta communities (n = 3), and disadvantaged communities (DACs) (n = 3) (**Figure 1a**). Points regarding socially vulnerable communities corresponded to the terminology used in the Delta Adapts Vulnerability Assessment and ranged from the need to identify communities that are socially vulnerable to drought, identify socially vulnerable communities in urban areas that receive Delta exports, and identify the vulnerabilities of small, unincorporated communities.

Some points regarding environmental justice communities described specific populations, towns, or cities in the Delta that the commenter attested should be considered environmental justice communities. For example, one commenter identified Delta cities with high populations of Spanish-language speakers and communities of color as being environmental justice communities. Another pointed to the Distressed Communities Index and the UC Davis Regional Opportunity Index as tools to identify the location of environmental justice communities. Other points regarding environmental justice communities used the term without defining it.

Points regarding DACs were more focused on water affordability, likely because DAC terminology is associated with earmarks to fund water infrastructure in low-income communities. DACs were referenced in the Delta watershed and in communities that receive Delta exports. Delta communities were also mentioned in points related to the inclusion of low-income communities of color, as well as those who live and work in the Delta, respectively. One point related to the choice of terminology to refer to groups of people, given the various terminology

identified in environmental justice-related comments. The Issue Paper should address whether and how different terms relate to different populations and communities.

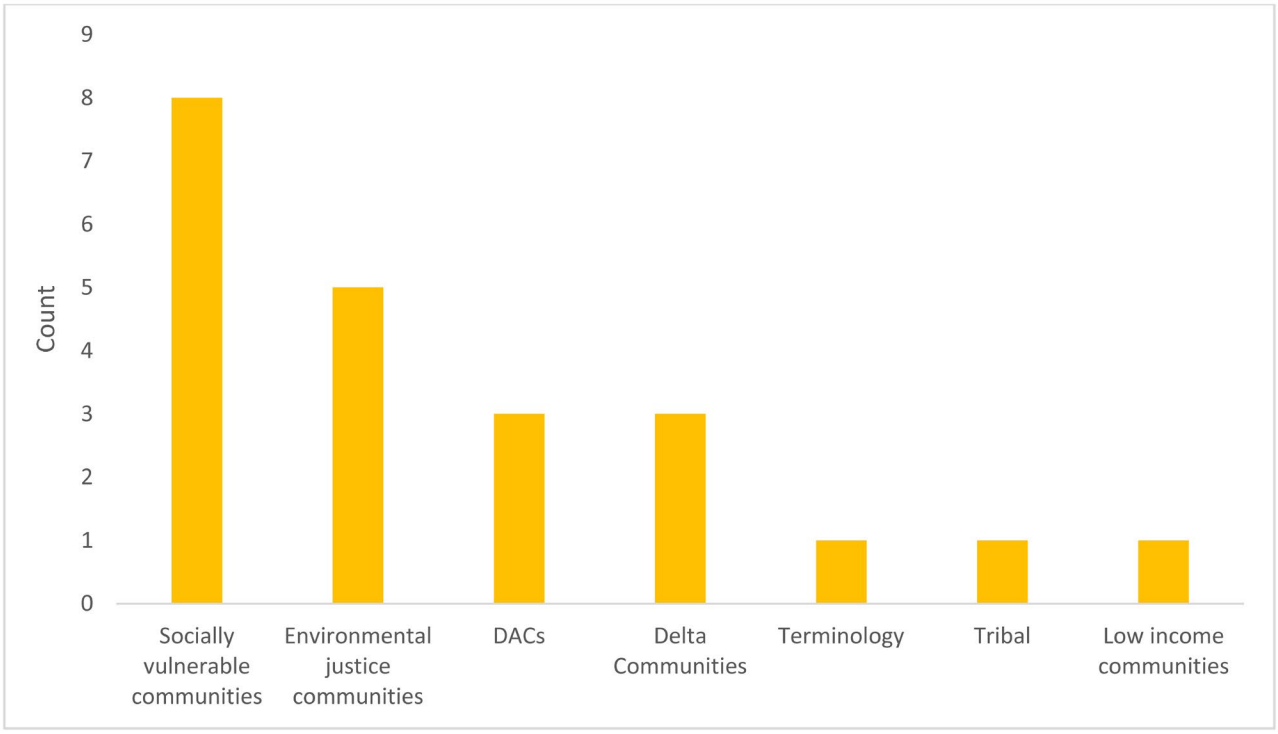

Figure 1a. Representation-focused issues identified (n=22).

Procedural Justice

Within process-focused points (n = 33), the issue of greatest prevalence was meaningful involvement (n = 24), followed by meeting support (n = 6), language access (n = 2), and transparency (**Figure 2a**). Points related to meaningful involvement brought up concerns such as facilitating communication and collaboration across all stakeholders, communicating how feedback was incorporated into Council plans and decisions, early notification of plans and projects, and enhanced community input in projects and initiatives. Points regarding meeting support addressed the need to host meetings within the Delta to support accessibility, and considering the timing of these meetings to support the variety of schedules and commitments across stakeholders.

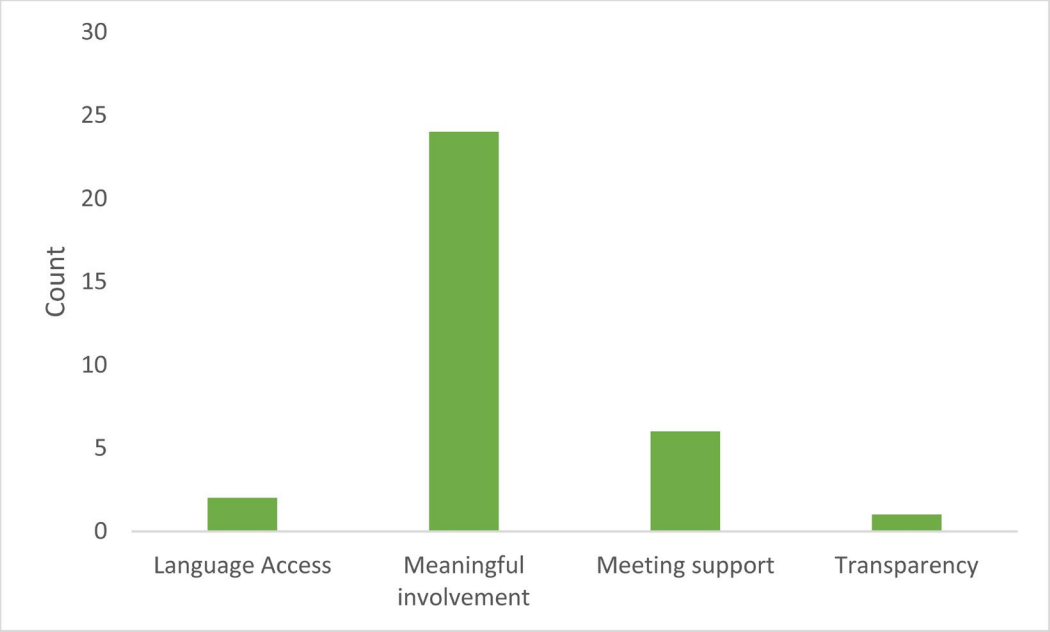

Figure 2a. *Process-focused issues identified (n=33).*

Distribution

Within distribution-focused points (n = 68), the issues raised most frequently were levee investments (n = 11), climate change (n =8), drinking water supply and water affordability (n = 7 each); cultural resources and public health (n = 6 each); and flood risk, tribal cultural resources, and subsistence fishing (n = 4 each). Other issues raised included job access, water quality, human right to water, urban development, food access, and harmful algal blooms (**Figure 3a**).

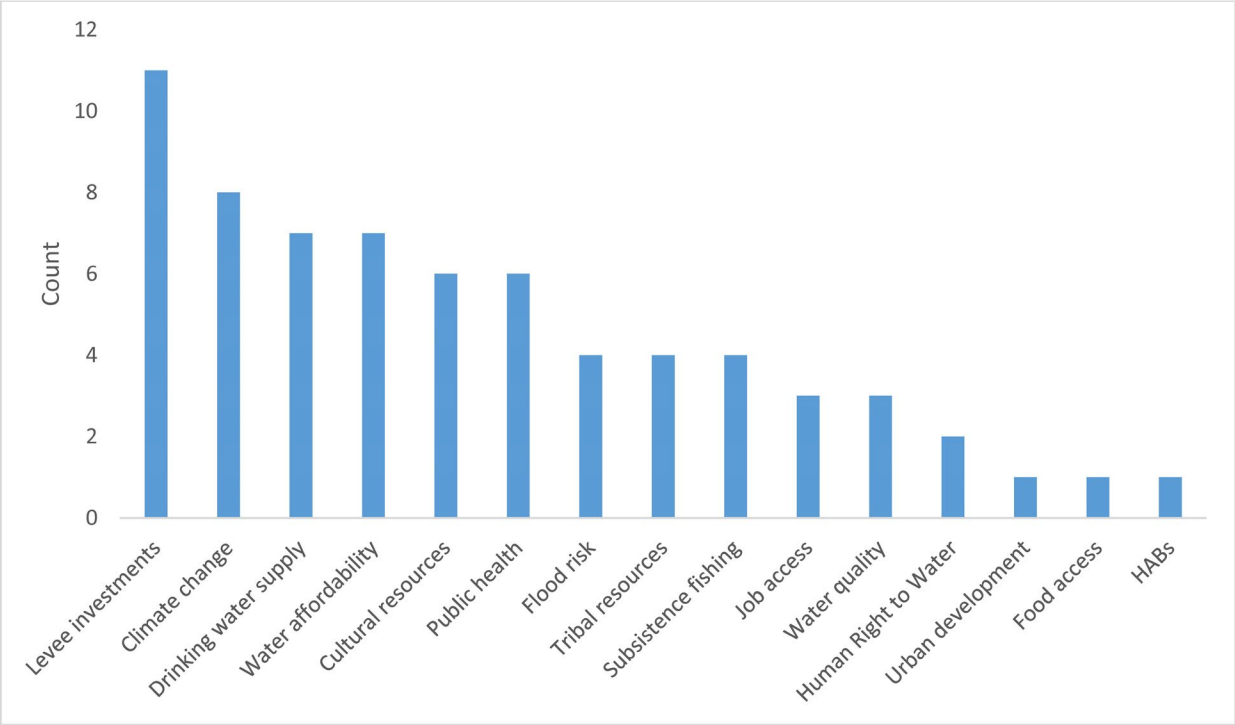

Figure 3a. *Distribution-focused issues identified (n=50).*

Many of the environmental justice comments that made points about the distribution of environmental benefits and harms included secondary points about other issues and concerns. These were tracked separately in the dataset. Secondary points included concerns about impacts to recreational access, particularly boating in the Delta; impacts related to Delta Conveyance, ranging from noise to socioeconomic impacts; concerns about the public health effects of specific contaminants like mercury and selenium; and concerns about small community water systems and groundwater-dependent communities.

Discussion

As previously noted, the comment letters that were reviewed for this analysis were received during formal public comment periods on the following projects: the 2013 Delta Plan, amendments to the Delta Plan (including completed amendments to Performance Measures and Chapter 3 (Conveyance, Storage and Operations of Both), in-progress amendments to Chapter 7 (Delta Levees Investment Strategy), and proposed amendments to Chapter 4 (Ecosystem Amendment)), Delta Adapts, and the Council's Public Participation Plan. Comments were, therefore, focused on topics and concerns related to the projects at hand and are unlikely to reflect the

universe of environmental justice concerns held by commenters and Delta residents. Oral comments reviewed spanned a broader set of topics but remained focused on Council agenda items (e.g. Delta Conveyance updates, the use of social science in Delta management, and the Council's public comment process). Therefore, the list in Table 1a should not be interpreted as a comprehensive list of environmental justice issues related to Delta management but rather a snapshot of issues related to the projects and presentations that the Council has chosen to focus on since 2011. Additionally, the frequency at which issues were raised may reflect the centrality of that issue in the Council's work more so than the importance of that issue to the commenter or the broader Delta community. Other data sources are needed to supplement Table 1a, develop a more comprehensive list of issues, and to understand which issues are of the greatest concern to the people and communities impacted by Delta management.

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