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FIVE GUIDING PRINCIPLES FOR *Effective* VOLUNTARY AGREEMENTS

A Case Study on VAs for Water and Habitat in California's Bay-Delta Watershed

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This policy paper is available at law.berkeley.edu/voluntary-agreements

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INTRODUCTION

California has increasingly emphasized efforts to develop voluntary agreements (VAs) with water users as a means of achieving regulatory goals in certain watersheds. In theory, a VA can combine the protectiveness of a regulatory backstop with the creativity and flexibility of a negotiated deal to produce outcomes as good as, or better than, those achievable through strict application of regulatory requirements alone. However, reality has not always measured up to this ideal. This policy paper uses the Bay-Delta watershed as a case study to inform five principles to guide the appropriate use and evaluation of VAs.

In recent years, California has placed increasing emphasis on efforts to develop **voluntary agreements** (**VAs**) with water users as a means of achieving regulatory goals in certain watersheds. The highest profile example is the pursuit of VAs to achieve biological goals in the San Francisco Bay and Sacramento-San Joaquin Delta watershed (**Bay-Delta watershed**), where the magnitude of water diversions has contributed to long-term ecosystem decline. For more than 50 years, state regulators have struggled to set, update, and implement flow and other **water quality standards** needed to protect fish and wildlife uses in the watershed.[1] Over the last decade, California's political leadership has consistently promoted VAs as a solution, often investing substantial time and effort in negotiations while relegating efforts to build a strong regulatory foundation for VAs to the back burner.[2] However well-intentioned, one result has been the deferral of long-overdue action to update the Bay-Delta Water Quality Control Plan. Fortunately, the state is now moving forward with reviewing alternatives to update the plan, including a memorandum of understanding (**MOU**) regarding proposed VAs. This policy paper is designed to help regulatory agencies, potential parties to VAs, and the interested public assess proposals for VAs and forge a viable path toward achieving critical regulatory goals.

VAs are negotiated agreements that establish pathways for regulated entities to meet regulatory requirements through alternative means.[3] For example, a VA proposed as an alternative to directly meeting a specific instream flow standard might specify habitat restoration and other non-flow measures in exchange for less stringent flow requirements if that combination of commitments achieves what would otherwise be achieved by flow alone. In theory, a VA can combine the protectiveness of a regulatory backstop with the creativity and flexibility of a negotiated deal to produce outcomes as good as, or better than, those achievable

through strict application of regulatory requirements alone. VAs may be able to achieve those outcomes more quickly and without the protracted conflict and litigation that can accompany more traditional means of implementing regulatory requirements—such as placing conditions on particular water rights, which can entail protracted evidentiary hearings.[4]

That, at least, is the ideal. In California, however, the reality has not always measured up to the ideal. As our case study of the Bay-Delta watershed discusses, state political leadership, some water users, and some state agencies have heralded the VA process,[5] but progress remains unclear. As we will detail, after more than twelve years of the state prioritizing VA development, it is uncertain if adequate agreements, and an adequate regulatory backstop for those agreements, will emerge. The state has repeatedly paused long-needed updates to flow requirements for the Bay-Delta watershed while the VA process played out.[6] In addition, the agreements proposed to date measure expected environmental outcomes from the wrong baseline. The VAs measure progress relative to 2019 protection levels[7] instead of relative to the improved outcomes scientists expect would be achieved with updated flow requirements.[8] The VAs also suggest waiting another eight years to see if their approach works before the State Water Board can take remedial action, rather than requiring review and course correction on an annual or biannual basis.

These problems have real consequences. During the long process of prioritizing VA development, native fish populations have continued to decline, and, for reasons we explain below, the declines could continue under the proposed VA approach. In sum, leading with VAs as a solution for balancing human and environmental needs for water in the Bay-Delta watershed—rather than first, or simultaneously, pursuing a regulatory pathway to achieve key biological goals—is a perilous strategy that risks continued environmental degradation and legal noncompliance.

Using the Bay-Delta watershed as a case study, this policy paper defines five simple and interrelated principles to guide the appropriate use of VAs.[9]

1. **The state must establish a strong regulatory foundation for VAs.** VAs are a potential tool for implementing regulatory requirements. VAs cannot replace—and only have meaning in the context of—regulatory standards developed in accordance with federal and state law.

2. **VAs must achieve comparable environmental outcomes to the outcomes default regulatory requirements are expected to produce.** Outcomes expected from the default implementation pathway—not the pre-implementation status quo—are the baseline against which VA adequacy should be assessed.

3. **VAs must articulate clear, specific biological goals and measures of success.**

4. **VAs and actions taken under them must be well-supported by the best available scientific information.**

5. **VAs must include robust and transparent accountability mechanisms.**

Adhering to these principles will help close the gaps between the asserted potential and the actual performance of VAs. While these principles derive from the Bay-Delta case study, VAs are proposed and pursued in many other contexts in California and elsewhere, and we expect these principles to apply in many situations.

This policy paper is organized as follows. First, we summarize the basic legal and conceptual background underpinning VAs. Second, we introduce a case study of VA development in California's Bay-Delta watershed. Third, we describe five principles for effective VAs, informed by this case study. Finally, we emphasize why state decision makers and stakeholders must carefully attend to these principles when developing and implementing VAs, or risk failure and severe environmental consequences.

Salmon spawn in the Feather River gravel restoration project area, October 2014, *Photo credit: Kelly M Grow | California Department of Water Resources,* https://pixel-ca-dwr.photoshelter.com/search/result/I0000ofKeoZNiLIP0

VOLUNTARY AGREEMENTS

VAs are used in many contexts and have the potential to produce better outcomes than strict application of regulatory requirements alone. However, California's experience with VAs has been mixed. Years of effort have not yet produced VAs capable of achieving essential, legally required improvements in the Bay-Delta watershed.

Many environmental- and natural-resources-law subfields use negotiated agreements to implement regulatory frameworks.[10] For example, in public lands management,[11] hydroelectric project relicensing,[12] and Endangered Species Act permitting,[13] to name just a few, compliance regimes are often the products of negotiations. These negotiated efforts can be controversial; critics have often alleged that negotiated outcomes can become unmoored from the guidelines set by underlying statutory law.[14] But there is also widespread agreement that negotiations can sometimes produce better results, both for the environment and for regulated entities, while helping to build relationships that lay the foundation for additional beneficial collaborations in the future.[15]

This positive potential may exist—sometimes—even when negotiated outcomes do not produce full legal compliance. If the realistic alternative to a negotiated outcome is non-implementation of the law, or if a negotiated outcome allows better environmental solutions than by-the-book implementation would produce, somewhat noncompliant arrangements can produce at least a modest win for all sides.[16]

Some efforts to improve California water management have sought to take advantage of this positive potential. The Yuba Accord, approved in 2008 to resolve litigation over 2003 instream flow requirements established to protect fish in the lower Yuba River, is often cited as a success story,[17] although questions about its adequacy—and the adequacy of its implementation—linger.[18] In another example, California's **State Water Resources Control Board** (**State Water Board** or **Board**) facilitated VAs as an alternative compliance mechanism for water right curtailments during the recent drought, resulting in the development of "local cooperative solutions" for maintaining drought minimum instream

flow requirements and "water sharing agreements" that did not strictly adhere to water right seniority rules.[19] Perhaps most prominently, the 1994 Bay-Delta Accord was an historic multi-party agreement that tried, successfully in the short run but unsuccessfully in the long run, to resolve conflicts over Bay-Delta water management and restore the watershed's ecosystems.[20]

But, with the limited exception of the early years after the Bay-Delta Accord and the Yuba Accord, VAs have been promising primarily in concept in California's largest, highest profile, and arguably most important watershed. Despite years of apparent effort on the part of the state and other stakeholders, complex and politically challenging discussions have not yet yielded fully developed or adequate VAs capable of achieving key regulatory goals in the Bay-Delta watershed.

Dutch Slough Tidal Marsh Restoration Project site, April 2021, *Photo credit: Florence Low / California Department of Water Resources,* https://pixel-ca-dwr.photoshelter.com/search/result/I0000rczWp95G8is

CASE STUDY: PURSUIT OF VAs IN THE BAY-DELTA WATERSHED

For more than half a century, California has struggled to set and implement water quality requirements that adequately protect native fish populations in the Bay-Delta watershed. We summarize this history, focusing on the period since the State Water Board initiated the current round of phased Bay-Delta Plan updates. The state has frequently prioritized VA development over establishing an effective regulatory backstop, although it has resumed that work and is currently evaluating an MOU proposal for VAs and other alternatives. We discuss issues with the currently proposed VAs and their implications.

The Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary (**Bay-Delta Plan**) is the overarching blueprint that identifies what flow and other water quality requirements need to be met for the Bay-Delta watershed and that guides individual implementation actions. The Box on the next page provides an overview of the legal and regulatory context for water quality control planning and implementation in California.

For many decades, California has struggled to set and implement water quality requirements that adequately protect beneficial uses of water in the Bay-Delta watershed. Extensive litigation and occasional settlements have punctuated sporadic efforts by the State Water Board to undertake badly needed updates to Bay-Delta water quality requirements.[21] Figure 1 shows a timeline of these efforts. Decades of contested and inadequate action have coincided with declining ecosystem health and continuing uncertainty for all Bay-Delta water users, regardless of their specific interests and priorities.

In practice, developing and implementing a plan that adequately protects Bay-Delta ecosystems and in-Delta water users has been challenging. For many waterways within the watershed, the state has not developed instream flow requirements,[22] which means that water diversion and use in these areas are unlikely to adequately account for instream flow needs. For other Bay-Delta waterways, flow requirements exist, but they have not been adequate to support designated beneficial uses (see the Box on the next page). Some of the most widely recognized impacts have been to fisheries. Existing flow requirements have not stabilized or recovered populations of native species—which are indicative of healthy ecosystems,[23] and which commercial fishers, tribes, and subsistence fishers rely on for income, sustenance, and cultural practices.[24]

Meanwhile, proposals to develop or strengthen flow requirements have often met with intense opposition from water users, many of whom fear that more robust flow standards will reduce their access to water.[25] Understandably, these concerns are often based upon longstanding economic reliance on the agricultural production, urban economic

development, and other benefits of historic diversions. Many water rights holders have disputed the State Water Board's authority to subject their water rights to restrictions that protect environmental resources, including when implementing basic water right curtailments during times of water shortage.[26] This dynamic has persisted for many decades. Over these decades, water quality and ecosystem conditions in San Francisco Bay, the Sacramento-San Joaquin Delta, and the broader Bay-Delta watershed have continued to decline—with some species, such as Delta smelt and certain salmon runs, on or even over the verge of collapse[27]—and water users have faced growing uncertainty about future water access.[28]

LEGAL AND REGULATORY CONTEXT FOR WATER QUALITY CONTROL PLANNING AND IMPLEMENTATION IN CALIFORNIA

Under the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act, state regulators must develop **water quality control plans** for watersheds around the state.[29] The plans must:

1. **identify existing and desired uses of water** ("**designated uses**" in federal terminology, "**beneficial uses**"[30] in state terminology) for particular waterways, such as domestic or municipal supply, agricultural supply, supporting fisheries, and recreation;
2. **establish water quality standards sufficient to ensure the reasonable protection of identified uses** ("**water quality criteria**" in federal terminology, "**water quality objectives**" in state terminology); and
3. **establish a program of implementation to achieve those standards.**[31]

An antidegradation policy undergirds both identified uses and water quality standards.[32] The overall goals are to maintain and improve water quality and maximize waters' beneficial uses.[33] California recognizes flows as an important aspect of and contributor to water quality.[34] When establishing flow and other water quality standards, California regulators must consider a range of factors, including economic considerations.[35]

Federal and state law require the state to implement water quality control plans and, most importantly, the water quality standards they establish.[36] Among the state's implementation tools are water quality permitting,[37] adopting broadly applicable regulations regarding water diversion and use, and water rights permitting. We focus here on the latter two tools. Because diverting water from waterways can affect water quality, the state must implement water quality control plans when it authorizes, reviews, and manages water rights.[38] The state's authority and obligation to do so is bolstered by California's reasonable use[39] and public trust[40] doctrines, which establish limitations inherent in all water rights.

Although it has been argued that California regulators could use regulations to implement the flow standards established in water quality control plans, they generally have not done so.[41] Instead, they have implemented such requirements primarily by incorporating conditions designed to protect water quality (such as flow, temperature, and salinity requirements) into specific water right permits and licenses.[42] These conditions may constrain the timing, amount, and/or location of water diversions.[43] The process of conditioning water rights to implement water quality objectives can be lengthy[44] and has sometimes been followed by years of litigation.[45]

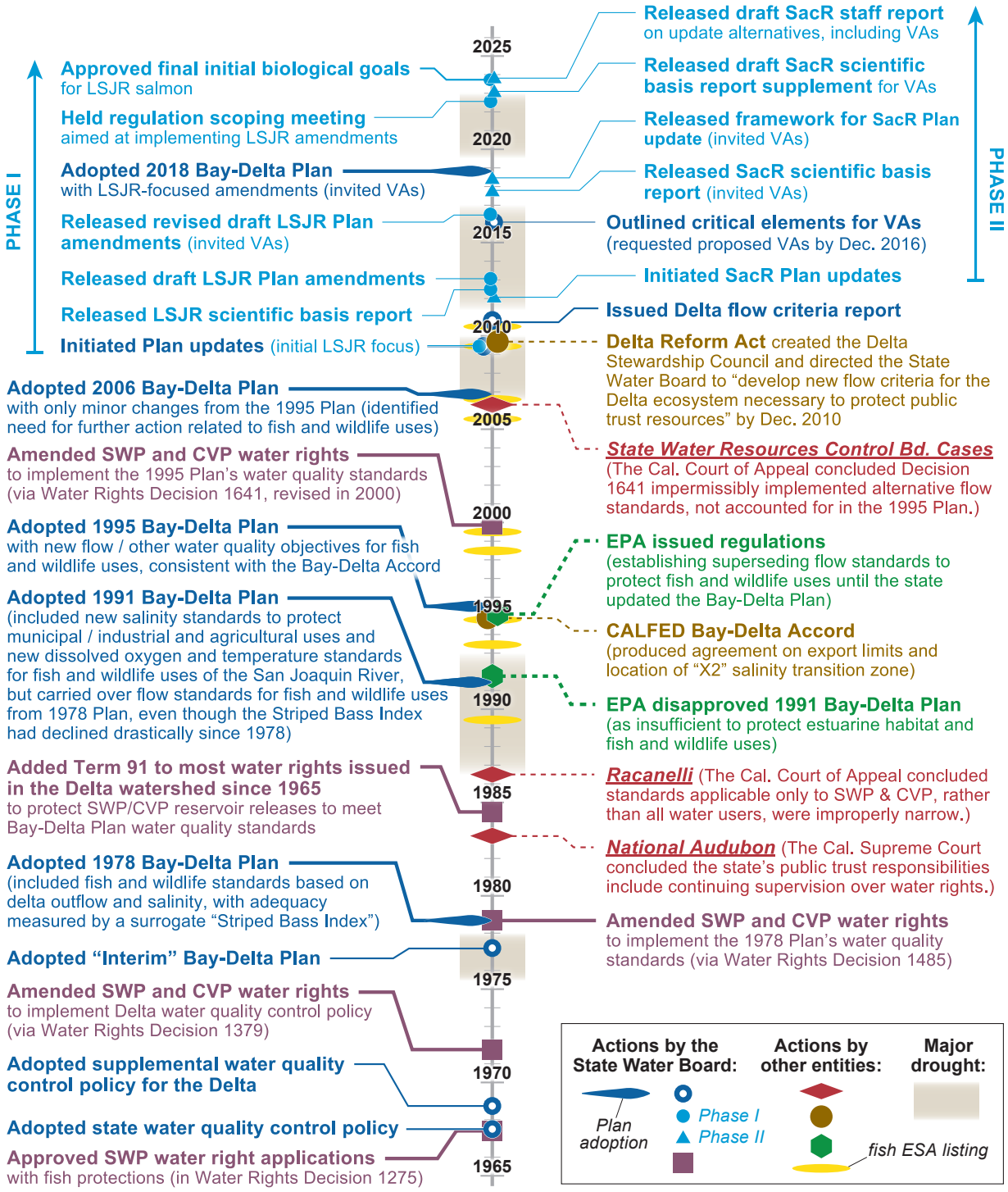


Figure 1. Timeline of key actions the State Water Board took to adopt, update, or implement the Bay-Delta Plan from 1967 to 2023 and some related actions by other entities. "Phase I" update actions are shown at the upper left, and "Phase II" update actions are shown at the upper right. Abbreviations used in the figure are explained below.

CVP	Central Valley Project (operated by the U.S. Bureau of Reclamation)
EPA	Environmental Protection Agency
LSJR	Lower San Joaquin River and Southern Delta
SacR	Sacramento River, its tributaries, eastside tributaries to the Delta, and the Delta
SWP	State Water Project (operated by the California Department of Water Resources)

The state has long supported the development of multi-party VAs as a way of resolving this conflict.[46] The latest round of emphasis on VAs began in 2011, in the midst of phased updates to the Bay-Delta Plan.[47] Efforts to negotiate the current proposed VAs began in earnest in 2017.[48]

The potential benefits of this alternative approach are enticing. In particular, VAs can include some measures, like habitat-restoration commitments, that the State Water Board appears to have been reticent to impose upon water-rights holders outside of more project-focused regulatory actions, like Clean Water Act section 401 water quality certifications[49] or enforcement settlements. Fish and other aquatic species need water, and the magnitude and nature of water flows are crucial determinants of population health. But other variables, such as temperature, floodplain interconnection, food availability, and invasive-species interactions also influence overall habitat quality and species outcomes. Although higher flows can positively affect these other variables, they can also be influenced in other ways.[50] And while traditional regulatory actions can target flow,[51] they have tended to less directly influence other measures, like habitat restoration, that can improve conditions for aquatic species. However, such measures could be included as part of VA agreements, in combination with adequate flow. For that reason, carefully crafted VAs could—in theory—deliver better or faster positive outcomes for ecosystems while also reducing instream flow needs, thus lessening impacts on water users. When time is of the essence for collapsing ecosystems, agreements negotiated by a broad range of stakeholders may eliminate the need for time-consuming adjudicatory water rights proceedings or prolonged litigation, at least by VA signatories, potentially providing a more effective path to near-term improvement of conditions for fish and aquatic ecosystems. Furthermore, the process of collaborating to develop and implement VAs could, in theory, build relationships and trust, laying the groundwork for more timely and effective problem solving in the future.

PHASED UPDATES TO THE BAY-DELTA PLAN, 2009–2023

In 2009—more than 14 years ago—the State Water Board initiated the current round of Bay-Delta Plan updates, using a phased approach.[52] **Phase I** would focus on southern Delta salinity and San Joaquin River flows, while **Phase II** would address the Sacramento River and the Delta and its tributaries. To inform these updates, Board staff released a "flow criteria" report in 2010, as the Legislature called for in the 2009 Delta Reform Act.[53] That report identified what instream flows would be needed to protect public trust resources in the Bay-Delta watershed.[54] To better reflect the functions of a natural hydrograph, the report recommended expressing flow requirements, when possible, as a percentage of **unimpaired flow** (i.e., what flow would be without water diversions and dams).[55]

Since then, the State Water Board's work on Plan amendments has been fraught with delays, proceeding in irregular fits and starts. The expected completion date slipped from 2012 (in 2009)[56] to 2013,[57] 2014,[58] 2018 (in 2016),[59] and is currently estimated as late 2024.[60] State political leadership has repeatedly requested more time for VA negotiations, contributing significantly to the slipping timelines. In effect, the state has given VA negotiations precedence over building the regulatory structure needed to create a backstop and provide crucial context for effective VAs. As we will describe below, the Board finally adopted Phase I amendments in December 2018 and is now taking steps toward implementing them. However, the Board has not yet adopted Phase II amendments, which have been delayed further as state leadership continues to prioritize VAs, although progress has resumed with the State Water Board's current regulatory process.

We summarize key developments for the two phases of Bay-Delta Plan updates below. Figure 2 shows the rough geographic extent of the areas addressed in each phase.

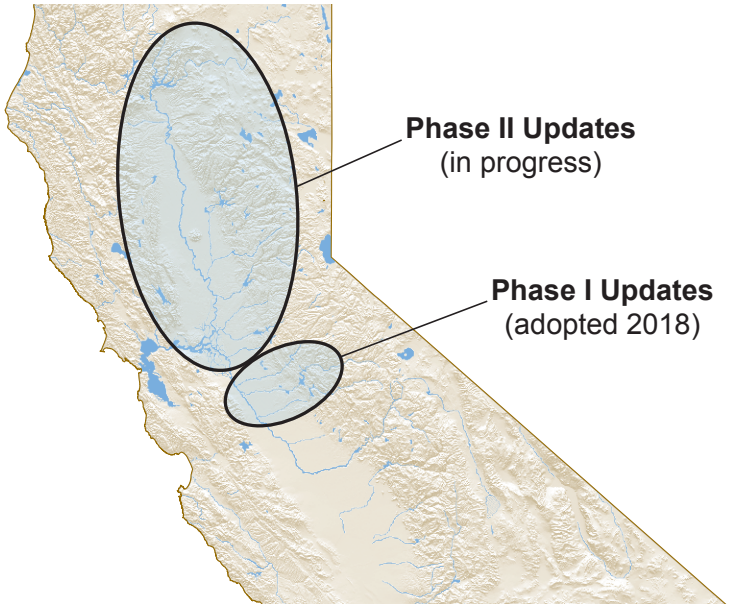


Figure 2. Geographic areas addressed by Phase I and Phase II updates to the Bay-Delta Plan.[61]

Phase I: Lower San Joaquin River and Southern Delta

In early 2012, the State Water Board staff released a peer-reviewed scientific basis report for Phase I Bay-Delta Plan updates focused on Lower San Joaquin River flows and southern Delta salinity.[62] The Board also flagged its intent to complete Phase I updates later that year.[63] The scientific basis report identified the need for keeping more flow instream to protect water quality and ecosystem uses.[64] In December 2012, the Board released proposed changes to the Bay-Delta Plan and related draft environmental documentation for public comment.[65]

In early 2016, the State Water Board encouraged stakeholders to propose flow- and habitat-related VAs for the protection of fish and wildlife beneficial uses.[66] The Board asked for proposals before the end of 2016 and outlined eleven critical elements it would look for in any VA.[67]

In September 2016, the Board released revised draft amendment language and environmental documentation, and it conducted extensive public engagement around these drafts in late 2016 and early 2017.[68] These draft materials explicitly encouraged water stakeholders to propose voluntary agreements (with a mix of flow and non-flow actions) as alternative means of implementing Bay-Delta Plan amendments intended to protect fish and wildlife uses.[69] A few months later, in May 2017, Governor Brown's office issued a set of "Principles for Voluntary Agreements" in the Bay-Delta watershed.[70] That year, state, federal, and local government parties and others began extensive efforts to negotiate VAs.[71]

In early July 2018, the State Water Board released proposed final Phase I Bay-Delta Plan amendments and environmental documentation and announced that it would consider adopting them at its August 21–22 public meeting.[72] On August 15, 2018, the California Natural Resources Agency contacted the State Water Board to request a 30-minute speaking slot at the meeting for the Departments of Water Resources and Fish and Wildlife to present on methods for evaluating "the relative benefits of flow and non-flow actions to protect native salmonid fish species in the San Joaquin Basin," flagging that the presentation was relevant to the VAs the Departments expected to submit soon.[73] The letter also asked the Board to continue its final decision on the Phase I amendments until a future meeting.[74] The Board granted these requests, eventually continuing final action on the amendments twice to accommodate the Brown Administration's requests for more time to nail down VAs.[75]

After this further delay to encourage VA development, the State Water Board finally adopted Phase I amendments to the Bay-Delta Plan in December 2018. The 2018 Plan included new and increased flow, salinity, and other water quality requirements to protect fish and wildlife beneficial uses for the Lower San Joaquin River and three tributaries, including a new requirement to "[m]aintain 40% of unimpaired flow, with an allowed adaptive range between 30% – 50%, inclusive, from each of the Stanislaus, Tuolumne, and Merced Rivers from February through June" while retaining adequate water in storage to protect other necessary flows in the fall.[76] The Plan allows for adaptively managing the required percentage of unimpaired flow as a total volume—or block—of water, whether via a VA or without one.[77] In its resolution adopting

the updated Plan, the State Water Board expressed the desire for a completed "watershed-wide" VA proposal "no later than March 1, 2019," with the intention of voting on the proposal "as early as possible after December 1, 2019."[78]

Since then, efforts to implement the 2018 flow amendments have progressed slowly and intermittently. In 2019, the State Water Board released draft reports on initial compliance measures for unimpaired flows[79] and initial biological goals for salmon in the San Joaquin River system.[80] In mid-2022, the State Water Board invited certain stakeholder representatives to join a Stanislaus, Tuolumne, and Merced Working Group[81]; released a revised draft initial biological goals report[82]; and held a scoping meeting for potential implementing regulations.[83]

A proposed VA for the Tuolumne River was submitted to the Board in November 2022.[84] The Board held a separate scoping meeting for possible amendment of the Bay-Delta Plan to incorporate the Tuolumne River VA in May 2023.[85]

Finally, in September 2023, the State Water Board approved the final initial biological goals for the lower San Joaquin River, which will inform Bay-Delta Plan implementation and future Plan updates.[86]

Phase II: Sacramento River and Delta

The State Water Board's Phase II efforts have focused on developing new Bay-Delta Plan requirements for the Sacramento River and Delta, including requirements for Delta outflows; inflows for the Sacramento River, its tributaries, and three eastside tributaries to the Delta; cold water habitat; and interior Delta flows.[87]

The Board initiated Phase II updates in early 2012[88] and held a series of informational workshops that fall.[89] In 2014, the Delta Stewardship Council's Delta Science Program conducted two workshops, at the State Water Board's request, "to help resolve . . . key scientific uncertainties and disagreements" relevant to Bay-Delta Plan updates.[90] These workshops helped inform a 2016 draft scientific basis report, which the Board revised and finalized in October 2017. As with the Phase I update's peer-reviewed scientific basis report, leaving more instream flow at critical times of year was deemed necessary for water quality and ecosystem purposes.[91]

In mid-2018, Board staff released a "Framework" for Phase II updates.[92] The Framework provided background information, a summary of proposed Phase II changes to Bay-Delta Plan water quality requirements, an overview of public comments, and an outline of next steps. Among other potential changes, it proposed: (a) new narrative requirements for flow and cold-water habitat; (b) numeric inflow objectives based on a range of 45–65% of unimpaired flow, with a starting point of 55%, while maintaining adequate cold water in storage for other times of year;[93] and (c) new narrative and numeric Delta outflow objectives based on inflow to the Delta and the existing biological opinions and incidental take permits (and potential future changes to them). The proposed implementation options included both a "default path" and a "voluntary path" that would allow flows lower in the percentage range under a VA if those flows would achieve applicable narrative objectives and "the same

level of resource protection" as 55% of unimpaired flow through a combination of flow and non-flow measures.[94] As with the Phase I plan amendments, that volume of water could be used and adaptively managed as a block of water if a group of water users, agency experts, and stakeholders came together to do so, and this option would be available even without an overall VA.[95]

From mid-2018 to early 2023, Phase II updates were largely paused while efforts to develop VAs proceeded. The 2018 Framework document suggests that Board staff did not anticipate this lull. Instead, the document described the State Water Board as "in the process of preparing proposed [Phase II] changes to the Bay-Delta Plan" and "a supporting draft Staff Report," flagging that both would be released for public comment "later this year."[96] However, there was subsequently little public activity related to Phase II updates for almost 5 years.[97]

The State Water Board restarted its public-facing Phase II efforts after a group of diverters and state agencies proposed VAs for the Sacramento River and Delta in late 2022.[98] In January 2023, Board staff released a draft scientific basis report supplement (developed in collaboration with staff from the Department of Water Resources and Department of Fish and Wildlife) assessing the proposed VAs.[99] The Board also alerted the public about a workshop and opportunity to comment on the new document.[100] The supplement presented the results of quantitative modeling and qualitative analysis to "document the science supporting the anticipated benefits of the proposed VAs in support of their consideration" as part of Phase II Plan updates.[101] It is currently being peer reviewed after revision based on public comments.[102] In spring 2023, the State Water Board held two "Environmental Justice Focused Listening Sessions" and a "Tribal Listening Session" to inform Bay-Delta Plan updates and implementation.[103] In September 2023, the Board released a "Draft Staff Report / Substitute Environmental Document" [104] to evaluate potential Phase II Bay-Delta Plan updates. The Draft Staff Report evaluates the potential environmental and economic impacts of alternatives for Phase II updates. Board staff held two workshops to provide an overview of the Draft Staff Report and discuss the modeling contained within it during October and November 2023.[105] Over three days in November and December 2023, the Board then held a hearing to receive oral public feedback on the Draft Staff Report.[106] As of late 2023, Board staff anticipated releasing specific draft language for Phase II Plan amendments in early to mid 2024, with the Board considering adoption sometime in late 2024.[107]

THE PROPOSED VAs

In March 2022, a group of water diverters and state agencies signed on to an MOU to support a term sheet outlining a proposed framework for potential VAs.[108] Most aspects of the term sheet relate to waterways targeted for Phase II updates.[109] Instead of amending the Bay-Delta Plan to add new numeric water quality objectives for flow, the documents ask the State Water Board to add only a new narrative objective regarding native fish population viability.[110] The documents also propose to allow the signatories to implement this objective, and an existing narrative salmon objective, by voluntarily providing certain flows above a 2019 "baseline"[111] and carrying out habitat restoration measures that are "additive to physical conditions and regulatory requirements existing as

of December 2018."[112] They propose adaptive management, guided by a Science Program, strategic planning, a Systemwide Governance Committee, and an initial 8-year term.[113]

The VAs as currently proposed would restore significantly less flow than the State Water Board's flow criteria and scientific basis reports indicate is necessary.

The term sheet assumes that the Board would include an "additional pathway" in the implementation plan for the two narrative objectives for non-parties to the VAs.[114]

Additional diverters signed on to the MOU through November 2022, adding revisions to the term sheet that represented additional "contributions of flow, habitat, and/or funding."[115] The final signatories added Phase I related term sheet amendments that addressed the Tuolumne River.[116]

Signatories from environmental groups, tribes, or other key parties (such as in-Delta water users) are conspicuously absent.[117] Some were included in early negotiations,[118] but by the later stages, many of those who were invited had left or felt marginalized in what they perceived as an unfair process, and still others were not included.[119]

The State Water Board is now considering the proposed VAs as one of several possible pathways "for updating and implementing" the Bay-Delta Plan.[120]

STATE WATER BOARD ANALYSIS OF THE PROPOSED VAs

In 2023, to aid the Board's consideration, Board Staff released two reports that analyzed the potential impacts of the proposed VAs on flow, salmonid habitat, and salmonid populations.

The first, the VA-focused supplement to the 2017 draft scientific basis report, concluded that, "[q]ualitatively, the synergy of flow and non-flow habitat restoration assets proposed in the VAs is expected to improve conditions for salmonids and estuarine species toward achieving the proposed new narrative viable native fish population objective and existing salmon protection objective."[121] The report analyzed expected improvements relative to a pre-2019 baseline.[122] The supplement emphasized that "the actual outcomes of the VAs are not certain at this time," due to "uncertainty arising from assumptions and simplifications," including uncertainty surrounding what specific management actions would actually be taken and what the impacts of those actions would be.

Subsequently, the Draft Staff Report in support of potential Phase II Bay-Delta Plan updates evaluated the environmental and economic impacts of, and potential mitigation measures for, several alternatives for updating and implementing the Plan, including the proposed VAs.[123] These alternatives include both a number of "stand-alone" options—the proposed VAs, several different variations on the flow scenarios in the 2018 Framework, and a no-action option—and three "modular alternatives." Impacts were analyzed relative to an updated baseline, which was intended to represent the recent operations of the state and federal water projects.[124]

Notably, the report does not directly compare the VA and non-VA alternatives. Instead, it evaluates the proposed VAs in a separate chapter. The report explains this choice as a product of the late addition of the proposed VAs alternative in the more than ten-year process of developing the Draft Staff Report.[125]

Detailed analysis of these reports—or the proposed VAs themselves—is beyond the scope of this policy paper. However, the final versions of the reports will inform the State Water Board's future decisions about how to adequately protect Bay-Delta ecosystems and in-Delta water users. We hope that Board staff, the Board itself, Bay-Delta stakeholders, and the general public consider the principles and recommendations we discuss here when assessing the analysis and conclusions in these reports, the adequacy of the proposed VAs, and the State Water Board's response.

ISSUES WITH THE PROPOSED VAs AND THE VA PROCESS

Unclear role in Bay-Delta Plan updates and implementation

Crucially, the relationship between the proposed VAs and the State Water Board's obligation to adopt an adequate water quality control plan for the Bay-Delta watershed—including both water quality objectives that will ensure reasonable protection of fish and wildlife uses and a separate program of implementation for them—is unclear.

The proposed VAs are expressly premised on scrapping the idea of establishing numeric flow objectives as part of Phase II Bay-Delta Plan updates in favor of purely narrative objectives. Under the scenario VA proponents have put forward, all numeric flow requirements would be relegated to specific pathways in the program of implementation for the proposed narrative objectives. The flow and non-flow measures volunteered by parties to VAs would form one implementation pathway, and any other numeric flow requirements would be included in an "additional" implementation pathway applicable only to entities *not* covered by a VA.[126]

Recently, the State Water Board's characterization of the potential role of VAs in Bay-Delta Plan development and implementation appears to have shifted.

The 2023 draft scientific basis report supplement—which Board staff developed in collaboration with staff from two state agency signatories to the MOU—describes the MOU and term sheet as proposing "an alternative pathway to *update* and implement the Bay-Delta Plan" to "achieve reasonable protection of fish and wildlife beneficial uses."[127] The 2023 Draft Staff Report specifically states that the regulatory pathway outlined in the proposed VAs

> is largely consistent with the proposed Plan amendments except that instead of being included in the water quality objectives, the inflow, inflow-based Delta outflow, and cold water habitat provisions of the proposed Plan amendments would be included in the program of implementation and could become applicable in the future if the VAs are not continued.[128]

By contrast, in prior years, the State Water Board characterized VAs as means of establishing alternative implementation pathways—not creating complete substitutes—for new flow-based water quality objectives. The 2018 Bay-Delta Plan (which incorporated Phase I amendments) explicitly requires VA signatories to maintain at least the lower end of the unimpaired flow range established as part of new numeric water quality objectives, stating that if VAs "include non-flow actions recommended in this Plan or by DFW, the non-flow measures may support a change in the required percent of unimpaired flow, within the range prescribed by the flow objectives, or other adaptive adjustments otherwise allowed in this program of implementation."[129] The 2018 Framework for Phase II updates characterized the role of VAs in a similar way.[130]

The reasons for this dramatic shift are not clear, nor are the implications of relegating numeric flow requirements to the program of implementation for meeting narrative objectives. The State Water Board needs to thoroughly examine and illuminate both before it considers adopting the proposed VAs' model.

Wrong baseline for assessment

The proposed VAs rely on a different baseline than the State Water Board has used to date for analyzing Bay-Delta Plan updates. The MOU and term sheet describe the VAs' potential benefits relative to the 2019 regulatory landscape. That baseline includes Revised Water Right Decision 1641 (issued in 1999 and revised in 2000) and the flows required by a pair of 2019 Biological Opinions[131] issued by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Those opinions address the impacts of State Water Project and Central Valley Project operations on delta smelt, certain salmonids, and other listed species.[132] Notably, the state has challenged the 2019 biological opinions, arguing that they are insufficiently protective and legally deficient.[133]

Instead, the State Water Board has analyzed the potential impacts of the proposed VA actions against somewhat more protective baselines. The January 2023 draft scientific basis report supplement used a pre-2019 baseline that includes Revised Decision 1641 and the flows required under the prior (2008 and 2009) biological opinions.[134] The September 2023 Draft Staff Report analyzed impacts relative to a baseline based on aspects of recent state and federal water project operation that Board staff considered likely to continue absent Bay-Delta Plan updates.[135]

While assessing the potential impacts of potential alternatives relative to a status quo baseline can be helpful, that comparison alone is insufficient, in practice, to give a reasonable person a sense of the competing issues at play. The reason the State Water Board has been pursuing updates to Bay-Delta water quality requirements is that it—and the US EPA—have repeatedly determined the status quo is unacceptable and "insufficient to protect fish and wildlife,"[136] as has the state legislature.[137] A conclusion that an alternative would result in improvements over the status quo is not a conclusion that those improvements would provide adequate protection for Bay-Delta ecosystems. Therefore, a more appropriate baseline for assessing VA adequacy is the comparison between likely VA outcomes and the outcomes expected from

the default implementation pathways for the 2018 Phase I amendments and proposed Phase II amendments, which are more likely to adequately protect Bay-Delta ecosystems (based on the findings 2010 flow criteria report and the Phase I and II scientific basis reports[138]).

Insufficient detail to constitute an actionable alternative

After more than six years of concerted effort, negotiators have come up with a proposed framework for VAs that is promising but not fully developed, leaving significant unanswered questions. Important aspects of the proposed VAs either lack sufficient detail to enable informed assessment or are difficult to interpret. In addition, the MOU and term sheet are not an actionable agreement to implement Bay-Delta water quality requirements. Rather, they essentially represent an agreement to develop a more detailed agreement if the State Water Board decides to adopt the approach they propose. And yet, the Board is being asked to consider this "agreement to agree" as an alternative to overdue regulatory action. For example:

- They identify general roles for a governance program and provide that "VA Parties will formally establish . . . entities to govern implementation of the VAs unless a comparable governance entity already exists."[139]
- They task the signatories with developing multi-year strategic plans that require State Water Board approval but include few details about what the plans should contain or the basis for assessing plan adequacy.[140]
- Provisions for adaptive management (see The Conundrum of Adaptive Management) of flow and habitat restoration measures are described only in broad-brush strokes and hinge on a "comprehensive" science program and "strategic plan for implementation" that have not yet been fleshed out. The gaps include to-be-determined metrics, experiments, hypotheses, transparency mechanisms, and monitoring regimes to assess whether VA commitments are being met and achieving intended outcomes.[141]–
- Proposed "new flow contributions" are dependent on multiple contingencies[142] (and do not appear, based on peer-reviewed science, to be sufficiently additive to the current flow regime).[143]
- Proposed habitat restoration contributions are described only in terms of total acres of habitat type per subwatershed. The proposed VAs also assume the state will set up a new 8-person "restoration unit" to "track, permit[,] and implement" restoration.[144] Restored habitat is not an interchangeable commodity; overall ecosystem benefits and benefits to specific protected species will vary depending on the location, type, and quality of habitat restored. Therefore, if decisions about restoration actions, and monitoring and analysis of their effects, are not explicitly tied to VA goals, there is greater potential for disconnects between effort and outcomes.
- Funding details are incomplete. Much of the funding proposed to implement the VAs would come, not from the diverter signatories (who pledged to contribute a total of ~$650 million), but from vaguely described state or federal sources (~$3.2 billion).[145]

Delay

Most concerning is what has not happened in advance of, or at least in parallel with, the Bay-Delta VA process.

To date, the state's understandable interest in encouraging VAs has taken precedence over its responsibility to timely develop and implement Bay-Delta Plan amendments that adequately protect fish and wildlife. More than twelve years into the state's current emphasis on VAs, and more than fourteen years after initiating Phase I Bay-Delta Plan updates, the State Water Board has not yet implemented the Phase I amendments it adopted five years ago. And more than a decade after initiating Phase II updates, it is finally in the process of developing draft language for Phase II amendments (see Figure 1). In the meantime, water quality protections required by state and federal law have yet to be adopted, water diversions continue to occur without adequately accounting for environmental water needs, and inadequately protected ecosystems continue to decline. The state's failure to meet its regulatory obligations puts those ecosystems, and all who depend on them, in peril.

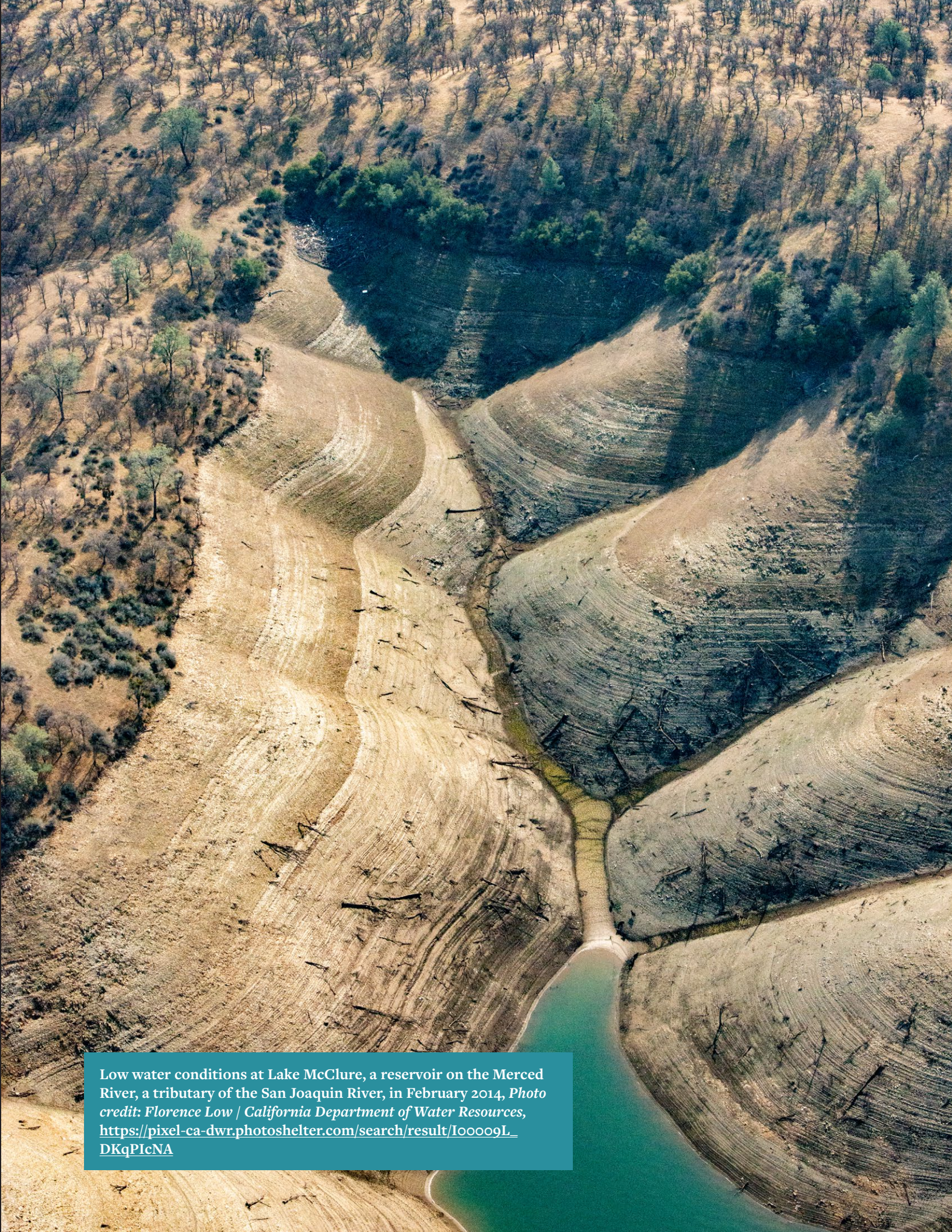
One of the oft-cited benefits of VAs is that they can achieve desired outcomes more quickly than regulatory requirements alone. However, the actual pace of VA development in the Bay-Delta watershed—where, as for many other watersheds, pace matters acutely—has not lived up to this promise. When ecosystems are buckling under severe hydrograph modification, climate change, and a barrage of other stressors, delays in establishing and implementing adequate flow requirements risk permanent ecosystem harm, including extinction. In effect, however well-intended, the protracted VA negotiations and related State Water Board processes have functioned as long-term waivers of the increased regulatory protections the Board and others have long agreed are necessary.

Insufficient oversight and accountability

The proposed VAs include minimal milestones for assessing progress and insufficient opportunities for Board oversight and intervention, beyond enforcing the flow and non-flow measures that rely on its Water Code authorities.[146] According to the term sheet, the VAs would be effective for eight years, with a Board-initiated evaluation process during the sixth year to determine what changes to the VA program of implementation would be needed after year eight.[147] Although it will take time to see the impacts of habitat restoration, waiting eight years to, in essence, "see if it works," is a long time to postpone thorough assessment and potential adjustment in a situation in which ecosystems are at risk, and where there is ample scientific basis for increasing flows. It is also inconsistent with the Clean Water Act's directive to review water quality control plans and requirements every three years[148] and with the state Porter-Cologne Act's direction to protect beneficial uses through water quality control plans.[149] A more robust system of transparent check-in and review procedures, annually or biannually with the ability to course-correct consistent with independent scientific review, would be essential to enabling the implementation of a VA while not removing the state's ability to maintain adequate oversight.[150]

IMPLICATIONS

The issues outlined above are serious and undermine the potential to reach effective and durable agreements that meet regulatory goals for the Bay-Delta watershed. The good news is that these issues could be addressed by improvements in the agreements and completion of the Bay-Delta Plan regulatory proceedings, as well as clarification of, and transparency in, the relationship between the two. The next section outlines five principles that should guide this shift.



Low water conditions at Lake McClure, a reservoir on the Merced River, a tributary of the San Joaquin River, in February 2014, *Photo credit: Florence Low | California Department of Water Resources,* https://pixel-ca-dwr.photoshelter.com/search/result/I00009L_DKqPIcNA

FIVE GUIDING PRINCIPLES FOR VAs

We offer five principles to guide the appropriate use and evaluation of VAs. While the Bay-Delta case study informed these principles, we expect them to be relevant whenever VAs are being considered as an option for implementing regulatory requirements designed to achieve biological goals.

VAs can—and must—meet basic standards. The discussion below explains five simple and interrelated principles that should guide both the process and substance of VAs. Taken together, these principles support our main point: VAs cannot substitute for regulatory requirements. On the contrary, negotiation of successful, durable VAs depends directly on the existence of a strong regulatory foundation to drive agreement and assure implementation.

PRINCIPLE 1: THE STATE MUST ESTABLISH A STRONG REGULATORY FOUNDATION FOR VAs.

For VAs to be viable, the State Water Board needs to set the stage with strong regulation, either in advance of or in parallel with VA development. There are four main reasons why.

First, this isn't a matter of legal discretion. In the context of water quality control plans, the State Water Board has a clear legal obligation to develop and implement water quality requirements sufficient to reasonably protect beneficial uses of water for a waterway, specifically including fish and wildlife uses.[151] VAs cannot obviate this requirement. Additionally, California case law makes clear that VAs cannot simply "implement alternate flow objectives . . . in lieu of the flow objectives actually provided for in the . . . [p]lan" or delay implementing objectives in a way that effectively amends the plan without following applicable procedural requirements.[152]

REGULATION vs. VAs: A FALSE DICHOTOMY

Regulatory requirements can provide a firm foundation for creative, win-win solutions. They can be written to explicitly allow implementation by alternative means though VAs that meet specific criteria. In this way, VAs can be encouraged while simultaneously developing a strong regulatory backstop of default requirements for those not party to a VA—and that will be triggered for VA parties if a VA fails to deliver promised outcomes.

That does not mean VAs lack a potential role. One example of a way VAs could be used comes from past practice: in its Phase I Bay-Delta Plan amendments, the State Water Board attempted to lay the groundwork for potential VAs by allowing for VAs to be incorporated through subsequent Plan amendments, which would satisfy state environmental review requirements. Alternatively, the state could incorporate elements of an early VA into later water quality standards—if those elements meet the requirements of governing law. In either situation, however, an existing regulatory foundation must provide context for VAs. VAs can complement, but cannot fully substitute for, that foundation.

Second, regulatory requirements establish the basis for measuring the adequacy of VAs. Water quality requirements in a water quality control plan, and the outcomes they seek to achieve, define the yardsticks needed to determine the appropriateness and assess the performance of any implementation approach. A VA can bind signatories to an alternative means of achieving regulatory goals so long as it will produce equal or better results than the default implementation pathway. Crucially, it does not—and cannot—replace the need for default regulatory requirements that serve as a backstop and provide important context for VAs.

Third, the absence of a strong regulatory foundation undercuts water users' incentives to reach agreement. A basic premise of negotiation is the need for all parties to understand their alternative(s) to a negotiated solution.[153] This means being able to answer the question "what happens if negotiation does not produce a mutually acceptable agreement?" and to compare the answer explicitly to any option for agreement. If that default regulatory framework does not exist or is outdated—which may happen if the state has put all its eggs in the VA basket—then the state's primary alternative to an agreement is maintaining the problematic status quo while starting the process of developing direct regulation, which could add even more years' delay to action. The state's alternative to a negotiated solution changes dramatically when there is an updated and robust regulatory framework already in place or developed in parallel.[154] For entities that benefit from the status quo, conversely, the absence of a strong regulatory framework means the alternative to an agreement is continuing to negotiate indefinitely, with the current under-protective regime left in place.

Fourth, some entities in a watershed will not be party to a VA. A default implementation pathway for regulatory requirements is needed to ensure that those who are not bound by VAs contribute their fair share to meeting the goals specified by regulation and, theoretically, embodied by VAs.

PRINCIPLE 2: VAs MUST ACHIEVE COMPARABLE ENVIRONMENTAL OUTCOMES TO THE OUTCOMES DEFAULT REGULATORY REQUIREMENTS ARE EXPECTED TO PRODUCE.

The whole point of a VA is to produce win-win outcomes. That includes providing better outcomes for water users, perhaps through mechanisms that are lower cost or allow more flexibility in the timing or amount of diversions than the

default implementation pathway would. But most crucially, it means providing at least comparable protection for aquatic ecosystems and water quality as the default implementation pathway. Otherwise, the VA would unacceptably reduce legally required protections.

Relatedly, the level of protection that would be provided by the default implementation pathway for particular regulatory requirements cannot be viewed as the state's initial negotiating position, to be bargained downward in the course of negotiations. Instead, it is the state's baseline responsibility to ensure that VAs, too, achieve at least that level of protection. The state's obligations to set and then achieve baseline levels of environmental protection through water quality control planning and implementation come from explicit statutory mandates, not from negotiable aspirations.[155] Therefore, the outcomes expected from the default implementation pathway for water quality requirements (not the pre-implementation status quo) are the baseline to which outcomes under VAs should be compared. The state should not be—indeed, legally cannot be—talked down to some lesser level of protection than its water quality control plan requires.[156] It can simply offer the opportunity to present alternative pathways to achieve that baseline level of protection.

This principle comes with an important caveat: sometimes comparative baselines are uncertain because governing law does not determine exactly what the default outcome should be. That lack of determinacy may arise because the law itself is uncertain or because regulators have some discretion in applying that law to uncertain and contested sets of facts.[157] As a practical matter, it also may arise because an implementing agency is unsure of its ability to achieve what governing law seems to require.[158] In the former circumstance—and, perhaps, the latter—choosing a baseline for comparison necessarily will require difficult judgment calls. But the fact that some indeterminacy exists is not a reason for using, as a comparative baseline, a set of protections that is widely and correctly seen as insufficient. Instead, indeterminacy provides all the more reason to continue developing the default regulatory approach, since the process will increase clarity about what the regulation—and any VAs—should achieve, giving all parties a more concrete basis for comparison.

PRINCIPLE 3: VAs MUST ARTICULATE CLEAR, SPECIFIC BIOLOGICAL GOALS AND MEASURES OF SUCCESS.

To ensure that they achieve equal or better environmental outcomes, VAs need to be structured around clear goals with appropriate performance measures for assessing progress and success. In the Bay-Delta context, these will include specific biological objectives and measurable indicators related to outcomes for native fish populations.[159] As the old cliché rightly notes, you can't manage what you don't measure. Describing required outcomes in vague and purely qualitative terms—or not defining them at all—does not support effective and accountable action.

VAs must clearly identify and distinguish between goals and measures related to specific implementation actions and the overarching goals and outcomes they seek to achieve. In particular, VAs need to be explicit about biological and other environmental outcome goals and measures. Achieving those goals is the state's

legal responsibility, and such achievement must start with understanding and articulating the outcomes to be achieved. For example, meeting acreage requirements for habitat restoration is one useful metric of progress, but in and of itself does not demonstrate that restored habitat is of sufficient quality or that it offers adequate contributions to meeting biological goals for species of concern. By contrast, rising fish populations, increased abundance of native vegetation, and other more specific metrics could more directly indicate positive ecosystem outcomes.[160]

Defining and measuring goals and progress will not always be easy or straightforward but will always be necessary. Any modern, biologically guided regulatory framework will be complex, with a range of moving parts, and it will be implemented in settings where uncontrollable variables, like patterns of drought, will affect outcomes. Some goals may be best expressed in qualitative terms, but these still need performance measures. Different VAs may respond to this complexity in different ways. Nevertheless, any legitimate VA must be as specific as possible about the goals it will achieve and the ways success will be measured.

PRINCIPLE 4: VAs AND ACTIONS TAKEN UNDER THEM MUST BE WELL-SUPPORTED BY THE BEST AVAILABLE SCIENTIFIC INFORMATION.

For VAs to be viable, the state and other stakeholders need confidence that they are likely to produce promised results. That means, for example, grounding proposed VAs, and assessment of those VAs, in the best available scientific information[161] about relevant species and ecosystems and their associated water quality needs. It also means grounding implementation of approved VAs, including adaptive management (see The Conundrum of Adaptive Management, at right), in the generation and analysis of decision-relevant scientific information.[162]

Relevant scientific information, including information regarding uncertainties, is essential because it is the best basis we have for assessing the likely outcomes of VAs. It also is the best basis for assessing whether approved VAs are producing desired outcomes. The high-stakes decisions surrounding VAs—such as what they should include, whether the State Water Board should approve them, and when implementation actions need to be adjusted—will be made in an environment rich with contested information and differing sets of values. The best available scientific information will necessarily change over the course of VA implementation, as participants and others gather and analyze monitoring data and perform studies to inform VA decision making, and as data advancements occur outside the context of the VA. Thus, it is essential for a VA's goals, actions, and measures of success to be anchored in the best available scientific evidence and for participants to agree that such evidence will inform assessment of success or failure and decisions on course corrections throughout VA implementation.[163]

THE CONUNDRUM OF ADAPTIVE MANAGEMENT

To be meaningful, adaptive management must be clearly defined, especially for high-stakes decisions. Appropriately used, adaptive management is a structured and iterative approach that recognizes that ecosystems are dynamic—and difficult to predict and control—and that decision-makers must act in an uncertain environment without perfect information.[164] Accordingly, it incorporates continuous monitoring, evaluation, and adjustment of policies and actions[165]; is anchored around clear ecosystem goals and performance measures; and includes triggers for reevaluating and modifying management practices and contingencies to address problems that arise.[166]

Adaptive management is not management by trial and error or a loose notion that parties will reassess their actions and practices in light of new data—in effect deferring decisions about adjustments to undefined future negotiations.[167] In the Bay-Delta context, invoking a weakly defined form of adaptive management would create significant uncertainty about future outcomes and what future actions might be required of VA parties and non-parties, particularly compared to a regulatory framework that clearly defines flow responsibilities.

This is a central role of the State Water Board, informed by independent science entities such as the Delta Stewardship Council's Independent Science Board and Delta Science Board and by peer reviews of the Board's own scientific basis reports. A VA could develop and propose an expert, third-party entity to help review the VAs' work plan and results and advise the State Water Board, but primary responsibility for review should remain with the Board.

PRINCIPLE 5: VAs MUST INCLUDE ROBUST AND TRANSPARENT ACCOUNTABILITY MECHANISMS.

Consistent with the first four principles, a VA will only be viable with a strong demonstration, based on the best available information, that it will produce environmental outcomes that are comparable to or better than those reasonably expected from the default implementation pathway for regulatory requirements. But these expectations will necessarily involve assumptions, estimation, and uncertainty, and things will not always work out as intended. Therefore, VAs must include provisions for decision-relevant monitoring, assessment, and adjustment.

VAs need to be explicit about which parties are responsible for which actions, how progress will be measured, and who is responsible if overall goals aren't achieved. Embedding explicit timelines and benchmarks, along with consequences for missing them, will be important. In the Bay-Delta example, the State Water Board, and VAs themselves, need to clearly define who is responsible for meeting which flow, habitat restoration, funding, monitoring, and other commitments under a VA as well as meeting interim outcome goals; when those commitments and goals must be met; and what will happen if they are not met. This includes explaining mechanisms for enforcement and other repercussions for VA participants who fail to meet individual commitments.

VAs should also address what happens if their overall goals aren't achieved. They should include a framework for addressing problems that may come to light even when all parties are assiduously carrying out their assigned actions. That framework should designate who will be responsible for implementing what contingency measures on what timeframes. Being very explicit about contingency measures (for example, what happens if restoration actions are not taken, or if restoration actions are taken but milestones for improved ecological metrics are not met) will also give a powerful incentive for participants to make the original plan work well. Further, clear triggers and contingency measures will enable quicker adaptation, allowing all parties to anticipate and plan for possible disappointments.

To help operationalize accountability, VAs need regular public reports, reviews, and assessments and a clear path for the regulator to intervene when necessary. Adaptive management must incorporate the measurable outcomes and timelines described in the principles above—and do so with explicitly articulated actions triggered by success or failure to meet defined objectives. This contrasts with the six- to eight-year time lag for thorough assessment and adjustment under the proposed Bay-Delta VAs.

Such measures will help ensure that VAs do not simply result in years of delay based upon hope and assertions. Instead, clear responsibilities, timelines, and benchmarks, transparently reviewed, will enable needed offramps to deployment of additional resources, rapid imposition of the regulatory backstop, or other appropriate contingency actions.

Friant Dam on the San Joaquin River, February 2014, *Photo credit: Florence Low / California Department of Water Resources,* https://pixel-ca-dwr.photoshelter.com/search/result/I0000zY40qjE7vP0

CONCLUSION

VAs have the potential to enable win-win solutions for meeting regulatory requirements. They also offer the promise of a more efficient and immediate path towards protecting California's ecosystems.

However, there is a huge difference between attempting to develop VAs and ensuring that VAs actually produce intended benefits—or even achieve the minimum outcomes reasonably expected from the default implementation pathway.

Embarking on negotiations around VAs is also a fraught process. If the state pursues that process without an existing effective regulatory backstop, or while developing an inadequate regulatory backstop alongside VAs, the process can undermine and delay the state's ability to fulfill critical legal responsibilities.

In this policy paper, we have articulated basic principles that should guide the state's present and future efforts to negotiate effective VAs, review VA adequacy, and provide effective oversight. The most important of these principles is that VAs can complement but not replace underlying regulation.

Public discourse often misleadingly describes a false choice between regulations *or* VAs. It is more accurate to say that, to enable VAs, there must be regulatory requirements *that allow for the possibility of* alternative implementation pathways. In the Bay-Delta watershed, this false dichotomy has contributed to years of delay in updating important water quality requirements while potential VAs were negotiated, with negative repercussions for declining ecosystems and continuing uncertainty for various water users, tribes, the fishing industry, and others. There are better ways forward.

VAs can seem like an attractive alternative to regulatory business as usual. But they will only work if the parties commit to a viable structure that combines the desired flexibility with appropriate clarity and limits. The principles described in this policy paper give some direction for developing effective VAs. If state negotiators—or state regulators—ignore these principles or give them short shrift, they will fail to uphold their responsibilities to ensure adequate environmental protection and support effective resource management. The good news is that the principles in this policy paper offer a pathway for success.

Red Bluff Diversion Dam on the Sacramento River, August 2012, *Photo credit: U.S. Bureau of Reclamation, licensed under CC By-SA 2.0,* https://www.flickr.com/photos/usbr/51718697503/in/album-72157720194312958/

DEFINED TERMS, ACRONYMS, AND ABBREVIATIONS

Bay-Delta Plan	The Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary.
Bay-Delta watershed	The large watershed that feeds into the San Francisco Bay / Sacramento-San Joaquin Delta Estuary, which includes the Sacramento River and San Joaquin River watersheds.
Beneficial uses	State terminology for existing and desired uses of water identified in a water quality control plan.
Board	State Water Resources Control Board
Designated uses	Federal terminology for existing and desired uses of water identified in a water quality control plan.
MOU	Memorandum of understanding
Phase I	The phase of Bay-Delta Plan updates focused on Lower San Joaquin River flows and Southern Delta salinity (2009–present).
Phase II	The phase of Bay-Delta Plan updates focused on the Sacramento River and Delta (2012–present).
State Water Board	State Water Resources Control Board
State Water Resources Control Board	The state agency that regulates water rights, water quality, and drinking water in California. Also referred to as "Board" in this document.
Unimpaired flow	What flow would be without water diversions and dams.
VA	Voluntary agreement
Voluntary agreement	A negotiated agreement that establishes a pathway for one or more regulated entities to meet regulatory requirements through alternative means.
Water quality control plan	A plan required under the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act that (1) identifies existing and desired uses of water for particular waterways (see "designated uses" / "beneficial uses"), (2) establishes water quality requirements sufficient to ensure the reasonable protection of identified uses (see "water quality criteria" / "water quality objectives"); and (3) establishes a program of implementation to achieve those requirements.

Water quality criteria	State terminology for water quality standards / requirements sufficient to ensure the reasonable protection of beneficial / designated uses established in a water quality control plan. Also referred to as "water quality standards" in this document.
Water quality objectives	Federal terminology for water quality standards / requirements sufficient to ensure the reasonable protection of beneficial / designated uses established in a water quality control plan. Also referred to as "water quality standards" in this document.
Water quality standards	See "water quality criteria" / "water quality objectives."

ENDNOTES

1 *Figure 1 summarizes some of this history.* See also, e.g., Holly Doremus and A. Dan Tarlock, "Can the Clean Water Act Succeed as an Ecosystem Protection Law?" 4(2) G. W. *Journal of Energy & Environmental Law* 46, at 53–62 (2013), available at URL: https://faculty.uml.edu/sgallagher/Clean_Water_Act_case_study.pdf; State Water Resources Control Board, Central Valley Regional Water Quality Control Board, and San Francisco Bay Regional Water Quality Control Board, *Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, at 62–77 (July 2008) [hereinafter Strategic Workplan], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/strategic_plan/docs/baydelta_workplan_final.pdf.

2 *The State Water Resources Control Board (State Water Board) is responsible for establishing flow and other water quality standards to support beneficial uses in the San Francisco Bay / Sacramento-San Joaquin Delta Estuary (Bay-Delta) watershed in the Bay-Delta Water Quality Control Plan (Bay-Delta Plan).* State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary* (December 12, 2018) [hereinafter 2018 Bay-Delta Plan], available at URL: https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf. *As the State Water Board has worked to update the Bay-Delta Plan, state leadership has emphasized VAs as a key desired means of implementing the plan's biological goals. See* California Natural Resources Agency, California Department of Food & Agriculture, and California Environmental Protection Agency, *California Water Action Plan* at 12 (2014), available at URL: https://resources.ca.gov/CNRALegacyFiles/docs/california_water_action_plan/2014_California_Water_Action_Plan.pdf (*discussing "Achiev[ing] Ecological Goals through Integrated Regulatory and Voluntary Efforts, in the context of the Bay-Delta*); Office of Governor Edmund G. Brown Jr., Principles for Voluntary Agreements at 1 (May 2017), available at URL: https://resources.ca.gov/CNRALegacyFiles/wp-content/uploads/2016/01/SCAP2517051616370-NV-new.pdf (*stating that "[t]he purpose of the Voluntary Agreements is to help achieve implementation of the State Water Resources Control Board's water quality objectives in the Water Quality Control Plan to benefit fish and wildlife resources while protecting reliable water supply for agriculture, drinking water, hydropower, and other competing beneficial uses"*); California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food & Agriculture, *California Water Resilience Portfolio* at 16–17 (July 2020), available at URL: https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Water-Resilience/Final_California-Water-Resilience-Portfolio-2020_ADA3_v2_ay11-opt.pdf (*explaining that "Governor Newsom . . . directed state agencies to work with a broad range of water agencies and environmental conservation groups to develop voluntary agreements to implement the State Water Resources Control Board's Bay-Delta Water Quality Control Plan"*).

3 *In some cases, voluntary agreements or other types of settlements can obviate or delay regulation. As discussed below, the update of the Bay-Delta water quality control plan cannot be replaced and is very overdue.*

4 See sources cited infra note 44 and associated text.

5 See, e.g., California Natural Resources Agency, News Release: "State, Federal Agencies Announce Agreement with Local Water Suppliers to Improve the Health of Rivers and Landscapes: MOU a Key Step in Years-Long Effort to Help Recover Salmon While Protecting Water Reliability" (March 29, 2022), available at URL: https://resources.ca.gov/Newsroom/Page-Content/News-List/Agreement-with-Local-Water-Suppliers-to-Improve-the-Health-of-Rivers-and-Landscapes.

6 See "Sacramento/Delta Update to Bay-Delta Plan," *State Water Resources Control Board* [hereinafter Phase II Updates Webpage], URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/comp_review.html (website, last visited December 21, 2023). *The "Prior Events and Actions" section of this webpage lists most public-facing developments related to Phase II Bay-Delta Plan updates.*

7 See infra notes 131 to 135 and associated text.

8 See State Water Resources Control Board, *Development of Flow Criteria for the Sacramento San Joaquin Delta Ecosystem* at 5, including footnote 3 (2010) [hereinafter Delta Flow Criteria Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf (*discussing the timing, magnitude, frequency, duration, and rate of change of flows needed to protect public trust resources in the Delta ecosystem, as required by Cal. Water Code § 85086, introduced by the Delta Reform Act of 2009*); State Water Resources Control Board, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives* at 1-3, 3-1 to 3-63 (2012) [hereinafter Phase I Scientific Basis Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/scientific_report.pdf (*describing the scientific basis for San Joaquin River flows "needed to support and maintain the natural production of SJR fall-run Chinook salmon, identifying juvenile rearing in the tributary streams and migration through the Delta as the most critical life history stages"*); State Water Resources Control Board, *Scientific Basis Report in Support of New and Modified Requirements for Inflows from the Sacramento River and its Tributaries and Eastside Tributaries to the Delta, Delta Outflows, Cold Water Habitat, and Interior Delta Flows* at 5-1 to 5-50 (October 2017) [hereinafter Phase II Scientific Basis Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2022/201710-bdphaseII-sciencereport.pdf (*describing recommended new and revised flow requirements for the Sacramento River, its tributaries, and Eastside Delta tributaries, and the Delta and the methods used to develop them*); State Water Resources Control Board, *Framework for the Sacramento/Delta Update to the Bay-Delta Plan* (July 2018) [hereinafter Phase II Framework Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf.

9 *Other documents have outlined principles for or guidance on critical elements of Bay-Delta VAs.* See Principles for Voluntary Agreements, supra note 2, at 1; Letter from Thomas Howard, Executive Director, State Water Resources Control Board, to Karla Nemeth, Deputy Secretary for Water Policy, California Natural Resources Agency (February 22, 2016) [hereinafter Howard Letter], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/bay_delta/howardltr_02222016.pdf (*"providing guidance on elements of voluntary agreements that will help inform the State Water Board's evaluation of whether an agreement will assist in implementing proposed amendments to Bay-Delta Water Quality Control Plan"*).

10 See generally Dave Owen, "The Negotiable Implementation of Environmental Law," 75 *Stanford Law Review* 137 (2023), available at URL: https://www.stanfordlawreview.org/print/article/the-negotiable-implementation-of-environmental-law/.

11 See generally Julia M. Wondolleck and Stephen Yaffee, *Making Collaboration Work: Lessons from Innovation in Natural Resources Management* (2000).

12 Aaron Levine, Taylor Curtis, and Laura Shields, *Negotiating Terms and Conditions: An Overview of the Federal Energy Regulatory Commission Hydropower Settlement Agreement Process* (2018), available at URL: https://www.nrel.gov/docs/fy18osti/71093.pdf.

13 See Owen, supra note 10, at 166–67.

14 See, e.g., Annecoos Wiersema, "A Train Without Tracks: Rethinking the Place of Law and Goals in Environmental and Natural Resources Law," 38 *Environmental Law* 1239 (2008).

15 See Owen, supra note 10, at 185–92.

16 See Daniel A. Farber, "Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law," 23 *Harvard Environmental Law Review* 297, at 305-06 (1999); Owen, supra note 10, at 191 (*describing situations in which the alternative to negotiation is rubber-stamping of regulated entities' preferences*).

17 See, e.g., Jake Abbott, "Story of the Year: A decade later for historic Yuba River Accord, Water officials reflect on game-changing agreement," *The Appeal-Democrat* (January 2, 2019, updated January 4, 2019), available at URL: https://www.appeal-democrat.com/news/story-of-the-year-a-decade-later-for-historic-yuba-river-accord/article_76189602-0d92-11e9-9611-33508b7dbf4d.html. *The Accord included three related agreements: (1) a Fisheries Agreement establishing instream flow requirements that vary depending on time of year and water year type, (2) a*

Water Purchase Agreement creating a long-term water transfer program to shift water to other water users and to Sacramento-San Joaquin Delta environmental flows, and (3) Conjunctive Use Agreements to improve local farmers' water supply reliability by coordinating groundwater and surface water use and management. See State Water Resources Control Board, Corrected Water Rights Order 2008-0014, at 4–5 (May 20, 2008), available at URL: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2008/wro2008_0014corrected.pdf; Water Education Foundation, *The Lower Yuba River Accord: From Controversy to Consensus*, at 4, 10–22 (2009), available at URL: https://www.yubawater.org/DocumentCenter/View/84/Lower-Yuba-River-Accord-Overview-PDF. *The Accord also included a River Management Team composed of local, federal, and state agencies and NGO representatives to conduct studies and monitor results.* See Corrected Water Rights Order 2008-0014, supra this note at 7–8. *It is also notable that the Accord came together and took place during litigation after the State Water Board set regulatory flows, not before.* See id. at 1–2.

18 See, e.g., Alex Wigglesworth, "Newsom touts $60-million plan for 'fishway' along Yuba River; critics say it falls short," *Los Angeles Times* (May 17, 2023), available at URL: https://www.latimes.com/california/story/2023-05-17/newsom-touts-plan-for-60-million-fishway-along-yuba-river; Chris Shutes, "The View from under the Bus: Newsom Administration and Fish Agencies Sell Out Yuba River Flow for Fish Passage," *California Sportfishing Protection Alliance* (May 20, 2023), URL: https://calsport.org/news/the-view-from-under-the-bus-newsom-administration-and-fish-agencies-sell-out-yuba-river-flow-for-fish-passage/.

19 See 23 Cal. Code Regs. §§ 875(f), 877.4, 878.2, 878.4; see also "Voluntary Water Sharing Program," *State Water Resources Control Board*, https://www.waterboards.ca.gov/drought/russian_river/voluntary_program.html (website, last visited December 21, 2023); "Local Cooperative Solutions (LCSs) under 2021–2022 Scott-Shasta Drought Emergency Regulations," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/scott_shasta_rivers/ilcs.html (website, last visited December 21, 2023).

20 See Jody Freeman & Daniel A. Farber, "Modular Environmental Regulation," 54 *Duke Law Journal* 795, at 837–866 (2005) (*describing the Bay-Delta Accord and related agreements*); Dave Owen, "Law, Environmental Dynamism, Reliability: The Rise and Fall of CALFED," 37 *Environmental Law* 1145, at 1202–08 (2007) (*describing the rise and fall of the institutional arrangements envisioned in the agreements*).

21 See, e.g., Phase II Scientific Basis Report, supra note 8, at 1-2, 1-4 to 1-24 (*describing the purpose, need, and other critical background for updates to flow standards for the "Phase II" portions of the Bay-Delta watershed*); Phase I Scientific Basis Report, supra note 8, at 3-1 to 3-63 (*describing the purpose, need, and other critical background for updates to flow standards for the "Phase I" portions of the Bay-Delta watershed*); Delta Flow Criteria Report, supra note 8; Sacramento River, San Joaquin River, and San Francisco Bay and Delta, CA; Water Quality Standards for Surface Water; Proposed Rule, 59 Fed. Reg. 810–871 (proposed January 6, 1994) (to be codified at 40 C.F.R. part 131) [hereinafter 1994 Proposed Rule], available at URL: https://www.govinfo.gov/content/pkg/FR-1994-01-06/html/94-120.htm (*describing in detail the history of water quality control planning for the Bay-Delta watershed, the decline of the watershed's ecosystems, and EPA's view of the inadequacy of flow and other standards to protect fish and wildlife uses*); Doremus and Tarlock, supra note 1 at 53–62; *see also* Nell Green Nylen, Michael Kiparsky, Dave Owen, Holly Doremus, and Michael Hanemann, *Addressing Institutional Vulnerabilities in California's Drought Water Allocation, Part 1: Water Rights Administration and Oversight During Major Statewide Droughts*, 1976–2016, at 13, B-13 to B-16 (2018), California's Fourth Climate Change Assessment, California Natural Resources Agency, CCCA4-CNRA-2018-009, available at URL: https://www.energy.ca.gov/sites/default/files/2019-12/Water_CCCA4-CNRA-2018-009_ada.pdf.

22 See "Existing Flow Requirements," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/water_issues/programs/cannabis/existing_flow_requirements.html (website, last visited December 21, 2023) (*presenting an interactive map that shows many Bay-Delta waterways with no instream flow standards*).

23 See, e.g., Phase I Scientific Basis Report, supra note 8, at 3-40 to 3-60; Phase II Scientific Basis Report, supra note 8, at 1-2 to 1-5; Peter B. Moyle, Larry R. Brown, John R. Durand, and James A. Hobbs, "Delta Smelt: Life History and Decline of a Once-Abundant

Species in the San Francisco Estuary," 14(2) *San Francisco Estuary and Watershed Science* Article 7 (2016), available at URL: https://doi.org/10.15447/sfews.2016v14iss2art6.

24 See sources cited *supra* note 21; *see also* Environmental Law Clinic at Stanford Law School on behalf of Shingle Springs Band of Miwok Indians, Winnemem Wintu Tribe, Little Manila Rising, Restore the Delta, and Save California Salmon, Title VI Complaint and Petition for Rulemaking for Promulgation of Bay-Delta Water Quality Standards Before the United States Environmental Protection Agency (December 16, 2022), available at URL: https://www.restorethedelta.org/wp-content/uploads/2022-12-16-Bay-Delta-Complaint-and-Petition.pdf.

25 See e.g., Association of California Water Agencies, California Farm Water Coalition, and Northern California Water Association, Bay-Delta Plan Update Talking Points (October 2018), available at URL: https://norcalwater.org/wp-content/uploads/Bay-Delta-Plan-Update-Talking-Points.pdf (*stating: "The State's proposed unimpaired flow approach would have significant impacts on farms, California communities, and the environment. An unimpaired flow approach would significantly limit drinking water supplies for cities and rural communities, as well as irrigation water supplies for farms and wildlife refuges."*); Letter re: Sacramento Valley Water Users' Comment Letter – Bay-Delta Plan Supplemental Notice of Preparation – Comprehensive Review, to Jeanine Townsend, Clerk to the Board, State Water Resources Control Board, from Andrew M. Hitchings, Somach Simmons & Dunn, et al. on behalf of more than 20 clients, at 6–12 (April 25, 2012), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/comments_042512/andrew_hitchings.pdf.

26 See, e.g., *Stanford Vina Ranch Irrigation Company v. State of California*, 50 Cal. App. 5th 976, at 1002–03 (2020), rehearing denied (July 6, 2020), as modified (July 8, 2020), review denied (Sept. 23, 2020), cert. denied, 209 L. Ed. 2d 128, 141 S. Ct. 1387 (2021); *Light v. State Water Resources Control Board*, 226 Cal. App. 4th 1463, at 1478 (2014), as modified on denial of rehearing (July 11, 2014); *California v. United States*, 438 U.S. 645, at 645–646 (1978); *United States v. State Water Resources Control Board* (*Racanelli*), 182 Cal. App. 3d 82, at 98, 119–120 (1986).

27 See, e.g., sources cited supra notes 8 and 21; Peter Moyle, "The Failed Recovery Plan for the Delta and Delta Smelt," *California WaterBlog* (May 29, 2022), URL: https://californiawaterblog.com/2022/05/29/the-failed-recovery-plan-for-the-delta-and-delta-smelt/ (and the sources cited therein).

28 See, e.g., Delta Independent Science Board, *Review of Water Supply Reliability Estimation Related to the Sacramento-San Joaquin Delta* (2022), available at URL: https://deltacouncil.ca.gov/pdf/isb/products/2022-06-16-isb-water-supply-reliability-review.pdf; John R. Durand, Fabian Bombardelli, William E. Fleenor, Yumiko Henneberry, Jon Herman, Carson Jeffres, C., Michelle Leinfelder-Miles, Jay R. Lund, Robert Lusardi, Amber D. Manfree, Josué Medellín-Azuara, Brett Milligan, and Peter B. Moyle, "Drought and the Sacramento-San Joaquin Delta, 2012–2016: Environmental Review and Lessons," 18(2) *San Francisco Estuary and Watershed Science*, Article 2 (2020), available at URL: http://dx.doi.org/10.15447/sfews.2020v18iss2art2.

29 Cal. Water Code §§ 13170, 13240–13249; 33 U.S.C. §§ 1313. *Primary responsibility for developing water quality control plans generally lies with California's nine Regional Water Quality Control Boards.* Cal. Water Code §§ 13001, 13240. *However, the State Water Board can also directly adopt plans.* Cal. Water Code §§ 13170, 13245. *The State Water Board has taken responsibility for the Bay-Delta Plan both because the plan impacts geographies and beneficial uses spanning multiple regions and because the plan is implemented heavily through conditions on water rights, which only the State Water Board has jurisdiction over.*

30 *The "beneficial uses" that are designated for water quality purposes and are protected by water quality control plans overlap with, but are not identical to, what California defines as "beneficial uses" for water rights purposes.* See "Water Rights: Public Trust Resources," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/public_trust_resources/#beneficial (website, last visited December 21, 2023).

31 Cal. Water Code §§ 13050(f), (h), (j), 13241, 13242; 33 U.S.C. §§ 1313(c)–(i).

32 See 40 C.F.R. § 131.12; State Water Resources Control Board Resolution 68-16 (Oct. 24, 1968), available at URL: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf.

33 See, e.g., 33 U.S.C. 1251; Cal. Water Code § 13000.

34 Phase II Scientific Basis Report, supra note 8, at 1-6 (*explaining that some water quality standards to protect designated beneficial uses "are expressed as flows" and others "are largely achieved through flows"*).

35 Cal. Water Code § 13241.

36 *For example, state law requires the program of implementation for a water quality control plan to describe "the nature of actions. . . necessary to achieve" water quality objectives, "[a] time schedule for the actions to be taken," and the "surveillance to be undertaken to determine compliance with objectives."* Cal. Water Code § 13242.

37 See, e.g., "National Pollutant Discharge Elimination System (NPDES) – Wastewater," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/water_issues/programs/npdes/ (website, last visited December 21, 2023); "Waste Discharge Requirements Program," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/water_issues/programs/waste_discharge_requirements/ (last visited December 21, 2023).

38 *The California Legislature has tasked the State Water Board with "provid[ing] for the orderly and efficient administration of the water resources of the state," including the "coordinated consideration of water rights, water quality, and safe and reliable drinking water."* Cal. Water Code § 174.

39 See Cal. Const. art. X, § 2; Cal. Water Code §§ 100; 174, 275, 1058; *Stanford Vina Irrigation Co. v. State of California*, 50 Cal. App. 5th 976, 1000–1004 (2020); *Light v. State Water Resources Control Board*, 226 Cal. App. 4th 1463, 1486–88 (2014), as modified on denial of rehearing (July 11, 2014), review denied (Oct. 1, 2014); *Millview County Water District. v. State Water Resources Control Board*, 229 Cal. App. 4th 879, 893–94 (2014), as modified on denial of rehearing (Oct. 14, 2014); see also *Imperial Irrigation District v. State Water Resources Control Board*, 186 Cal. App. 3d 1160 (1986).

40 See *National Audubon Society v. Superior Court*, 33 Cal. 3d 419, at 446–47 (1983).

41 See Nell Green Nylen, Dave Owen, Jennifer Harder, Michael Kiparsky, and Michael Hanemann, *Managing Water Scarcity: A Framework for Fair and Effective Water Right Curtailment in California* at 37–42, 49–52, 78–79 (2023), available at URL: law.berkeley.edu/curtailments (*summarizing the State Water Boards use of emergency curtailment regulations to protect public trust flows during recent droughts and discussing relevant due process requirements*).

42 See, e.g., *United States v. State Water Resources Control Board* (Racanelli), 182 Cal. App. 3d 82, at 125–126 (1986) (*stating that "the principal enforcement mechanism available to the Board is its regulation of water rights to control diversions which cause degradation of water quality"*); State Water Resources Control Board, Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary at 7, 27–29 (May 1995), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/1995wqcp/docs/1995wqcpb.pdf (*stating that "this plan will be implemented principally through changes in water rights" and describing various water-rights related implementation measures*).

43 See, e.g., Green Nylen et al, supra note 41, at 36–37 (*discussing (a) Standard Term 91, which prohibits diversions under affected water right permits and licenses when def"supplemental Project water" is being released to meet Delta water quality requirements and (b) amendments to the Los Angeles Department of Water and Power's licenses to divert and use water from Mono Lake tributaries to protect public trust flows*).

44 See id. (*describing a 4-year process to implement Term 91 in the Bay-Delta watershed and an 8-year process for amending the Los Angeles Department of Water and Power's licenses in the Mono Lake watershed to reflect the terms of a 2013 settlement agreement*).

45 *For example, in 2001 and 2003, the State Water Board amended several water right permits and licenses to revise minimum flow requirements to better protect fishery resources in the lower Yuba River*. See State Water Resources Control Board, Revised Water Rights Decision 1644 (July 16, 2003), available at URL: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1644revised.pdf). *Affected water right holders and environmental groups then sued to challenge the decisions.* See Corrected Water Rights Order 2008-0014, supra note 17, at 4–5 (*describing the history of State Water Board actions and related litigation*); see also *State Water Resources Control Board v. Superior Court*, 97 Cal. App. 4th 907, 912

(2002). *In 2007, the parties—with the exception of the State Water Board—settled much of the litigation through the Lower Yuba River Accord* (*Yuba Accord*). Corrected Water Rights Order 2008-0014, supra note 17, at 5–6; see also note 17, supra, and associated text. *In May, 2008, the State Water Board approved the Yuba County Water Agency's April 27, 2007, petition to modify its water right permits to implement the Yuba Accord.* Corrected Water Rights Order 2008-0014, supra note 17, at 12, 63.

46 See, e.g., Doremus and Tarlock, supra note 1 at 59–62 (*summarizing the history of water quality planning and implementation for the Bay-Delta watershed, including the collaborative effort, known as Cal-Fed, between state and federal water operators and state and federal environmental protection agencies that were spurred by EPA disapproving the 1991 Bay-Delta Plan and resulting in the Bay-Delta Accord, as well as the subsequent Delta Stewardship Council and separate Bay Delta Conservation Planning effort*); "Felicia Marcus on the California Delta: Convergence or Collision?" *Maven's Notebook* (March 26, 2013), URL: https://mavensnotebook.com/2013/03/26/mavens-minutes-felicia-marcus-on-the-california-delta-convergence-or-collision-2/ (*discussing the Bay Delta Accord, Delta Stewardship Council and the Delta Plan, the State Water Board's Bay-Delta water quality planning process, agreements for water users to use less water developing in the context of dialog around the Bay Delta Conservation Plan, "local solutions" like collaboration between environmental groups and the rice industry to provide bird habitat in the Sacramento Valley, and the role of each in creating "a web of solutions"*); Freeman and Farber, supra note 20, at 851–52 (*describing negotiations that occurred as part of the Cal-Fed process for the Bay-Delta watershed*).

47 See Letter to Gerald H. Meral, Deputy Secretary, Bay Delta Conservation Plan, California Natural Resources Agency, from Thomas Howard, Executive Director, State Water Resources Control Board (Dec. 19, 2011), available at URL: https://baydelta.files.wordpress.com/2012/01/swrcb-to-meral_12-19-2011.pdf (*stating "I would like to emphasize that the State Water Board encourages water users to work with fishery agencies and other stakeholders to bring agreements on flows and habitat improvements to the Board to include as part of its regulatory process"*); Cariad Hayes Thronson, "Flow Deal: Peace Treaty or Trojan Horse?" *San Francisco Estuary Magazine* (June 2022), available at URL: https://archive.estuarynews.org/flow-deal-peace-treaty-or-trojan-horse/ (*mentioning that "talks began back in 2012"*); *California Water Action Plan*, supra note 2 at 12; see also State Water Resources Control Board, Supplemental Notice of Preparation and Notice of Scoping Meeting for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Comprehensive Review at 3–4 (January 24, 2012) [hereinafter 2012 Scoping Notice], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/environmental_review/docs/notice_baydeltaplancompreview.pdf (*"In considering potential changes to the Bay-Delta Plan, the State Water Board will be reviewing changes that should be made to water quality objectives and the program of implementation to protect beneficial uses in the Bay-Delta in the immediate future under existing conditions and in the longer term with and without changes to the environment that may occur as the result of current planning efforts such as the BDCP. Specifically, the State Water Board will be considering whether certain water quality objectives should be phased in over time and under what conditions that phasing should occur, in addition to what type of contingencies should be provided in the program of implementation if expected habitat improvement and other activities do not occur or do not have the expected results."*).

48 See Memorandum of Understanding Advancing a Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and Other Related Actions, March 29, 2022, with Addition of Signatory Parties, November 10, 2022, at 1–2 [hereinafter MOU and Term Sheet], available at URL: https://resources.ca.gov/-/media/CNRA-Website/Files/NewsRoom/email-items/VoluntaryAgreementMOUTermSheet20220329_SIGNED-20220811.pdf.

49 *Section 401 applies to activities that require a federal license or permit and that may result in a discharge to waters of the United States, such as hydroelectric projects. Section 401 explicitly allows the State Water Board to set conditions on the federal license or permit to ensure that the applicant will comply with effluent limitations and other requirements under the federal Clean Water Act, as well as "any other*

appropriate requirement of State law." 33 U.S.C. § 1341(d). *The State Water Board has frequently included requirements for habitat restoration alongside instream flow requirements as conditions in section 401 water quality certifications.* See, e.g., State Water Resources Control Board, Water Quality Certification for Turlock Irrigation District and Modesto Irrigation District, Don Pedro Hydroelectric Project and La Grange Hydroelectric Project, Federal Energy Regulatory Commission Project Nos. 2299 and 14581, at 68–77 (January 15, 2021), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/401_cert/dplg_fwqc.pdf.

50 *The State Water Board's Scientific Basis Reports and plan update documents all support the importance of increased flow, in part for its influence on habitat but also for its benefits to temperature, fish passage, and other factors*. See, e.g., sources cited supra note 8. *Multiple stressors affect fish populations, including low flow, poor habitat conditions, low food availability, and predation, all of which can be influenced by flow alone, but positive effects can be accelerated or aided by other actions.* See, e.g., Ellen Hanak, Caitrin Phillips, Jay Lund, John Durand, Jeffrey Mount, and Peter Moyle, *Scientist and Stakeholder Views on the Delta Ecosystem* (April, 2013) Public Policy Institute of California, available at URL: https://www.ppic.org/wp-content/uploads/content/pubs/report/R_413EHR.pdf. *For example, higher flows into waterways at relevant times can reduce water temperature, increase flow speed, and facilitate habitat creation on the banks—all of which help native species. Avoiding high temperatures is critical for salmon, which need to expend far more energy in warmer water and then need more food to deal with their exhausting treks upriver as adults to spawn and downriver as smolts getting out to sea.* See State Water Resources Control Board, Draft Staff Report/Substitute Environmental Document in Support of Potential Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary for the Sacramento River and Its Tributaries Delta Eastside Tributaries and Delta at 3-6 (September 2023) [hereinafter Draft Staff Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/staff_report.html. *Their weakened state causes mortality and also sets them up as easy prey for invasive predators.* See id. at 4-1, 4-4, 4-21 to 4-23. *However, habitat changes mobilized by higher flows can give salmon a place to hide from predators and find cooler shaded water, and generate food production.* See id. *Other efforts to restore habitat can also help create conditions that help native fish and discourage predators, potentially faster than water flow alone.* Id. *However, "non-flow" restoration actions cannot fully substitute for adequate flows.* Id. at 4-1.

51 *There is a robust history of setting flow standards to protect a variety of beneficial uses of a given waterway, such as fisheries and agriculture, including by protecting water quality from excess salinity. In the Bay-Delta context, the state has emphasized flow because it has definite jurisdiction over flow to protect public trust resources* (see *National Audubon Society v. Superior Court*, 33 Cal. 3d 419, at 446–47 (1983)) *and because flow influences other stressors.* See sources cited supra notes 8, 21, and 32 and associated text.

52 See State Water Resources Control Board, Notice of Preparation and of Scoping Meeting for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Southern Delta Salinity and San Joaquin River Flows at 2 (Feb. 13, 2009), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/environmental_review/docs/nop2009feb13.pdf.

53 See infra note 137.

54 See Delta Flow Criteria Report, supra note 8, at 9–10.

55 Id. at 96, 131–133. *A key purpose of trying to mimic the natural hydrograph is to recreate at least some of the conditions under which the native species evolved.* See id. at 1, 5, 37, 41–42, 50.

56 *In 2008, the State Water Board laid out a workplan for developing and adopting updates to the 2006 Bay-Delta Plan by early 2012.* See Strategic Workplan, supra note 1, at 17, 68, 77.

57 See Letter to Gerald H. Meral, Deputy Secretary, Bay Delta Conservation Plan, California Natural Resources Agency, from Thomas Howard, Executive Director, State Water Resources Control Board (Dec. 19, 2011), available at URL: https://baydelta.files.wordpress.com/2012/01/swrcb-to-meral_12-19-2011.pdf; see also State Water Resources Control Board, Fact Sheet: Water Quality Planning Efforts in the Bay-Delta at 1 (May 16, 2012), available at URL: https://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/baydelta_sjr.pdf.

58 Chris Austin, "A Status Report on the State Water Board's Bay-Delta Plan," *Maven's Notebook* (April 18, 2013), URL: https://mavensnotebook.com/2013/04/18/a-status-report-on-the-state-water-boards-bay-delta-plan/.

59 Chris Austin, "Legislative Hearing: Pending Delta Decisions and Their Potential Economic and Other Impacts on San Francisco and the Bay Area, Part 1," *Maven's Notebook* (March 29, 2016), URL: https://mavensnotebook.com/2016/03/29/legislative-hearing-pending-delta-decisions-and-their-potential-economic-and-other-impacts-on-san-francisco-and-the-bay-area-part-1/.

60 See State Water Resources Control Board, Environmental Justice Focused Listening Session on State Water Board Efforts to Update and Implement the Bay-Delta Plan, at slide 17 (Mar. 27, 2023), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/ABBR-EJ-Listening-Session-Presentation_March_27.pdf.

61 *This map draws from the following sources:* California Department of Water Resources, California Water Plan Layered Map (2013), available at URL: https://cadwr.app.box.com/s/no9baf6yzzc31umoans94asjzp7dpjy5; State Water Resources Control Board, Staff Workshop Presentation: Draft Staff Report for Sacramento/Delta Update to the Bay - Delta Water Quality Control Plan (Bay-Delta Plan) slides 9 and 10 (October 19, 2023), URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/overview-of-staff-report-20231019-workshop.pdf.

62 Phase I Scientific Basis Report, supra note 8.

63 See State Water Resources Control Board, Staff Presentation: Update on the Current Review of the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Its Implementation, slides 2–3 (Feb. 21, 2012), available at URL: https://www.waterboards.ca.gov/board_info/minutes/2012/feb/022112_5stfprsntn.pdf.

64 See Phase I Scientific Basis Report, supra note 8, at 3-1.

65 See "Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the Bay-Delta: San Joaquin River Flows and Southern Delta Water Quality," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2012_sed/index.shtml (website, last visited December 21, 2023).

66 See Howard Letter, supra note 9, at 2.

67 Id.

68 See "Draft Revised Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the Bay-Delta: San Joaquin River Flows and Southern Delta Water Quality," *State Water Resources Control Board*, URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/index.shtml (website, last visited December 21, 2023); State Water Resources Control Board, Fact Sheet: Revised Draft Substitute Environmental Document for Flow Objectives on the Lower San Joaquin River and Salinity Objectives for the Southern Delta (October 18, 2016), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/docs/ph1_fact.pdf; see also State Water Resources Control Board, Resolution No. 2018-0059: Adoption of Amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Final Substitute Environmental Document (December 12, 2018) [hereinafter 2018 Resolution], available at URL: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/rs2018_0059.pdf at 2–3.

69 See, e.g., State Water Resources Control Board, Recirculated Draft: Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality, Appendix K: Revised Water Quality Control Plan at 28, 36–39 (Sept. 2016), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/docs/appx_k.pdf; State Water Resources Control Board, Summary of Proposed Updates to the Bay-Delta Water Quality Control Plan at 2, 7 (September 15, 2016), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/docs/prp_update_sum.pdf.

70 See Principles for Voluntary Agreements, supra note 2.

71 See MOU and Term Sheet, supra note 48, at 1–2.

72 State Water Resources Control Board, Notice of Public Meeting and Consideration of Adoption of Proposed Amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary and Final Substitute Environmental Document (July 6, 2018), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2018_sed/docs/notice_baydelta_plan.pdf; see also 2018 Resolution, supra note 68, at 3.

73 Letter from John Laird, Secretary for Natural Resources, to Felicia Marcus, Chair, and Members of the State Water Resources Control Board, re: August 21, 2018 Meeting, Agenda Item 4: Consideration of a Proposed Resolution to Adopt Amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento San Joaquin Delta Estuary and Adopt the Final Substitute Environmental Document (August 15, 2018), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2018_sed/docs/natural_resources_laird_ltr_081518.pdf.

74 Id.

75 See State Water Resources Control Board, News Advisory: State Water Resources Control Board Continues Meeting to Consider Updated Flow Objectives for the San Joaquin River (Aug. 22, 2018), available at URL: https://www.waterboards.ca.gov/press_room/press_releases/2018/pr082218_bay_delta_update_hearings_news_advisory.pdf; (*announcing that the State Water Board would delay consideration of proposed Bay-Delta Plan amendments until its November 7 meeting*); Letter to Felicia Marcus, Chair, State Water Resources Control Board, from Edmund G. Brown Jr., Governor, and Gavin Newson, Lieutenant Governor and Governor-elect (Nov. 6, 2018), available at URL: https://www.waterboards.ca.gov/docs/20181106_brown_newsom_ltr.pdf (*requesting postponement a second time*); State Water Resources Control Board, News Advisory: State Water Resources Control Board Delays Final Decision on Updated Flow Objectives for the San Joaquin River (Nov. 7, 2018), available at URL: https://www.waterboards.ca.gov/press_room/press_releases/2018/pr110718_bay-delta_plan_continuance.pdf ("*After considering a request received yesterday from Governor Edmund G. Brown Jr. and Lieutenant Governor Gavin Newsom, the State Water Resources Control Board today voted to postpone further consideration of updated flow requirements for the Lower San Joaquin River until Dec. 11 in order to allow voluntary agreement talks to yield results.*").

76 2018 Bay-Delta Plan, supra note 2, at 5, 15–16; see also 2018 Resolution, supra note 68.

77 See 2018 Bay-Delta Plan, supra note 2, at 25–27, 32; Summary of Proposed Updates to the Bay-Delta Water Quality Control Plan, supra note 69, at 3-5; see also Sarah M. Yarnell, Geoffrey E. Petts, John C. Schmidt, Alison A. Whipple, Erin E. Beller, Clifford N. Dahm, Peter Goodwin, and Joshua Viers, "Functional Flows in Modified Riverscapes: Hydrographs, Habitats and Opportunities," 65(10) *BioScience* 963, at 966 (2015), available at URL: https://doi.org/10.1093/biosci/biv102 (*describing how "functional flows" can be crafted to mimic the hydrograph at appropriate times and places to gain greater efficiency and impact*).

78 2018 Resolution, supra note 68, at 7.

79 State Water Resources Control Board, Initial Lower San Joaquin River Flow Compliance Measures (September 2019), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/compliance_measures/initial_compliance_method_document_final.pdf.

80 State Water Resources Control Board, Draft Initial Biological Goals for the Lower San Joaquin River (September 2019), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/biological_goals/draft_biological_goals.pdf.

81 Letter from Eileen Sobeck, Executive Director, State Water Resources Control Board, re: Opportunity to Participate in the Initial Stanislaus, Tuolumne, and Merced Working Group (June 13, 2022), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/20220613-stm-invitation.pdf.

82 State Water Resources Control Board, Second Revised Notice of Availability of Revised Draft Initial Biological Goals for Lower San Joaquin River Flow Objectives for Public Review and Comment and Notice of Workshop to Receive Recommendations from Stanislaus, Tuolumne, and Merced (Stm) Working Group and Public Comment (July 22, 2022), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/biological_goals/20220722-biogoals-noa-second-revised.pdf.

83 See State Water Resources Control Board, Revised Notice of Preparation and California Environmental Quality Act Scoping Meeting for a Proposed Regulation to Implement Lower San Joaquin River Flows and Southern Delta Salinity Objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Aug. 8, 2022), available at URL: https://www.waterboards.ca.gov/public_notices/notices/revised_notice_ceqa_baydelta_nop.pdf.

84 *The proposed VA was submitted as a revision / addition to the Phase II-focused March 2022 MOU and Term Sheet package.* See MOU and Term Sheet, supra note 48, at page 31–36 of pdf.

85 State Water Resources Control Board, Notice of Preparation of Environmental Documentation and Scoping Meeting: Possible Amendment of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Esuary to Incorporate Tuolumne River Voluntary Agreement (Aug. 8, 2022), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/notice-noptuolumneva-041123.pdf.

86 State Water Resources Control Board, Final Initial Biological Goals for the Lower San Joaquin River (September 2023), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/2023-09-06-final-initial-biological-goals-reso.pdf.

87 See Phase II Updates Webpage, supra note 6.

88 See 2012 Scoping Notice, supra note 47, at 2–4.

89 See ICF International, Comprehensive (Phase 2) Review and Update to the Bay-Delta Plan: Final Bay-Delta Plan Workshops Summary Report at 1 (June 2013), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/docs/bdwrkshprpt070813.pdf.

90 See Letter from Peter Goodwin, Lead Scientist, Delta Science Program, Delta Stewardship Council, to Les Grober, Assistant Deputy Director Division of Water Rights, State Water Resources Control Board, re: Workshop on Delta Outflows and Related Stressors – Panel Summary Report (May 15, 2014), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/delta_outflows_summary_report.pdf; Letter from Peter Goodwin, Lead Scientist, Delta Science Program, Delta Stewardship Council, to Les Grober, Assistant Deputy Director Division of Water Rights, State Water Resources Control Board, re: Workshop on Interior Delta Flows and Related Stressors – Panel Summary Report (August 6, 2014), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/delta_science_report2014july.pdf.

91 See Phase II Scientific Basis Report, supra note 8; see also State Water Resources Control Board, Fact Sheet: Phase II Update of the Bay-Delta Plan: Inflows to the Sacramento River and Delta and Tributaries, Delta Outflows, Cold Water Habitat and Interior Delta Flows (October 4, 2017), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/201710_phaseII_factsheet.pdf.

92 Phase II Framework Report, supra note 8.

93 See id. at 2, 24–28.

94 See id. at 2–3, 15, 21.

95 See id. at 25-26.

96 Id. at 1, 35.

97 *The State Water Board completed a substantial 2019 update to the Sacramento Water Allocation Model (known as SacWAM).* See Phase II Updates Webpage, supra note 6.

98 See MOU and Term Sheet, supra note 48.

99 State Water Resources Control Board, California Department of Water Resources, California Department of Fish and Wildlife, Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan (January 2023) [hereinafter Draft Supplement Report], available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/202301-bd-draft-sbrsupp.pdf.

100 State Water Resources Control Board, Notice of Opportunity for Public Comment and Board Workshop on Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan (January 5, 2023), available at URL: https://www.waterboards.ca.gov/public_notices/comments/docs/2023/notice_va_sbr.pdf. *A final Draft Supplement Report includes revisions based on public*

comment and is currently undergoing peer review. See State Water Resources Control Board, California Department of Water Resources, and California Department of Fish and Wildlife, Final Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan at ES-1(September 2023), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/staff-report/app-g2.pdf.

101 Draft Supplement Report, supra note 99, at ES-1.

102 See "Bay Delta Plan Update: a deep dive into the staff report for the Sacramento Delta update: How do the Voluntary Agreements stack up?," *Maven's Notebook* (November 14, 2023), URL: https://mavensnotebook.com/2023/11/14/bay-delta-plan-a-deep-dive-into-the-staff-report-for-the-for-the-sacramento-delta-update-how-do-the-voluntary-agreements-stack-up/.

103 See "Bay-Delta Watershed," *State Water Resources Control Board*, https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/ (website, last visited December 21, 2023).

104 Draft Staff Report, supra note 50.

105 State Water Resources Control Board, Revised Notice of Availability and Opportunity for Public Comment, Hearing, and Staff Workshops on Draft Staff Report in Support of Potential Sacramento/Delta Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (November 14, 2023), available at URL: https://www.waterboards.ca.gov/board_info/calendar/docs/2023/revisednotice_sacdeltastffrpt_111423.pdf.

106 Id.

107 See State Water Resources Control Board, Presentation: Public Hearing: Sacramento/Delta Update to the Bay-Delta Water Quality Control Plan (Bay-Delta Plan) at slide 24 (November 17, 2003), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/2023117_hearing_staff_presentation.pdf.

108 See MOU and Term Sheet, supra note 48.

109 *The Board is considering the included Tuolumne River proposal separately.* See, e.g., State Water Resources Control Board, Frequently Asked Questions: Draft Staff Report in Support of the Sacramento/Delta Update to the Bay-Delta Water Quality Control Plan at 6 (September 28, 2023), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/staff-rpt-faq.pdf.

110 See Term Sheet, supra note 48, at 1–3.

111 Id. at 5.

112 See MOU, supra note 48, at 3–4 and Appendices 1 and 2; Term Sheet, supra note 48, at 5.

113 See Term Sheet, supra note 48, at 7–8, 13–16.

114 Term Sheet, supra note 48, at 2–3.

115 MOU, supra note 48, at 5.

116 See MOU and Term Sheet, supra note 48.

117 *This is in contrast to other heralded accords such as the Bay-Delta Accord or the Yuba Accord.* See, e.g., sources cited supra notes 17, 20, 45, and 46 and accompanying text.

118 See, e.g., Trout Unlimited, The Nature Conservancy, The Bay Institute, Environmental Defense Fund, Defenders of Wildlife, and American Rivers, Memorandum to Jared Blumenfeld, Secretary, California Environmental Protection Agency, and Wade Crowfoot, Secretary, California Natural Resources Agency, re: Submission of Project Description/Planning Agreement for Voluntary Agreements (March 5, 2019), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/bay_delta/troutunlimitedetal_ltr03052019.pdf.

119 See, e.g "Voluntary Agreements FAQ: Who Drafted the Agreements?" *California Natural Resources Agency*, URL: https://resources.ca.gov/Initiatives/Voluntary-Agreements-Page/VA-FAQ (website, last visited December 21, 2023) (*"Representatives of environmental and fishing groups have been invited to participate in this process and previously provided critical input to the governance component of the plan. Several representatives participated in the first several years of negotiations and interested parties have been invited to participate in the shared governance and coordinated implementation."*); Cover Letter for Voluntary Agreement Submittal by the Department of Water Resources and Department of Fish and Wildlife (Mar. 1, 2019), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/bay_delta/va_cover_ltr.pdf (*signed by representatives of more than 40 "interested parties," including multiple environmental*

nonprofit organizations); Environmental Law Clinic at Stanford Law School on Behalf of Winnemem Wintu Tribe, Shingle Springs Band of Miwok Indians, Save California Salmon, Little Manila Rising, and Restore the Delta, Petition for Rulemaking to Review and Revise Bay-Delta Water Quality Standards Before the California State Water Resources Control Board at 36–39 (March 14, 2022), available at URL: https://www.restorethedelta.org/wp-content/uploads/2022-05-24-Petition-for-Rulemaking-FINAL.pdf (*describing "Tribes, community and environmental organizations, and Delta residents in communities most directly impacted by the ecological crises" as "wholly shut out of the conversation" and stating that "[c]onfidentiality agreements further shield the negotiations from public input and shroud them in secrecy"*); see also Ian James, "California says $2.6-billion pact can protect delta amid drought. Critics disagree," *LA Times* (April 1, 2022), available at URL: https://www.latimes.com/california/story/2022-04-01/a-2-6-billion-drought-deal-is-drawing-fire-in-california (reporting that, "[i]mmediately after the plan's announcement on Tuesday, environmental advocates and salmon conservationists condemned it as a set of backroom deals negotiated out of the public eye that wouldn't provide nearly enough water for threatened fish or the overall health of the watershed"); Doug Obegi, "Who (and What) Are Excluded from Backroom Bay-Delta 'Deal'," *NRDC* (April 4, 2022), URL: https://www.nrdc.org/experts/doug-obegi/about-deal-bay-delta.

120 Draft Staff Report, supra note 50, at 1-3.

121 Draft Supplement Report, supra note 99, at 7-2.

122 See id. at 1-4.

123 See Draft Staff Report, supra note 50, at 1-17 to 1-18.

124 See id., at 1-16, 6-5.

125 See id., at 1-5.

126 See Term Sheet, supra note 48, at 3.

127 See Draft Supplement Report, supra note 99, at ES-1, 1-1 to 1-2.

128 Draft Staff Report, supra note 50, at 1-3 to 1-4.

129 See 2018 Bay-Delta Plan, supra note 2, at 32.

130 See Phase II Framework Report, supra note 8, at 2 (*"The proposed program of implementation would allow voluntary agreements with nonflow measures to be lower in the range – so long as the measures provide the same level of resource protection as 55%, and that the agreement is still within the range of 45-65%"*).

131 National Marine Fisheries Service, Biological Opinion on Long-term Operation of the Central Valley Project and the State Water Project (October 21, 2019), available at URL: https://repository.library.noaa.gov/view/noaa/22046; U.S. Fish and Wildlife Service, Biological Opinion for the Reinitiation of Consultation on the Coordinated Operations of the Central Valley Project and the State Water Project (October 21, 2019).

132 *The Term Sheet states that "[t]he VA flows…will be additive to the Delta outflows required by Revised Water Rights Decision 1641…and resulting from the 2019 Biological Opinions…."* Term Sheet, supra note 48, at 5.

133 See *Pacific Coast Federation of Fishermen's Associations v. Raimondo*, No. 120CV00426JLTEPG, 2023 WL 2228173, at *1, 1 n. 1 (E.D. Cal. Feb. 24, 2023); see also Ryan Sabalow, Dale Kasler, Jimmy Tobias, and Emily Holden, "Trump's California water plan troubled federal biologists. They were sidelined," *The Guardian* (February 13, 2021), available at URL: https://www.theguardian.com/environment/2021/feb/13/california-water-trump-administration-endangered-species.

134 See Draft Supplement Report, supra note 99, at 1-4. *The pre-2019 baseline enables more direct comparison with the state's analysis of the expected impacts of potential "changes to to the Bay-Delta Plan to protect native fish and wildlife in the Sacramento River, Delta, and associated tributaries" in the 2017 Phase II Scientific Basis Report.* Id.; see also Phase II Scientific Basis Report, supra note 8.

135 Draft Staff Report, supra note 50, at 6-5.

136 Phase II Scientific Basis Report, supra note 8, at 1-2 to 1-5 (*explaining that "[t]he best available science . . . indicates that these [existing] requirements are insufficient to protect fish and wildlife" and "address only portions of the watershed"*); see also generally 1994 Proposed Rule, supra note 21; Water Quality Standards for Surface Waters of the Sacramento and San Joaquin Rivers, and San Francisco Bay and Delta, California; Final Rule, 60 Fed. Reg. 4663–4709, available at URL: https://www.govinfo.gov/content/pkg/FR-1995-01-24/html/95-817.htm.

137 See, e.g., Cal. Water Code § 85086 (*introduced by the Delta Reform Act of 2009, and requiring the State Water Board to "develop new flow criteria for the Delta ecosystem necessary to protect public trust resources…within nine months"*).

138 See note 8, supra.

139 See Term sheet, supra note 48, at 13–14.

140 See id.

141 See id. at 2, 3, 14–16 and Appendix 4.

142 See MOU and Term sheet, supra note 48, Appendix 1.

143 See generally sources cited supra notes 8 and 21.

144 MOU and Term sheet, supra note 48, at page 6 of the Term sheet and Appendix 2.

145 See MOU and Term sheet, supra note 48, Appendix 3 tables and additional and alternative commitments on pages 24 and 33 of the PDF.

146 Term sheet, supra note 48, at page 7 (*"The State Water Board will have authority to enforce the flow and non-flow measures relying on Water Code authorities, as provided in the Government Code Section 11415.60 Agreements."*).

147 MOU and Term sheet, supra note 48, at 43–44 of the pdf.

148 See 33 U.S.C. § 1313(c)(1).

149 See California Water Code §§ 13000, 13140, 13170, 13240–13247; see also State Water Resources Control Board, Porter-Cologne Water Quality Control Act: Water Code Division 7 and Related Sections (As amended, including Statutes 2022), available at URL: https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf.

150 See, e.g., Cal. Water Code § 13242; Corrected Water Rights Order 2008-0014, supra note 17, at 4–5, 20–22 (State Water Board Yuba decision).

151 See *United States v. State Water Resources Control Board* (*Racanelli*), 182 Cal. App. 3d 82, at 98, 119–120 (1986) (*"Once the Board establishes water quality objectives which ensure reasonable protection of beneficial uses (§ 13241), the Board has the added responsibility to complete the water quality control plan by preparing an implementation program to achieve the water quality objectives."*). *The Racanelli decision held that the 1978 Bay-Delta Plan (and the water right amendments the State Water Board simultaneously adopted through Water Rights Decision 1485 to implement it) focused too narrowly on protecting Delta water users' water rights only from the effects of construction and operation of the State Water Project and federal Central Valley Project and therefore failed to reasonably protect water uses in the Delta.* Id. at 115–116, 119–120 (*By "combining the water quality and water rights functions in a single proceeding . . , the Board compromised its important water quality role by defining its scope too narrowly in terms of [what it could accomplish by applying requirements to a particular set of] enforceable water rights. In fact, however, the Board's water quality obligations are not so limited."*).

152 *State Water Resources Control Board Cases*, 136 Cal. App. 4th 674, at 726–35 (2006).

153 Roger Fisher, William L. Ury, and Bruce Patton, *Getting to Yes: Negotiating Agreement Without Giving In* (2011).

154 See id. (*describing the importance of a strong Best Alternative to a Negotiated Agreement as a foundational element of negotiation strategy*).

155 See *State Water Resources Control Board Cases*, 136 Cal. App. 4th 674, at 690, 726–727 (2006) (*concluding that the State Water Board "was not entitled to implement alternate flow objectives agreed to by various interested parties in lieu of the flow objectives actually provided for in the 1995 Bay–Delta Plan" under Cal. Water Code § 13050(j), and that the State Water Board must include "the time schedule for the actions to be taken to achieve objectives in a water quality control plan . . . as part of the plan itself," as required by Cal. Water Code § 13242*).

156 See *United States v. State Water Resources Control Board*, 182 Cal. App. 3d 82 (1986) (*describing mandatory elements of water quality control plans and the authority that flows from those plans*).

157 See generally Owen, supra note 10 (*describing sources of negotiation space in environmental law implementation*).

158 See generally Farber, supra note 16 (*describing the frequency of "slippage" between legal requirements and actual outcomes*).

159 See, e.g., State Water Resources Control Board, Final Initial Biological Goals for the Lower San Joaquin River (September 2023), available at URL: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/2023-09-06-final-initial-biological-goals-reso.pdf; see also, e.g., Howard Letter, supra note 9, at 2 (*identifying the need for "measurable indicators" for "biological goals and habitat conditions . . . that will be used to evaluate success of the actions in achieving the objective"*).

160 *While the current MOU and Term Sheet appear to include both types of goals, they skew towards implementation action goals and often lack specificity. For example, the current Term Sheet proposes that the State Water Board adopt a new "Narrative Viability Objective" for native fish populations that mentions "population abundance, spatial extent, distribution, structure, genetic and life history diversity, and productivity" as "indicators of viability," but leaves selection of specific biological performance measures for the future.* Term Sheet, supra note 48, at 1–2 and Appendix 4.

161 *We use the term "scientific information" broadly here. It encompasses not just the products of peer-reviewed scientific studies, but also other information produced through studies and data-gathering by informed experts, as well as VA monitoring results.*

162 See, e.g., Nell Green Nylen, "To Achieve Biodiversity Goals, the New Forest Service Planning Rule Needs Effective Mandates for Best Available Science and Adaptive Management," 38 *Ecology Law Quarterly* 241, 280 (2011), available at URL: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2003977 (*suggesting that "[a] framework for flexible decision making should, at minimum, include mandates for both application of the best available scientific information and an adaptive management scheme that requires changed practices when management activities fail to [meet biological goals]" and that such a "framework would require analysis and synthesis of currently available and feasibly acquirable information to satisfy the first requirement and ongoing monitoring, data collection, and analysis, combined with frequent management reevaluation, to satisfy the second"*); see also, e.g., Holly Doremus, "The Purposes, Effects, and Future of the Endangered Species Act's Best Available Science Mandate," 34 *Environmental Law* 397, 437, 443–444 (2004).

163 *Parties to VAs—and other interested parties—are more likely to accept the legitimacy of VAs and VA implementation decisions if political / value judgements are clearly distinguished from scientific information and advice.* See Doremus, supra note 162, at 448.

164 Giorgos Kallis, Michael Kiparsky, and Richard Norgaard, "Collaborative governance and adaptive management: Lessons from California's CALFED Water Program," 12 *Environmental Science & Policy* 631, at 636 (2009), available at URL: https://doi.org/10.1016/j.envsci.2009.07.002.

165 Id.

166 See, e.g., Green Nylen, supra note 162, at 274–275.

167 See Kallis et al., supra note 164, at 636; Green Nylen, supra note 162, at 274.

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