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**Comments of the
Environmental Defense Fund
on the
Initial Draft Programmatic
Environmental Impact Statement/Environmental Impact Report
CALFED Bay-Delta Program
March 1998
State Clearinghouse Number 96032083**

June 30, 1998

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SUMMARY

On December 15, 1994, the Environmental Defense Fund (EDF), in the person of John W. Krautkraemer, signed the celebrated Bay/Delta Accord. Hoping to build upon the passage of the most important water policy reform legislation in American history, the Central Valley Project Improvement Act of 1992, EDF believed that the long-term planning aspect of the Accord – which led to the creation of the CALFED Bay/Delta Program – held great promise for a new era of cooperation among all entities, governmental and private, interested in the future of California's water resources.

Considerable progress has been made in the three and a half years since the Accord was originally signed. Significant progress has been made on defining and embarking upon the ambitious ecosystem restoration program that will be required if long-term stability is ever to be brought to California's water resources picture. Less progress, however, has been made in refocusing the CALFED agencies on a contemporary water management agenda that departs from the past's emphasis on building water projects – dams and canals – which have caused so many of the environmental problems that CALFED is now being asked to remedy. Such is the fundamental disappointment of the CALFED Draft EIS/EIR and, to a somewhat lesser extent, its Phase II Interim Report.

Since CALFED released the Draft EIS/EIR, CALFED's leadership, California Governor Pete Wilson, and U.S. Secretary of the Interior Bruce Babbitt, have announced that another "Final" Draft EIS/EIR will be released by CALFED later in 1998. Governor Wilson and Secretary Babbitt also have stated that the Final Draft EIS/EIR will contain a "preferred alternative" and that "assurances," "near-term stability," "financing/cost-share agreements," and "stakeholder involvement" will be key elements in CALFED's approach during the remainder of 1998. Contemporaneously with the skeletal release published by the Governor and the Secretary, CALFED staff has been working feverishly on a document that it has labeled "Draft: Developing a Draft Preferred Program Alternative." This document, already

released at least twice in somewhat different forms, has been described by CALFED "as work in progress, subject to frequent revisions."

This juxtaposition of a set of already obsolete documents published in March, but upon which formal comment is now being requested, with a fast-changing set of current documents under constant revision, for which "stakeholder involvement" is aggressively being sought, creates a difficult milieu in which to make a sensible commentary. This confusion notwithstanding, EDF sees no viable alternative other than to focus these comments on the formal Draft EIS/EIR, however obsolete or irrelevant such commentary may currently appear to be. (These comments, while they are intended to be as comprehensive as possible, certainly do not address all the salient issues in the Draft EIS/EIR and, in any event, are designed to complement those submitted by the Environmental Water Caucus to which EDF is a signatory.)

Separately, in writing and otherwise, EDF intends to participate actively in the development of the new final Draft EIS/EIR promised by the Governor and the Secretary. In support of that effort, our comments address the following key deficiencies in the March 1998 Draft EIS/EIR:

1. It fails to address the single most important factor in restoring and sustaining Bay-Delta ecosystem health, the total amount of water that can be extracted from the system; indeed, it improperly asserts the opposite, that significantly more water can be extracted from a severely-depleted system and then manipulated in a manner that results in net ecological benefits, as well as increased consumptive water supplies.

2. It fails to recognize that market-oriented alternatives can optimize the use of California's already extensively developed water management infrastructure in order to meet the needs of ecosystems and people at minimum long-term cost.

3. It fails to articulate a least-cost financial strategy that will pay for the common program elements, and it fails to establish who will be asked to pay for the many new dams and conveyance facilities that account for the majority of the program's projected capital costs.

4. It fails to emphasize the critical role that restored ecosystem health will have in securing and sustaining all other anticipated program benefits, and it fails to acknowledge the substantial water user benefits associated with an aggressively implemented ecosystem restoration program.

5. It fails to define legal, financial, operational, and hydrologic baselines (including comprehensive measurement of total water use and the basis for and quantification of its water supply reliability objective) that provide the foundation for a long-term agreement.

6. It fails to establish implementation mechanisms and performance criteria for the Ecosystem Restoration Program plan and other common program elements to assure that these programs actually will be implemented as promised.

It is apparent, therefore, that EDF believes the March 1998 Draft EIS/EIR to be defective both legally and as a template for sustainable water supply management as part of California's future.

The promised publication of a revised Draft EIS/EIR later this year, however, creates a new opportunity for CALFED to propose a program that will address the varied problems of ecosystem restoration, water supply reliability, water quality, and system integrity that are its core mission. In EDF's judgment, the restructured CALFED program and accompanying EIS/EIR should provide a foundation of protection for the Bay/Delta ecosystem by addressing both the damages already done by California's water projects to that ecosystem and the damages that continue to be visited upon it as a consequence of the continuing impoundment, regulation, depletion, diversion, export, and degradation of Bay-Delta ecosystem water supplies and habitat. This ecosystem repair program, coupled with improvements in water use efficiency and water quality, and in functioning water markets, would provide substantial benefits to both water users and the environment. Moreover, in EDF's judgment, such a program is legally required to protect the Bay-Delta's public trust resources and to meet the existing environmental mitigation obligations of those who benefit directly from Bay-Delta water development.

Similarly, sustained improvements in water supply reliability will only be achieved by restabilizing the ecosystem to stop its current decline and by shifting to a new system of water supply management. The new system should borrow a page from California's energy history: stop building publicly-subsidized, oversized, mega-projects based on inflated forecasts of need and scant consideration of either the financial or environmental costs and that will lead us towards future taxpayer bailouts for investing today in tomorrow's stranded assets; and rely instead on a flexible, dynamic, and cost-effective water allocation system that makes better use of our state's massive existing water development

infrastructure and which ensures that incremental infrastructure improvements will be undertaken only if they are cost-effective and sustain a return to ecosystem health.

The revised Draft EIS/EIR should, therefore, include at least the following important components as part of any preferred alternative that it may finally propose to adopt:

- explicit and comprehensive legal, financial, operational, and water flow measurement baselines which will serve as the foundation to which program resources will be added and upon which all subsequent progress will be measured;
- an ecosystem restoration program based on ecological principles and applied on a watershed scale, which caps water depletions and diversions at ecologically sustainable levels;
- sustained, sufficient, and reliable funding for the long-term ecosystem restoration program that includes user mitigation fees as a major component, that does not depend upon yearly appropriations, and that is based on an institutional framework whose objective is to secure and sustain Bay-Delta ecosystem health for the long-term benefit of all;
- performance measures for each of the common programs to assure that the intended results of the programs will, in fact, be achieved;
- a methodology for meeting water supply needs that makes optimum use of well-regulated but voluntary water transfers and of other market-oriented and operational mechanisms to maximize flexibility and value in the state's existing water storage and delivery system;
- a set of principles for investment in new infrastructure which would approve such investment only where it is economically and environmentally justified, where the beneficiaries of such investment commit to pay the full financial and environmental costs of that investment, and where future investments in ecosystem restoration are viewed as meeting part of a mitigation obligation that, for reasons both of equity and resource management integrity, should primarily be paid for by those who caused and/or are causing the environmental stresses sought to be mitigated.

With these as the basic building blocks of a framework for contemporary water supply management in California, EDF would support a version of the phased decision-making process that CALFED now seems to be developing, in which major commitments are made to progress on the common elements in CALFED's program, and in which decisions are deferred for at least 7 to 10 years on its controversial and, thus far, wholly unjustified storage and conveyance elements.

DETAILED COMMENTS

1. The Draft fails to address the single most important factor in restoring and sustaining Bay-Delta ecosystem health, the total amount of water that can be extracted from the system; indeed, it improperly asserts the opposite, that significantly more water can be extracted from a severely-depleted system and then manipulated in a manner that results in net ecological benefits, as well as increased consumptive water supplies.

The foundation of CALFED's analysis is its assertion that more water can be taken out of the system during certain peak flow periods with no or minimum ecological impact. It then asserts that this newly developed water can be stored, managed, and manipulated in such a manner that is consistent with the rehabilitation of extensive amounts of instream, wetland, riparian, floodplain, and estuarine habitats and the fish and wildlife populations that depend upon them. There is no credible analysis to support these assertions.

The record of water development over the last thirty years suggests that increased exports correlate strongly with decreasing populations of both estuarine and anadromous fish. Of nine well-known species, only the current population of the hatchery-dependent fall-run chinook salmon is more than 20% of its population thirty years ago. While many other factors have probably contributed to these declines, ocean harvest – often cited as a primary cause of the decline for salmon – cannot be an explanation for estuarine fish. Similarly, predation by striped bass does not provide a convincing reason for the fishery decline because large populations of striped bass coexisted with other species in the 1960s.

It is unknown how far we can push water development and restore the aquatic environment. CALFED should try to manage the system according to the best available information but recognize that our knowledge of complex ecosystem structure and function mechanisms is limited. CALFED should learn from the past few decades and not attempt to develop additional supplies for consumptive use until we are certain that our efforts toward restoration are progressing.

We have made substantial efforts to restore some of these populations through protective criteria within the Delta, as specified by the 1995 SWRCB Water Quality Control Plan (implementing the Bay-Delta Accord), and through instream flow criteria specified by the Central Valley Project Improvement Act (although many of those are now being litigated). It is too early to tell whether, or to what extent, these actions will accomplish restoration objectives. Of course, no comprehensive criteria

have even been adopted yet, much less implemented and evaluated, to protect spring-run chinook or to implement either the State's narrative objective for doubling natural production of salmon, or the federal obligation to achieve not less than a sustainable doubling in naturally-reproducing salmon and other species of anadromous fish.

Scientific Considerations Because flow interacts with geomorphology to create and maintain habitat in rivers and estuaries, increased cumulative depletions can be expected to have major ecological impacts on the Bay/Delta system, just as they have in other large estuarine systems.

Reduced flows have an immediate impact on the distribution of biota by changing salinity levels and altering flow-related currents and circulation patterns. For example, salinity changes have altered fish distributions in the Western Delta and San Pablo Bay (Ganssle, 1966; Herrgesell et al., 1981), and can result in mass mortality. Rising salinity in an estuary tends to shift the community structure from estuarine to marine species, with attendant impacts on native biodiversity and productivity. For example, a marine species of shrimp surpassed the native estuarine shrimp species in abundance after two years of low flows (Herrgesell, 1990). In addition, higher salinities have allowed more plankton-eating bivalves to colonize the highly productive Suisun Bay (Nichols, 1985; Alpine and Cloern, 1992), potentially reducing the amount of phytoplankton available to other consumer organisms. Disruption of flow-related currents affects the dispersal of shrimp (Herrgesell, 1990). Reduced availability of shrimp as a food source appears to be a factor in the reduced populations of sharks, skates, and rays observed in years of low flow (Herrgesell, 1990).

Major declines in populations of zooplankton, shrimp and fish in the Delta and Suisun Bay over the past two decades (Herbold et al., 1992) suggest they are responding to common stresses. Decreased freshwater flow due to drought and diversion plays a role, possibly through food web effects (Miller, 1991). The position of the entrapment zone, an area where currents interact to suspend algae, sediments, and small fish, is thought to be of critical importance. Algal productivity is highest when the entrapment zone is located in Suisun Bay because more light can penetrate the Bay's shallow shoal areas. Low or extremely high flows move the entrapment zone into the deep, narrow channels upstream and downstream of Suisun Bay, reducing algal productivity, with possible effects throughout the food web (Jassby and Powell, 1994). Low flows may also adversely affect productivity by reducing inflows of organic carbon carried into the system by rivers (Jassby et al., 1993)

No decision to increase cumulative depletions should be made without a credible analysis of this issue. The analysis should assess the possibility that ecosystem rehabilitation will require reduced, not greater, cumulative depletions than occur under the Existing Conditions baseline. The rehabilitation of

channel meandering, gravel recruitment and transport, floodplain inundation, riparian forest succession, and wetland accretion have all been deemed essential for achieving CALFED's goals. All of these critical processes have been severely curtailed as a result of floodplain encroachment and water development.

The analysis should also determine the risks of capturing peak flows and releasing them at other prescribed times. All of the key processes to be rehabilitated depend on the restoration of a more natural pattern and quantity of flow. Variability in flow is likely a key factor in maintaining the health and integrity of the system, particularly as floodplain and riparian habitats are restored. Capturing flood peaks and releasing flows during specified time periods may not adequately replicate the functions of natural flooding. Biotic communities are adapted to the specific timing, duration, and rate of rise and fall of the flood pulse. Other critical factors (e.g., temperatures, soil saturation, the distribution and abundance of organisms, biological cues, etc.) may naturally co-vary with flooding, and this covariance may be important for proper river functioning.

The analysis should determine the effects of additional depletions with and without the common programs. If depletions in high-flow periods are shown to be damaging, but judged less damaging than depletions during low-flow periods, then trading off one for the other must be seen as a mitigation measure, not an environmental benefit. Moreover, if adverse effects on listed species are involved, no such trade-off would be allowed (see below).

While the effects of additional depletions are being analyzed, the system should be managed, insofar as possible, in ways that mimic, albeit at a reduced scale, the functioning of a natural river/estuary system. Operations should move away from extensive micromanagement of flows except to the extent required to provide emergency life support to endangered species or to restore severely depleted flows during key periods. Over time, a more natural flow regime would be expected to benefit native species more than any regime contrived by humans, particularly as native species recover and biological diversity increases over time, due to the diversity of species' needs and the complexity of their interactions.

The Draft EIS/EIR should also acknowledge that the preliminary instream flow improvements which it analyzes will be revised as the ERPP is finalized, and as more knowledge is developed regarding individual species and life-stage needs, as well as the geohydrological needs of a restored Bay-Delta system. For example, the present flow objectives – 10-day pulse flows during either March or April/May in eight locations, and a 31-day Freeport pulse – appear not to even consider associated geohydrological needs. The revised draft EIS/EIR should consider and incorporate a range of flow

objectives based upon geohydrological as well as life-stage criteria (e.g., improved base and channel forming flows, floodplain restoration needs, short-duration and seasonal pulses, etc.). In addition, the present flow objectives are determined by the “chunky” year type criteria, under which a small change in hydrologic forecast can trigger a very large change in target flows. Recent criteria, including most measures specified by the CVPIA or WQCP, use a continuous or sliding scale to determine flow objectives; the revised Draft EIS/EIR should do the same. Finally, the Draft EIS/EIR appears to suggest that no supplemental ecosystem flows are needed in critical years. This is either an error or, if not, an assumption that must be expressly stated and justified given the very significant depletions and impacts which occur during all such years.

Legal/Policy Considerations From a legal perspective, there are two fundamental CEQA/NEPA flaws in the Water Storage assumptions that underlie all of the alternatives analyses (see attachment 1).

First, the assumption that diversions can be increased without significant adverse impacts has not been analyzed in CEQA/NEPA terms. (See the discussion above.) The Phase II Report concedes this when it states that:

“[t]he validity and appropriate role for the “time value of water” concept in California water management have not been fully discussed within the broader stakeholder and scientific communities. Additional work remains to identify and resolve controversy related to the concept, determine specific parameters (flow rates and timing), and scientifically evaluate potential effects of this approach.” (Phase II report, p. 33.)

Second, given the presence of state and federally listed species, the impacts of the alternatives must be analyzed in terms of “jeopardy” to ESA listed species. The Phase II report asserts that the benefits of peak flow diversions to be stored for later use is to be made in comparative terms, not in absolute terms:

“Diversions would need to be made according to criteria ensuring that the environmental impacts of diversion during wet periods were less than the subsequent environmental benefits of releasing some of this water during critical periods.”

Under the requirements of the state and federal Endangered Species Acts, impacts on listed species cannot be offset by some notion of “net benefit” to the overall aquatic environment. Rather, impacts must

be measured in terms of whether or not any particular action would result in jeopardy to a specific listed species, even though there might be some "net" overall benefit to the system, at least in relative terms.

In short, there are many significant unresolved questions inherent in the Water Storage analysis, and there is no comparison of water storage options with other means of providing more reliable water supplies and/or improved instream flows. Yet Water Storage is proposed as the main vehicle for attaining at least two of the program goals: water supply reliability (through the provision of a "new" source of water) and ecosystem quality (because water storage is proposed as a vehicle for lessening the significant effects of increased water depletions). Therefore, water storage needs to be analyzed as one element of a much broader analysis of "water supply management options."

The "water supply management options" analysis in the re-circulated Draft EIR/EIS should address at least the following key questions.

- The environmental document needs to compare carefully the feasibility, cost, and both operational and geographic flexibility of water storage options, with other options for facilitating and assuring ERPP implementation, as well as increased water supply reliability, including but not limited to water efficiency investments, water transfers and direct acquisitions, acquisition reserves, water banking, purchase of existing dams, optimized use/improved coordination of existing surface and groundwater storage capacity, comprehensive groundwater management and expanded conjunctive use, wet-meadow and floodplain restoration.
- The revised document should analyze the impacts of diverting wet period flows. This analysis should use commonly-accepted ecological risk assessment methodology, incorporate current scientific knowledge, and outline future issues that must be addressed and resolved prior to a final decision on any water storage element. In addition, the analysis should assess whether wet season flows can be diverted in a manner consistent with implementing the ERPP, and in a manner that supports the goal of recovery of listed species.
- The Phase II report states that "... [p]roposed storage ranges from zero to 6 MAF in all three alternatives. Accordingly, the overall effects of the storage and release is very similar between the alternatives" (page 105). But the difference between zero and 6 MAF is very substantial,

potentially providing enough incremental storage capacity to capture from 10-100 percent of remaining Delta inflow (page 13). CALFED's estimate of existing storage capacity – "more than 25 MAF (page 63) – also appears to be limited to the approximately 30 "major" storage dams within the Central Valley watershed, and significantly understates the total amount of storage capacity currently available, both above- and below-ground, throughout the CALFED "solution" area. The revised Draft EIR/EIS therefore should examine not only how much additional peak period flow (if any) can be safely diverted consistent with restoration of the ecosystem and with the needs of listed species, but also analyze whether this is consistent with the assertion that there is no difference between zero and 6 MAF. In turn, because the current Alternatives Analysis assumes (at last potentially) the high end of storage in every instance, the results of this analysis should be factored back into the analysis of the three Alternatives currently in the document.

- The revised document must also analyze the potential ecosystem benefits associated with each such alternative, such as sustaining and/or improving natural flow variability, reducing depletions, diversions, exports, entrainment, reverse flows, and associated energy use, and preserving the flexibility needed to adapt and respond to changing conditions over time.

From a public policy perspective, analyzing the two major issues discussed here – determining the best "whole-system" approach to providing reliable water supplies and analyzing the total amount of water that can be safely diverted from the Bay/Delta system (and where, and when) – is a prerequisite to making any irreversible decision regarding California's long-term water future.

2. The Draft fails to recognize that market-oriented alternatives can optimize the use of California's already extensively developed water management infrastructure in order to meet the needs of ecosystems and people at minimum long-term cost.

In sharp contrast to CALFED's extensive analysis of potential water storage opportunities, the Draft EIS/EIR includes only a cursory analysis and description of CALFED's water transfer element. Indeed, CALFED's near-dismissal of the unrealized potential for supplemental water acquisitions as a crucial component of the Ecosystem Restoration Program (and as a more appropriate, flexible, dynamic, and cost-effective option for helping to meet ecosystem needs over time) can be found on page 51 of the

Phase II Interim Report. There, water purchases from willing sellers in quantities sufficient to support "increased flows" of 100,00 to 300,000 AF/year (i.e., from zero to approximately 500,000 acre feet depending on year type) are described as "unprecedented" in scale, even though a hastily-formed 1991 State Drought Water Bank secured from willing sellers more than twice that amount – more than 800,000 acre feet – albeit for the express benefit of consumptive water users. (This is not to say that the Drought Water Bank was without problems – clearly it had many – but only that the claim that the assessed level of purchases is "unprecedented" is one that appears to better serve a pre-determined conclusion than to reflect actual recent experience.)

What the Draft does provide is a preliminary overview of CALFED's still-evolving Water Transfer element (see Water Use Efficiency Component Technical Appendix, pages 7-1 through 7-18 et. seq.). Our specific comments on the Initial Program Recommendations (page 7-15) are as follows:

1. Avoid impacts to local environments, groundwater resources, and community economies whenever possible, and provide necessary mitigation where impacts are unavoidable.

(Note: the proposed solution includes a locally or regionally governed water management process, such as a water transfer information clearinghouse, to ensure adequate data collection, baseline analysis, public disclosure, public participation, monitoring, and cumulative impact analysis.)

- The clearinghouse function will only be as useful as the data which informs it. Current information gaps include metering and/or measurement of all significant uses of surface and groundwater throughout the state. A comprehensive and binding baseline water budget is long overdue and remains critical to the development and long-term success of a viable water market, conjunctive use operations, etc.
- Not all economic impacts can, or perhaps even should, be mitigated as part of a market-based approach. Moreover, in today's agricultural economy, it is likely that market-related instabilities will be greater as a result of national and global factors than as a consequence of specific water transfer proposals. Seen in this context, water transfers – appropriately structured and regulated – might actually be used as a kind of "insurance policy" that helps farmers and farm communities to diversify their risk against other market and non-market related instabilities (e.g., commodity price fluctuations, weather, climate change, etc.).

- What CALFED can, should, and must do in its revised Draft EIS/EIR is to attempt to resolve the controversy over transfer-related community economic impacts by articulating, in detail, a package of proposed financial mitigations and regulatory assurances that will meaningfully address potential third-, fourth-, and even n-th party impacts, and within which transfers and direct acquisitions can proceed relatively unfettered. Insofar as possible, such a package should be affirmative in scope (i.e., tied to baseline water use, as well as the movement of water at the margin), as well as transitional (i.e., provided in a manner that facilitates economic diversification and development today where problems already exist – problems that have nothing to do with market-based transfers or acquisitions).
- As part of one such alternative, EDF proposes that community-based economic development and transitional assistance funds derived from baseline water depletion surcharges, water pollution fees, and water transfer assessments be targeted to and overseen by farmworker organizations and/or other community groups who have yet to receive their fair share of the historic subsidy benefits associated with prior water development.

2. Adopt and implement uniform, integrated rules and criteria for the processing and approval of water transfers, including rules for access to storage and conveyance facilities.

- Transfers will work best within a comprehensive framework of integrated surface and groundwater management. (Comprehensive does not necessarily mean uniform – see below.) Unfortunately, such a comprehensive framework does not currently exist – it should, and must, be a top CALFED priority.
- Uniform rules may not always make sense. For example, transfers of "conserved water" derived from imported supplies may be different (from a "no injury" perspective) from transfers of conserved water derived from area-of-origin supplies; transfers of stored water for instream purposes (e.g., securing fish-friendly re-operation of stored supplies that will not otherwise be consumed but for which a lawful basis for transfer nonetheless exists) will be different from transfers of stored water to consumptive purposes (which will tend to result in increased diversions and depletions); transfers of water used in drainage problem areas

will have different water quality and economic implications than transfers from other parts of the valley; etc.). What's needed are rules that are "uniform enough" but appropriately sensitive to regional differences, ideally by watershed boundary.

- Water transfers must be designed to work within a robust and comprehensive water use baseline to ensure that increased demands or depletions in one area (e.g., resulting from diversion or export of acquired supplies to offstream consumptive uses) will be offset, or more than offset, by decreased demands or depletions in another (presumably the "source" area). Similarly, if water is acquired (i.e., "re-acquired") for instream purposes, it should be done within a legal, accounting, and management framework which assures that the resulting flow improvements will be above baseline levels, and either protected from re-diversion or paid for (reimbursed) by those who benefit from such diversion.
- The inherent conflict between the interests of individual water users and water districts should be resolved in favor of the end user of water, where the economic decision relating to water use is made, in conjunction with a comprehensive package of community-based regulatory authorities that observe public participation and transitional mitigation, especially for historically under-represented communities.

3. Recognize the need for adequate flexibility and capacity in Delta channels and conveyance facilities so that transferred water can be moved across the Delta efficiently and effectively.

- Very little thought appears to have been given in the Draft EIS/EIR to anything but north-south transfers (i.e., from the Sacramento Valley to any/all points south-of-Delta). Yet according to DWR, agricultural surface water applications in the San Joaquin, Tulare, and Colorado River regions average nearly three times the level of agricultural surface water applications in the Sacramento Valley (15.0 MAF/year vs. 5.4 MAF/year), and more than twice the North Valley level during dry years (12.2 MAF/year vs. 5.8 MAF/year). The revised Draft EIS/EIR should evaluate the potential for solving south-of-Delta water management problems with already-developed south-of-Delta water, thereby avoiding any need for increased above-baseline exports.

- The asserted need for "efficient and effective" conveyance of transferred water through the Delta appears to discount the potential for increased reliability benefits based on significant but known carriage flow requirements (i.e., simply knowing what the rules are in advance). It also discounts the potential for increased environmental benefits assuming, for example, that incremental increases in baseline Delta outflow are a fixed requirement of thru-Delta transfers. It also discounts the potential costs and risks associated with an isolated thru-Delta conveyance (e.g., what if the largest fish screen in the world doesn't work?). Thus, the Draft fails to examine the potential for "efficient and effective" north-south transfers using a standard incremental export-inflow ratio of 35 percent (i.e., 65 percent of each acre foot acquired for transfer upstream would automatically improve both baseline Delta outflow and baseline export supplies).
- These and other non-facility based options should be explored in the revised Draft EIS/EIR, in conjunction with a well-defined baseline export "cap" (i.e., total AF/year), varying by year type, at current (existing condition) or lower levels. Above-baseline exports would then be allowed only in conjunction with acquired (transferred) supplies and pursuant to a joint-benefit formula such as that described above. The pre-transfer export cap would also be reduced for each acre foot of increased upstream depletion due to the exercise of area of origin rights or other rights senior to export supplies.
- It should be noted that the assumed "No Action" increase in exports of more than 1.2 MAF/year will tie up an equal amount of capacity that would otherwise be available for transfers. The revised Draft EIS/EIR analysis should include a "No Action" scenario that caps exports at not greater than existing condition levels.

4. Develop and submit recommendations to forums outside the CALFED process on additional water transfer policy or legislative needs (e.g., protections for water rights, instream flows, groundwater levels, and third party economies).

- Perhaps the single most important step that CALFED could take to ensure both efficient and effective development of a statewide water market would be to confirm that, as part of its

financial strategy, no new public subsidies will be available to facilitate the development of any new surface water storage or Delta conveyance facility. Only at that point will the true alternative costs and benefits of proposed water transfers (as well as numerous other cost-effective water efficiency investments) be clear.

- CALFED's revised Draft EIS/EIR should also assess and disclose the inherent devaluation that new subsidized surface water development will impose on existing rights and supplies.
- As discussed in section 1, the Ecosystem Restoration Program plan must include clear objectives and measurable performance criteria relating to market-based environmental water acquisitions as a component of the Water Transfer element. These include, but are not limited to: (1) provision of secure, sufficient, and reliable funds to meet all ERPP, AFRP, and other flow-related objectives that are not provided through regulation within a ten-year implementation period; (2) establishment of a public-private institution whose fundamental purpose is to acquire, hold, and manage environmental water supplies and habitat in support of the ERPP and related ecosystem objectives; (3) attainment of all required CVPIA refuge water supply increments on a permanent acquisition basis; and (4) purchase and retirement of not less than 75,000 acres of drainage problem lands, and/or implementation of performance-based drainage trading programs that will achieve equivalent source reduction benefits.

It is important to note that asserted difficulties in implementing market- and community-based transfers and acquisitions (as opposed to new dams) should not be used to attempt to justify the latter. Only a market- or regulation-based (as opposed to structural) approach can serve to reduce cumulative depletions, for example, and only those tools and mechanisms can provide the kind of dynamism that will be needed as we learn more about how to "bring back from the brink" a large number of listed aquatic species under an "adaptive management" framework that all parties embrace. Adaptive management also means potentially more water for the ecosystem, not simply a fixed amount or less. Each of these issues must be addressed in the revised draft EIS/EIR.

3. The Draft fails to articulate a least-cost financial strategy that will pay for the common program elements, and it fails to establish who will be asked to pay for the many new dams and conveyance facilities that account for the majority of the program's projected capital costs.

A critical shortcoming of the Draft EIS/EIR is its failure to provide a detailed financial analysis of each of its component parts and to articulate, in precise terms, who will be asked to pay for what as part of a final CALFED solution. Also missing entirely is any financial "feedback" analysis, i.e., how the final cost allocation assignment can be expected to affect the viability of alternative demand-side or efficiency investments, market-oriented options, or even the financial viability of the very facilities that are, it seems, the focus of CALFED's programmatic analysis. A detailed financial assessment, including all relevant data and assumptions that are material to the eventual allocation of costs, as well as a detailed cost-allocation framework and equitable financing principles which take due account of the extensive baseline investment in water development infrastructure that has resulted in the problems that CALFED is trying to address, must be included in the revised Draft EIS/EIR.

Attached herewith for the record is a copy of EDF's May 12, 1998 prepared testimony before the U.S. House of Representatives on "Financing the Bay-Delta Solution"(attachment 2). Pages 5-6 of that statement describe CALFED's "work in progress" relating to the so-called "Beneficiaries Pay" principle – a proposal which appears to offer promise from a variety of points of view; and pages 8-9 offer EDF's core recommendations for a long-term, cost-allocation approach which will help to ensure that, at long last, the true costs of developing and using the public's water – financial and environmental, involving both ongoing impacts and newly-developed supplies – are fully internalized in future water prices and paid for by the direct beneficiaries of those investments. This, we believe, should be a top CALFED priority.

4. The Draft fails to emphasize the critical role that restored ecosystem health will have in securing and sustaining all other anticipated program benefits, and it fails to acknowledge the substantial water user benefits associated with an aggressively implemented ecosystem restoration program.

The Bay/Delta ecosystem is in a downward spiral, shown most dramatically by the continued listing of additional endangered species. In order to reverse this decline and re-stabilize the system – and to avoid new legal restrictions on water use – substantial investment is required. Much of CALFED's

proposed Ecosystem Restoration Program, as well as the smaller restoration projects already undertaken with state and federal funds, is designed to provide this stability. Similarly, major efforts by water users to avoid the adverse effects of pollution and minimize the adverse effects of water diversions are required to comply with the numerous federal and state laws. In short, the public money currently being spent on ecosystem restoration, water quality improvements, and water use efficiency improvements provide significant benefits not only to the ecosystem, but to the water user community as well.

The Bay Delta Program asserts that the ERPP is not "mitigation" for impacts of past and present activities on the Bay Delta ecosystem. However, current water management activities clearly have ongoing impacts on the aquatic habitat of listed fish species, as well as direct mortality from entrainment. According to the Phase II Interim Report:

"Direct and indirect effects of the existing State and federal water projects are thought to be important, perhaps critical, factors in the decline and endangerment of some fish species."
(page 139) (also see listing of "aspects of the current problem" on page 139)

The ERPP documents summarize both the loss of aquatic habitat required to maintain endangered species and the historic decline in natural freshwater flows into the Delta over time. The Endangered Species Act listing decisions, including currently proposed listings, are indicative of consequences of the decline in Bay-Delta aquatic habitat functions, as well as changes in freshwater flows. Accordingly, Endangered Species Act requirements (as well as Clean Water Act requirements) generated the current Bay Delta standards, which effectively limit current withdrawals of water from the system for water supply purposes. Further declines of currently-listed species, as well as future listings, may result in additional restrictions in the future.

It is clear that the ERPP will, if implemented, have the effect of "mitigating" (a) the impacts of the loss of aquatic and associated riparian/wetland habitat that has already occurred, and (b) the impacts of both past and continuing water withdrawals for non-habitat uses. In addition, both the habitat restoration projects already funded and an ambitious package of improvements in both ecosystem habitat and water supplies will, no doubt, be necessary to sustain a "no jeopardy" finding for ESA-listed species. In short, water flow and habitat improvements are both a form of mitigation for the past and present impacts of water development as well as an insurance policy against future water use restrictions. The public money expended on such improvements thus provides a direct benefit -- and another public subsidy -- to individual water user beneficiaries.

Similarly, the federal Clean Water Act, the state Porter-Cologne Act, and potentially the Endangered Species Act each require improvements in water quality to benefit either endangered species specifically or beneficial uses of water more generally. Paying for these improvements is the responsibility of both pollution dischargers and the same water users affected by the pumping restrictions discussed above. Minimizing water withdrawals, and its complement, improving water use efficiency, are additional mechanisms to meet legal restrictions established not only in the Endangered Species Act but in the Central Valley Project Improvement Act and other authorities as well. As a result, both the Water Quality and Water Use Efficiency components of the CALFED program provide substantial direct benefits to water users by helping to meet existing legal obligations.

The Water Supply Reliability section of the Alternatives Descriptions document states that a major Bay Delta Program goal is to ease the limitations imposed by the current Bay Delta standards:

“Improvements in ecosystem quality should lead to healthier species populations, reduced constraints on water diversions and associated improvements in water supply reliability”

Whatever the merits of this particular definition of water supply reliability, we offer the following comment. In our view, achieving recovery of the endangered species adversely affected by Delta withdrawals (as promised by the ERPP) is a prerequisite for considering "reduced constraints on water diversions." Given the fact that the Bay/Delta ecosystem currently is extremely stressed (consider, for example, that all of the runs of salmon are currently endangered or proposed for listing as endangered), achieving recovery is the only method by which we can be reasonably confident that these species will continue to exist at sustainable levels. While the possibility remains that additional indicators of ecosystem health might be used to improve our confidence in the significance of species improvements short of recovery, these indicators are not currently available. If the ERPP is implemented and achieves recovery of species, and if reduced constraints on water diversions result, then the ERPP will have provided yet another benefit – after a substantial investment of public funds – to water users. (We note, however, that any effects of future diversions that reduce ecosystem quality and function would have to be offset by “compensatory mitigation” under CEQA, and potentially under the state and federal Endangered Species Acts.)

5. The Draft fails to define legal, financial, operational, and hydrologic baselines (including comprehensive measurement of total water use and the basis for and quantification of its water supply reliability objective) that provide the foundation for a long-term agreement.

A central lesson, that hopefully everyone can agree on, of California's water development history is that no water "solution" will last unless everyone agrees to the rules up front. Given a finite supply of water, a comprehensive set of baseline rules must be established that encompass all water uses and limitations. Without such rules, water users will continue to seek ways to increase their share of this limited resource, at the inevitable expense of other water users or, more likely, the environment. Such a shift in relative benefits and obligations, occurring outside of the CALFED process, will undermine support for, and the durability of, any CALFED solution.

The need for explicit legal, financial, and water measurement baselines has been brought up by EDF in a variety of public meetings over the past two years. EDF's comments on the State Water Resource Control Board's Draft EIR for Implementing the Bay-Delta WQCP summarize these views (see attachment 5).

The Draft EIS/EIR fails to analyze or define meaningful strategies to address any number of problems that have been used to justify constructing and subsidizing prior water project developments. (For example, while the state and federal projects were each justified in part to address groundwater overdraft problems in the San Joaquin Valley, neither project required groundwater metering nor any meaningful limitation on increased acreage as a condition for the provision of newly-imported surface water supplies. Thus, today, CALFED appears to be contemplating a third generation of water project development, justified in part to address alleged continuing San Joaquin Valley groundwater overdraft problems, but still without a required program to address the groundwater side of the equation.)

The Draft also fails to analyze the extent or adequacy of any prior unmet water user mitigation obligations, including those required by law as an outgrowth of Fish and Wildlife Coordination Act consultations undertaken for authorized federal projects since at least the 1950's.

In this context, the Draft also fails to provide a meaningful definition of "water supply reliability." Yet its water supply reliability objective is to "reduce the mismatch between available supplies and current and projected beneficial uses" – an objective that will be impossible to achieve without a precise definition of each element of the underlying equation, presumably based on a probabilistic assessment of all Bay-Delta inflows and outflows – i.e., a comprehensive surface and groundwater budget, both baseline and proposed.

Instead, the Draft draws upon the substantially flawed assumptions and methods which underlie the California Department of Water Resources' Draft Bulletin 160-98 Report. (See, e.g., EWC's Draft EIS/EIR comments on the Water Use Efficiency component.) We would only re-emphasize here that the

Draft EIS/EIR will perpetuate, build upon, and perhaps even make worse the problems inherent in the 160-98 Draft because it relies upon that Draft to a very significant extent for its baseline and projected water use/demand assessments. And because of that reliance, CALFED should consider the Draft Bulletin 160-98 public comment record to be part of the public comment record on the Draft EIS/EIR. We direct your particular attention to comments submitted by EDF [on behalf of others], the Pacific Institute, the Mono Lake Committee, and Friends of the River, and to the ongoing analysis and critiques of the California Legislature Reference Bureau.

The Draft also implements flawed assumptions of its own, including an assumed "No Action" increase in south-of Delta exports (deliveries) over Existing Condition levels of 700,000-1,200,000 AF/year (Draft EIS/EIR page 2-6). This can hardly be called a "no action" baseline.

To address these and related problems, a truly "durable" and "comprehensive" CALFED solution must include meaningful and comprehensive surface and groundwater management, comprehensive measurement and metering, a finite water-depletion budget, and a robust and protective ecosystem baseline.

6. The Draft fails to establish implementation mechanisms and performance criteria for the Ecosystem Restoration Program plan and other common program elements to assure that these programs actually will be implemented as promised.

CALFED assumes that the "common programs" (most importantly, the ERPP and a market-based transfer and acquisition program) will be implemented, but does not provide the strategy or the tools to implement them, relying instead on an assorted collection of volunteer efforts with few incentives for cooperation. (Construction of the proposed new storage and conveyance facilities, in contrast, are not dependent upon voluntary concurrence by affected citizens.) The schedule for completion of critical elements is also missing. Moreover, as a practical matter, performance criteria that measure actual improvements in ecosystem health, water use efficiency, and water quality should be developed and linked to benefits for all parties. In short, the lack of a feasible implementation plan invalidates the legal foundation of any decision that is based on the assumption that common programs will be implemented, including both construction of storage and conveyance features and assertions of program-level compliance with a variety of state and federal laws.

One of the most obvious missing elements in the CALFED program description is a realistic implementation plan for the ERPP, including both the timetable and the requisite tools. In the latter

category, for example, major elements of the ERPP are contingent upon voluntary sale of land and water rights, but no indication is given regarding the funds needed, how these funds will be assured in the long term, or how the feasibility of such acquisitions can be assured, whether directly, through backstop regulatory assurances, or other appropriate contingencies.

Knowing the general timing of implementation of various elements of the ERPP is important for several reasons. First, other parts of the CALFED program – other elements of the ERPP, elements of other common programs, and storage and conveyance alternatives – are dependent upon their implementation. Second, ERPP implementation is dependent upon implementation of other CALFED components. For instance, certain types of habitat restoration may not be feasible without assured water supplies to maintain salinity levels, sediment movement, and nutrient cycling. Alternative mechanisms to provide this water supply (e.g., water acquisitions and/or regulatory action, in addition to the new surface storage already included in the Draft EIS/EIR) should be assessed with respect to their cost, flexibility, dynamic response capability, related ecosystem and socio-economic impacts (adverse and beneficial), overall feasibility, and the lead time required to implement them. Until these and related considerations are factored in, it is not possible to assess adequately the environmental impacts of the current range of Storage or Conveyance Alternatives examined in the Draft.

Accordingly, both the tools and the timing of ERPP implementation must be fully articulated in the revised Draft EIR/EIS – in part to be able to understand what is necessary to carry out the ERPP – and in part because implementation of the ERPP is essential to attaining other goals specified for the program. Accordingly, the alternatives analyses should include:

(a) Timing and feasibility of acquiring private lands required for habitat restoration purposes (including both the availability of funds and likely availability of willing sellers);

(b) Timing and feasibility of water supply acquisition (see Phase II Interim Report statement at p. 52 that “[f]urther assessment is needed of the flows required for ecosystem restoration and the variety of options to obtain these flows (including new storage, reoperation of existing storage and changes in diversion patterns, transfers, and regulatory measures);”

(c) Implications of potential water supply limitations on the feasibility of restoring specific habitat types;

(d) The possibility that the “habitat relocation” proposals set forth in the current Phase II Interim Report Alternatives 1, 2 and 3 may preclude implementation of portions of the habitat restoration program set forth in the ERPP, either until the proposed conveyance decision is made or, in some cases, completely;

(e) Implications of salinity changes described in the current Phase II Report Alternatives analysis (e.g. maps on p. 112 and 114 -- Alternative 2 would improve (reduce) salinity by up to about 45% at some locations in the north and central Delta, while Alternative 3 would result in better conditions in the central Delta, but would reduce quality (increase salinity) by up to 80% in the eastern Delta;

(f) Implications of lack of certainty for implementing water supply/water temperature objectives as set forth in the ERPP Vision documents for fish species recovery goals (see below).

(g) Implications of partial implementation of the ERPP (for instance, if the ERPP were only partially implemented, one of the Program Alternatives might be the preferred alternative when it might not be the preferred alternative under a full ERPP implementation scenario).

The lack of a feasible implementation plan for the ERPP is symptomatic of a larger problem. CALFED has consistently assumed that provision of a plan, a funding stream, and an institutional setting in which to spend the money will be sufficient to justify making long-term promises regarding compliance with environmental laws, increasing water diversions, and constructing conveyance facilities. It's EDF's experience, however, that plans get changed, money disappears, and institutions get hijacked, so that the CALFED formula does not meet its own test of being durable through time. In order to create that durability, EDF has recommended for two years that performance criteria be developed for each of the common programs to determine whether the promised results of the program actually have been achieved. The achievement of the performance criteria for different programs can then be linked so that benefits accrue at the same rate for all stakeholders. This provides an incentive for all parties to support continued implementation of the program. While some efforts towards providing those performance measures have been made, they have been underfunded and slow to produce results. (The development of ecological indicators is a case in point. Additional discussion of performance criteria in general and recommendations for specific ecological indicators are provided in Attachments 3 and 4, respectively.)

The discussion above, while presented in general terms, has particular implications for Endangered Species Act compliance. According to Volume II of the ERPP:

"The ERPP will be an important, if not major, component in the successful implementation of recovery measures for species listed under either the State or Federal ESAs. For example, many of the targets and programmatic actions listed later in this section are derived from existing recovery plans. Two plans of major importance include the Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes (USFWS 1996) and the

NMFS Proposed Recovery Plan for the Sacramento River Winter-run Chinook Salmon (NMFS 1997)" (Volume II of the ERPP, p.143)."

With respect to the Recovery Plan for Sacramento-San Joaquin Delta Native Fishes, the ERPP states:

"The goals, strategies for recovery, and programmatic actions presented in the [recovery] plan have been included in the ERPP. The [recovery] plan includes targets for populations, habitat restoration, structural changes, and Delta outflow to the Bay that have been included in the ERPP. Suitable placement of the 2 parts per thousand isohaline is key to providing adequate shallow water habitat for delta smelt, longfin smelt, and splittail."

As indicated in the summary of the ESA Recovery Plan and in the ERPP, adequate and timely streamflow is essential to the recovery of listed fish species. The following is a list of topics reviewed in the two ERPP volumes and in the Phase II Interim Report that highlight the critical interrelationship between adequate water supply for ERPP purposes and the functions of aquatic habitat affecting ESA listed species:

- Timing of water supply during normal years
- Water supply levels during critical drought years
- Spring "pulse" needs for fisheries
- Water supply to maintain natural processes: e.g. sediment, nutrient movement
- Directional flow requirements for migratory species - change in directional flows induced by export pumping
- Location of X2/brackish water

(Note that timing and water supply levels are critical issues for the ERPP in all year types, varying by location, time of year, level of existing depletion/development, etc. At present, for example, cumulative depletions average almost 50% of total unimpaired runoff across all year types -- more than 70% in drier years -- while seasonal hydrographs have been significantly modified in virtually all seasons of all year types.)

As Volume II of the ERPP states: "Improving late-winter and spring freshwater flows through the Delta and reducing losses to diversions are essential to the recovery of salmon." Thus, the ability of the

ERPP to assure adequate and timely streamflows is critical to the habitat requirements of several ESA-listed species.

However, other Bay-Delta program elements could have significant implications for the water flow needs of the ERPP, with consequent impacts on the recovery of ESA listed fish species. The Phase II Interim Report further states (at p. 52):

“There are differing views on the likely success of restoring habitat in leading to recovery of fish populations without significant reductions in diversion effects at the export facilities and the restoration of natural delta flow patterns.”

Given the stated intent to achieve recovery of several ESA listed fish species and the current listing proposal for additional chinook salmon runs, the revised EIR/EIS analysis should carefully analyze the content, feasibility, and timing of specific ERPP measures intended to carry out the recommendations of the recovery plans, including:

- Point-by-point analysis of the Native Fishes Recovery Plan showing precisely how the ERPP addresses each element of the Recovery Plan;
- Analysis of the current EIR/EIS Alternatives (including salinity effects and X-2 locational differences) in terms of how the Alternatives affect “suitable placement of the 2 parts per thousand isohaline” that is “key to providing adequate shallow water habitat” for the Delta native fishes per the Recovery Plan;
- Point-by-point analysis of all elements of the draft Proposed Recovery Plan for the Sacramento River Winter-Run Chinook Salmon to assess the effectiveness of ERPP measures in attaining recovery;
- Analysis of the proposed rule for the listing of other runs of the Chinook Salmon to assess the effectiveness of ERPP measures in attaining recovery;

- Analysis of the timing of ERPP measures in relation to: (a) the recovery objectives stated in the ERPP for specific listed species and (b) the performance criteria or indicators that will be used to assure that recovery has actually been achieved;
- Substantiation for the assertion that recovery could be achieved prior to full implementation of the ERPP, assuming that such an assertion is actually being made;
- Further analysis of the statement in the Phase II Interim Report that “ERPP alone may not provide for the recovery of listed species; recovery rates of listed species will also be influenced by the selected water storage and conveyance features”;
- Detailed analysis of each of the issues identified at pp. 145-146 of the Phase II Interim Report to be addressed by an independent science review panel, including an analysis of the panel’s assessment and conclusions regarding each issue.

Finally, the revised Draft EIR/EIS should consider the environmental implications of implementing the ERPP fully before any decision is made on the conveyance or storage elements contained in all of the three Program Alternatives. In addition, the analysis should identify the point in the ERPP implementation program that ESA listed species goals would be attained, thereby creating an environmental assessment framework for determining, at some point in the future, which, if any, of the current EIR/EIS alternatives are acceptable.

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Attachments

1. *Analysis of CALFED Bay-Delta Draft Programmatic EIS/EIR and Endangered Species Act Issues* – Memorandum Report to EDF by Mr. William M. Boyd, June 30, 1998
2. *Financing the Bay-Delta Solution* – Prepared statement of David Yardas, EDF, before the Water and Power Resources Subcommittee, Committee on Resources, U.S. House of Representative, May 12, 1998
3. *Conceptual Framework for Indicator Development: Key Ecological Attributes for the San Francisco Bay-Delta Watershed* – T. Young, R. Fujita, S. Birk, D. Morrison, A. Pawly, and P. Rhoads, April 13, 1998
4. *Regarding the BDAC Work Group Assurances Proposal* – Joint Environmental Comments submitted to the CALFED Bay-Delta Program, March 3, 1998
5. *Regarding the Draft EIR for Implementing the 1995 Bay-Delta WQCP* – comments of EDF to the State Water Resources Control Board, April 1, 1998.

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