

**STATEMENT OF THE URBAN COALITION REGARDING THE
KEY ISSUES IDENTIFIED FOR THE MAY 16, 1994 WORKSHOP
OF THE STATE WATER RESOURCES CONTROL BOARD**

The northern, southern, and central coast urban water agencies who have participated in these workshops as an urban coalition¹ provide the bulk of the water which is supplied to urban areas in California from the Bay/Delta watershed. They join together to present these comments in response to the "key issues" identified for the May 16, 1994 workshop of the State Water Resources Control Board (State Board).

1. **WHAT ARE THE PRINCIPAL ESA ISSUES THE STATE BOARD SHOULD CONSIDER DURING THIS REVIEW?**

Pursuant to this key issue, the State Board asks whether it should develop specific standards for the protection of endangered species. It also requests the participants to provide the most recent information on the status of both endangered species and species being considered for protection under the Endangered Species Act (ESA). The urban coalition has several recommendations to make regarding this key issue.

¹ The coalition is an informal group of urban water agencies that serve communities throughout the Northern, Southern, and Central Coast areas of the State. It is comprised of the following: the Alameda County Water District, the Central Coast Water Authority, the Coachella Valley Water District, the Municipal Water District of Orange County, the Metropolitan Water District of Southern California, the Public Utilities Commission of the City and County of San Francisco, the San Diego County Water Authority, and the Santa Clara Valley Water District.

Recommendation: The State Board should not adopt requirements contained in the Biological Opinions for listed species.

The urban coalition recommends that the State Board not adopt specific standards for species listed pursuant to the ESA. Particularly, the State Board should not adopt standards that are based on the biological opinions developed by the National Marine Fisheries Service (NMFS) for the winter-run chinook salmon or by the United States Fish and Wildlife Service (USFWS) for the delta smelt. The federal ESA requirements were developed in a procedure quite different than the State Board is pursuing under the Porter-Cologne Act.

Under the ESA, the fisheries agencies are required to prevent jeopardy and work toward the recovery of listed species, a goal that often requires extraordinary and narrowly focused actions. Those extraordinary protections are now in place through the Biological Opinions and Reasonable and Prudent Alternatives. The State Board's focus, on the other hand, is to conserve and protect a broad range of species once they have recovered to a stable level by providing protective habitat conditions in the Bay/Delta watershed in general.

Thus, while both USFWS's and NMFS's Biological Opinions focus narrowly on the protection of a single species, the State Board is required to develop an integrated plan which will provide the highest level of protection reasonably attainable for the range of beneficial uses in the Bay/Delta Estuary.

Recommendation: A multi-species approach should be used to develop protection for listed and non-listed species.

The members of the urban coalition believe that the State Board should not attempt to develop specific standards for the protection of the winter-run chinook salmon, the delta smelt or other species which may be listed in the future. Indeed, the coalition believes that, in the course of carrying out its responsibility to develop standards that reasonably protect beneficial uses, the State Board should avoid a species-by-species approach to standards.

A species-by-species approach is self-defeating where the requirements of the various species of concern may be in conflict. Thus, for example, while establishing a rigorous outflow requirement may improve the abundance of some species of concern, by depleting upstream storage, such a regime may also have an adverse effect upon the other species which need cooler water provided by the storage. Similarly, the development of

objectives intended to improve the abundance of certain sport fisheries, such as striped bass, may have the unintended effect of increasing the predation of certain endangered or threatened species such as winter-run chinook salmon or delta smelt.

Further, the species-by-species approach fails to address the water quality requirements for all beneficial uses and therefore would be in derogation of the State Board's obligations pursuant to the planning and balancing requirements of the Porter-Cologne Act.

Because an effort to develop species-specific standards may result in conflicts between species, the urban coalition suggests the State Board adopt a different approach. That approach would focus on the development of standards intended to protect a multiplicity of species -- whether listed or not.

Recommendation: The State Board should adopt the estuarine habitat standard offered by the urban coalition.

The urban coalition has already proposed the adoption of an estuarine habitat standard which measures compliance by placement of the average position of a 2 part per thousand (2-ppt) salinity gradient or providing the flow equivalent: (1) at the confluence of the Sacramento and San Joaquin rivers for a majority of the

time during most hydrologic conditions; and (2) downstream of Chipps Island for periods of time that would vary, depending upon hydrologic conditions. (See statement of the urban coalition to the State Board, dated April 26, 1994; see also the comments of the urban coalition to the Environmental Protection Agency [EPA], dated February 11, 1994.) Meeting the proposed standard at Chipps Island places the entrapment zone adjacent to the shallow-water habitat of the Suisun-Honker-Grizzly Bay portion of the Estuary, thus providing protective habitat conditions. Meeting the standard at the confluence of the Sacramento and San Joaquin rivers, in turn, would facilitate movement of eggs, larvae and juveniles of many aquatic species through the Delta, thus avoiding predation in the Delta's narrow open channels and diminishing diversion and entrainment losses at agricultural and industrial facilities and water project intakes.

Further, the estuarine habitat standard proposed by the urban coalition is completely compatible with State action taken to regulate the other factors affecting the Bay/Delta aquatic environment including pollution, unscreened diversions, overfishing, poaching, and the introduction of exotic species. In order to maximize the reasonable and beneficial use of water, the State Board must coordinate the flow and non-flow elements of its program with any requirements imposed under the ESA to the greatest degree possible.

Recommendation: The State Board should address the other factors that affect or potentially affect listed species.

Water diversion is only one of the many factors affecting the well-being of the Estuary's listed species. According to the Department of Fish and Game (CDFG) and NMFS, other factors which affect listed species include introductions of exotic organisms, toxic substances discharged into the Estuary, predation, possible overfishing, and unscreened diversions.²

The urban coalition believes that the effort to protect listed species should include, to the maximum extent possible, the exercise of the State Board's jurisdiction over these other factors. For example, the State Board should develop a plan to identify and control those sources of pollution that affect the abundance of listed species, and should include that plan in any submittal it makes to EPA. With respect to those other factors, such as poaching or over-fishing, where the State Board lacks direct regulatory authority, the State Board should nonetheless undertake an evaluation of appropriate regulatory measures and make corresponding recommendations to the agencies which do exercise direct regulatory authority.

² CDFG, A Status Review of Delta Smelt in California. May 1993; final rule listing the winter-run chinook salmon, 55 Federal Register pp. 46515 et seq.

Finally, as we have emphasized above, where other factors exist that are unrelated to the operations of the water projects that serve the needs of urban California, the State Board should not attempt to compel the projects to mitigate the adverse effects of these other factors. Indeed, the urban coalition strongly believes that it would be unlawful for the State Board to do so. Moreover, to the extent the exercise of regulatory control over these other factors results in improvement of estuarine habitat conditions, the State Board should be prepared to reconsider and revise the standards applicable to Bay/Delta watershed diverters.

2. WHAT ARE THE EFFECTS OF DIVERSIONS THROUGHOUT THE BAY/DELTA ESTUARY ON BENEFICIAL USES?

Major water projects, as well as the cumulative impact of small diversions, have negatively affected beneficial uses, including fisheries and drinking water quality in the Estuary. The State Board should take particular notice of the impact of small, often unscreened, diversions from the Delta and its watershed.

The diversion of water for use within the Bay/Delta Estuary and in export areas has unquestionably had a significant impact on aquatic beneficial uses, and the State Board must act to ameliorate those impacts. In the past, the State Board has attempted to do so by focusing almost exclusively on regulating the State and Federal water projects.

Recommendation: While the impacts of the State Water Project (SWP) and Central Valley Project (CVP) obviously cannot be ignored (the estuarine habitat alternative we have proposed is intended to apply, in part, to the two major projects), the urban coalition strongly believes the State Board now should more aggressively control the cumulative impact of small diversions, often for irrigation, from the Delta and its watershed. The impacts of these small but collectively very significant diversions take the form of

reduced flow, entrainment of fish, and the discharge of harmful pollutants.

Magnitude of the problem

The cumulative impact of small-scale diversions from the Delta and its tributaries is enormous. There are over 1,800 unscreened diversions within the Delta; the majority provide irrigation for agriculture on the Delta's islands. The cumulative volume of consumptive use within the Delta is approximately 1 million acre-feet per year, with total diversions at a rate of between 2,000 and 5,000 cubic-feet per second (cfs) during the active irrigation season³. This rate of extraction is comparable to the pumping rate of the CVP's Tracy Pumping Plant. In addition to the unscreened diversions within the Delta, there are also more than 300 unscreened municipal, agricultural, and industrial diversions on the Sacramento River between Redding and Sacramento that divert an additional 1.2 million acre-feet of water annually that would otherwise flow into the estuary. Furthermore, there are approximately 150 unscreened diversions along the San Joaquin River upstream of the Delta.

Although a portion of the water diverted by individual users returns to the Delta through percolation or direct discharge of return flows from Delta islands, a significant proportion is

³ Brown, R.L. 1983. Screening agricultural diversions in the Sacramento - San Joaquin Delta. File report, DWR Environmental Services Office, Sacramento.

consumptively used, and the timing of the flow is altered. In addition, the return flows often contain high levels of pollutants, including trihalomethane (THM) precursors. The State Board also should examine the impact of spikes of high concentrated pesticides carried by rainfall runoff from orchards.

Reduced Flow

The State Board should consider the cumulative impact of the numerous small diversions from the Delta and its tributaries when it attempts to equitably apportion the obligations created by any flow-related standards. In Draft D-1630, for example, the State Board required diverters pumping at or above a specific cfs-level to cease their pumping during the release of required "pulse flows."

Similar measures to address the flow-related impacts of such small diversions should be employed to apportion the responsibility for meeting any flow-related requirements the State Board may adopt following the present workshop. While there currently is little data on the timing and magnitude of return flows and their cumulative impact on freshwater outflow, the urban coalition hopes to provide such information prior to the close of hearings on draft standards developed by the State Board.

Impacts of unscreened diversions

As discussed above, in-Delta and upstream diverters pump a large amount of water through unscreened diversions, the cumulative impact of which is comparable to the impact of the Tracy Pumping Plant. The impact of the large numbers of unscreened agricultural, municipal, and industrial diversions has been recognized for over 20 years.

Although only small amounts of data exist on fish entrainment from unscreened diversions, studies from the 1970's established that large numbers of egg and larval striped bass and significant numbers of chinook salmon were entrained by agricultural diversions in the Sacramento system⁴. The California Resources Agency in 1993 estimated an annual loss of 10 million juvenile salmonids, a proportion of which are winter-run chinook⁵. More recent studies, including ongoing research at the Department of Water Resources (DWR), confirm the continuation of large-scale entrainment⁶. Approach velocities of a typical delta siphon are approximately 6 to 7 feet-per-second, more than 20 times faster than criteria developed for the protection of

⁴ Allen, D.H. 1975. Loss of striped bass (*Morone saxatilis*) eggs and young through small, agricultural diversions in the Sacramento - San Joaquin Delta. CDFG Anadromous Fish Br. Admin. Rep. No. 75-3.

Anon. 1976. Irrigation diversion study synopsis. USFWS File Report. Division of Ecological Services, Sacramento.

⁵ USDC National Marine Fisheries Service. 1993. Endangered and threatened species; screening of water diversions to protect Sacramento River winter-run chinook salmon. Federal Register 58 (199):pp. 53703-53704.

⁶ Spaar, S. 1994. Delta agricultural diversion evaluation, 1992 pilot study. Interagency Ecological Studies program Technical Report 37.

ESA-listed species. These high approach velocities place any nearby fish at significant risk of entrainment.

Recent data concerning the delta smelt further illustrate the problem related to in-Delta diversions⁷. Recent sampling data suggest spawning populations of delta smelt are residing in the interior Delta, where they are more vulnerable to entrainment by unscreened diversions.

These facts regarding unscreened diversions have not gone unnoticed by the federal government. In October 1993, the National Marine Fisheries Service published a notice in the Federal Register soliciting comments on contemplated regulations requiring screening of diversions in the Sacramento River and Delta to protect juvenile winter-run chinook salmon.

The urban coalition strongly urges the State Board to address the increasingly well-documented issue of unscreened Delta diversions. The technology currently exists for simple, modular, self-cleaning screening devices that could be employed at a reasonable cost. The State, through the State Board and the Department of Fish and Game, has the authority to impose

⁷ Anon. 1994. Delta egg and larval entrainment study, larval delta smelt catch data (Southern and Central Delta). DWR Environmental Services Office, Sacramento.

screening requirements, and the urban coalition urges the exercise of that authority.

Recommendation: Pollutants from agricultural drainage into the Delta harms the beneficial uses of the Delta's waters, including fisheries uses and drinking water quality, and should be regulated and controlled.

Fisheries: Recent studies demonstrate convincingly that agricultural pesticides cause direct and significant impacts on striped bass and other fish species in the Delta⁸. One recent study, for example, shows that "pooling" rice-field runoff containing herbicides before it is released into the streams, induces photo-degradation which reduces pathologies (tumors) in young striped bass by about fifty percent. The State Board should thus consider controlling toxic discharges in the watershed to promote fisheries development.

Drinking water quality: Because the Delta supplies drinking water to over 20 million citizens, drinking water quality issues in the Delta should have a very high priority. The members of the urban coalition are concerned that an intensive focus on

⁸ Bennett, W.A. 1993 Interaction of food limitation, predation and anthropogenic interventions on larval striped bass in the San Francisco Estuary. Ph.D. dissertation. University of California, Davis.
Saiki, M.K., M.R. Jennings and R.H. Wiedmeyer. 1992. Toxicity of agricultural subsurface drainwater from the San Joaquin Valley, California, to juvenile chinook salmon and striped bass. Trans. Amer. Soc. 121:78-93. [WRINT-USFWS-12]

salinity intrusion alone may overlook the need to address the impacts of in-Delta "non-salinity" water quality degradation.

Toxic discharge from various locations in the Bay/Delta watershed, both agricultural and industrial, directly impairs water quality and profoundly affects the use of water for domestic consumption. For example, a large number of point-source dischargers introduce chemical pollutants through irrigation drainage "pumped-back" into the Delta. These discharges include compounds that, when treated for public health purposes, create trihalomethane (THM), an agent that is believed to cause cancer at certain concentrations in drinking water.

"Dilution is not the solution": The urban agencies believe that the use of freshwater releases to dilute these discharges is an inefficient and wasteful method of responding to these water quality problems. Instead, the State Board should treat these pollutants as point-source discharges and adopt policies that focus on these point discharges.

Past State Board Action: As part of its 1991 Water Quality Control Plan for salinity, the State Board instructed the Central Valley Regional Board to require development and implementation of best management practices or other means to appropriately control harmful discharges. To date, however, the Regional Board

has taken no action in response to this directive, although DWR is continuing to produce data describing the water quality problem⁹. We strongly urge the State Board to direct the Central Valley Regional Board to implement the earlier directive appearing in the 1991 Plan.

Recent drinking water quality regulation developments: The Federal government continues to develop regulations regarding drinking water quality. The Environmental Protection Agency has now issued draft regulations that would require major water utilities to conduct extensive monitoring for microbial contaminants and by-products of disinfection. In addition, EPA appears likely to propose draft revisions to the THM regulations in the summer of 1994, which will lower the permissible THM levels in drinking water from their current level of 100 parts-per-billion (ppb) in the first stage to an expected level of 80 ppb.

The prospect of more stringent regulation by the federal government highlights how vital it is for the State Board to take aggressive regulatory action to reduce the discharge of contaminants in the Bay/Delta watershed. To date, implementation

⁹ Annual Report of the Municipal Water Quality Investigations Program, Summary of Monitoring Results, January 1990-December 1990, February 1993.

of the limited regulation that the State Board has taken is notably lacking.

3. WHAT METHODS SHOULD THE STATE BOARD USE TO ANALYZE THE WATER SUPPLY AND ENVIRONMENTAL EFFECTS OF ALTERNATIVE STANDARDS?

DWRSIM is currently only adequate to analyze gross water supply impacts.

DWRSIM was constructed to model the operations of the State and Federal water project facilities and has adequately served that purpose. Other facilities and projects that affect Delta hydrology are incorporated into DWRSIM as either "fixed" nodes or a portion of the depletions or accretions within the model's river segments. This modeling limitation results in the water supply impacts associated with alternative Bay-Delta standards only being measured in terms of impacts to the two projects.

As a consequence, although reasonably adequate to initially assess the gross water supply impacts of certain Bay-Delta standards, DWRSIM cannot adequately assess the water supply impacts that potentially will occur with respect to parties other than the CVP and SWP. This circumstance makes it difficult to balance between and among competing beneficial uses. For instance, the water supply impacts associated with non-State and Federal Water Project outflow or pulse-flow requirements from both the Sacramento and San Joaquin rivers cannot currently be assessed with DWRSIM. Therefore, revisions to DWRSIM, or new

models should be promptly developed to provide information upon which to more effectively balance Bay-Delta standards.

There are also questions regarding the validity of some of the "fixed" hydrology within DWRSIM. Particularly in need of validation is the assumed hydrology for the San Joaquin River and Sacramento basin tributaries. Changes to operations affecting San Joaquin River operations (e.g. wetlands management and subsequent drainage) or Sacramento River operations (e.g. revised instream flows on the tributaries and changing agricultural practices) have potentially altered the flow and quality regime of the rivers from that currently assumed in DWRSIM. The water supply impacts of potential San Joaquin River water quality standards cannot be adequately assessed without a valid depiction of the current environment.

In addition, the current modeling capabilities of DWRSIM cannot assess water supply impacts necessary to comply with certain proposed water quality standards while at the same time complying with resource management requirements. An example is the impact of compliance with a proposed salinity standard in the central and south Delta at the same time that the Delta Cross Channel Gates are closed for the protection of migrating salmon smolt or striped bass. This type of conflict among competing management objectives must be assessed, as well as a means by

which to identify the water supply impacts developed. Currently, DWRSIM analyses appear to recognize, but are unable to resolve the conflict.

The State Board should consider the use of additional models to assess water supply and biological impacts of alternative Bay-Delta standards.

DWR is reevaluating its modeling capabilities and several parties to the Bay-Delta proceedings have also created models which are capable of attempting to analyze the biological and water supply impacts of alternative actions. Certain phenomena can only be evaluated on a basis more refined than the "average monthly" approach. Where appropriate, these models should be employed to address the hydrodynamic and biological impacts of proposed standards and alternative methods of implementation.

The State Board should use caution when using biological models to explain "cause and effect relationships."

The urban coalition believes that caution should be used when considering the use of models to explain biological responses to physical or chemical factors. Most biological models in the Bay/Delta use statistical regression techniques to analyze historical fish sampling data along with physical or chemical factors. This regression is then used to act as a surrogate to explain some "cause and effect relationship".

However, the State Board must take caution when interpreting single factor biological models to explain multiple factor "cause and effect relationships." It is important to remember that biological models are just tools and should not be the end point in any decision. Models should be used to help the decision makers understand the nature of relationships but in the end only reasoned, informed logic should be the final determinant in any decision.

The State Board should support and foster a technical work group to identify, evaluate, and recommend appropriate methods and tools that will identify biological effects and water supply impacts associated with alternative Bay-Delta standards.

The technical modeling group forum of the past Bay-Delta proceedings served as a useful vehicle to disseminate information, initiate critical review and reach conclusions regarding modeling. The urban coalition strongly supports this type of effort.

Water supply impact analyses must ultimately go beyond identifying "across the board" impacts.

Each water purveyor is somewhat unique in its circumstance regarding water supplies and impacts associated with proposed Bay-Delta standards. A comment made by numerous entities at the close of the D-1630 proceedings was the State Board's limited

analyses that grossly lumped various water users together when assessing potential impacts on those users. This gross approach can only provide very rough estimates of impacts for use in the near-term but, is an inadequate basis on which to base non-project participation.

Impact analysis must go beyond water supply impacts.

The water supply impacts associated with proposed Bay-Delta standards is just the initial indicator of impacts. The State Board must also assess the economic, social and environmental impacts caused by Bay-Delta standards on the service areas of the potentially affected entities. This aspect of analyses will require the State Board to reach out and gain knowledge of the service areas potentially affected by a State Board decision. Several of the urban entities have been actively involved in various studies that identify the economic, social and environmental consequences of water shortage. They look forward to technical exchanges with State Board staff regarding this work.

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