To promote the economic, social and environmental viability of Northern California by enhancing and preserving the water rights, supplies and water quality of our members.

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Re: Water-Supply Impacts of Draft Strategic Plan

Dear Chairman Isenberg and Delta Vision Task Force Members:

As the Northern California Water Association, the City of Folsom, the City of Roseville San Juan Water District and Sacramento Suburban Water District have expressed in their prior comments to the Task Force, we are all extremely concerned about the potential impact that implementing the Task Force's proposed Delta flow proposals would have on the Sacramento Valley's water supplies. The third draft of the Delta Vision strategic plan exacerbates these concerns because it proposes the implementation of various streamflow requirements, but contains no analysis of those proposals' water-supply impacts.

To provide the Task Force with such an analysis – which we believe to be absolutely critical and which is commonly conducted in water-project EIR's – we commissioned the enclosed analysis by MBK Engineers. MBK's engineers have extensive hydrological-modeling experience and have testified in the State Water Resources Control Board's Bay-Delta hearings. MBK estimated the water demands of the following three strategic plan proposals, making certain assumptions due to the proposals' lack of detail:

(1) "[A]llow the Yolo Bypass to flood at least 60 days continuously between January and April every other year except critical dry years" (third draft strategic plan, pp. 46-47);

(2) "In the spring, .provide a minimum of 10% increase of unimpaired runoff in most years, with highest percentage increases in drier years. Wet years generally will require no increase" (third draft strategic plan, p. 50); and

(3) "In the fall following below normal, above normal, and wet years, the requirements should provide two months between August and November with Delta outflows of 12,000 to 18,000 cubic feet per second" (third draft strategic plan, p. 50).

As MBK's memorandum explains, implementing just these three proposals would reallocate hundreds of thousands to millions of acre-feet of water annually from Delta-watershed water users to Delta ecosystem restoration. The third draft strategic plan proposes that the State attempt to order these reallocations without paying any compensation to upstream water users. (See third draft strategic plan, p. 15.) In short, while the draft strategic plan proposes that a peripheral canal be built to benefit Delta exporters, it contemplates, in essence, taking water needed to provide this south of Delta reliability from those in the areas of origin; and, in the process, nullifying billions of dollars that the communities of the Sacramento and San Joaquin Valleys have invested based on their very senior water rights Implementing the draft strategic plan's flow proposals therefore would defeat the Task Force's co-equal objective of "reliable water supply for California."

MBK's analysis confirms our concerns about the draft strategic plan and reaffirms our position that the plan's flow proposals are not scientifically supported nor are they consistent with California law. Contrary to the Task Force's Executive Director's suggestion that Delta-watershed interests deny that reasonable use and public trust principles are part of California water law,[1] we certainly recognize that Article X, section two, of the California Constitution – the "reasonable use" provision – and the public trust are the law of California. This recognition, however, does not equate to agreement with the patch work legal analysis that is being relied upon by Delta Vision. NCWA, in particular, has requested that the Task Force convene a panel of water attorneys from various interests – Delta-watershed communities, export interests, environmental groups and the State – to explain those interests' positions about what these principles mean and the ways in which those interests have used cooperative arrangements to avoid years-long and resource-intensive litigation over those principles. Our understanding is that the Task Force's management has decided not to convene such a panel.

Rather than ignoring reasonable use and public trust principles, our concerns reflect another long-established principle of California water law, namely that Delta-watershed communities must be protected in the face of Delta exports. The Legislature's enactment of

[1]Beginning at approximately 4:46 of the webcast of the Task Force's August 21, 2008, the Executive Director stated: "We've been receiving very consistent advice that California's water rights system does include reasonable use and public trust principles . . . That said, there are those, you must know, and again it's no surprise, who say that, if this document [the strategic plan] mentions those terms, they will oppose whatever comes in, that seems to be their position . . . ."

statutes reflecting this principle was crucial to obtaining northern California's consent to the construction of the Central Valley Project and the State Water Project. As the Court of Appeal stated in its first Delta water quality decision, "Watershed or area-of-origin protective legislation was enacted during the formative years of the projects in order to alleviate the fear of Northern California interests that local water supplies would become depleted." (*United States v. State Water Resources Control Bd.* (1986) 182 Cal.App.3d 82, 138.)

The Task Force's Chairman summarized the area-of-origin laws well in a 1992 memorandum to the Sacramento County Board of Supervisors (copy enclosed, emphasis added):

- The principal purpose of the federal Central Valley Project was to export Sacramento River water to the San Joaquin Valley for agriculture. Fortunately for us, the Sacramento Valley legislators at the time objected to the project unless the Sacramento Valley (the area where the water originates) was given the right to use this water if it was needed in the future.

- In 1933, the state authorized the Central Valley Project and enacted what are now known as the "area of origin" laws, which give the Sacramento Valley original rights to the water. The primary section of these laws (Water Code Section 11460) declares that the export project shall not deprive the area of origin directly or indirectly of the prior right to all the exported water that is needed to supply the beneficial uses of the water within the area of origin . . .

- When the State Water Project (Oroville Dam) was built in the 1960s, . the area of origin laws clearly applied to it – there was no legal uncertainty.

If local studies show that our future water supplies are not sufficient, it's clear that we should exercise our area of origin rights.

We agree wholeheartedly with this description of the area of origin laws by Mr. Isenberg. The concern that animated his 1992 memorandum now animates our concern about the Task Force's draft strategic plan. The needs of the Delta watershed must not be sacrificed. The Task Force must ensure that its final strategic plan respects the great statewide compromise that allowed the Central Valley Project and the State Water Project to be built, a compromise that explicitly protected our region's ability to use the water that originates here to meet our needs.

Sincerely yours,

NORTHERN CALIFORNIA WATER ASSOC

By: _____
L. Ryan Broddrick
NCWA Executive Director

SAN JUAN WATER DISTRICT

By: Shauna Lorance
Shauna Lorance
General Manager

CITY OF FOLSOM

By: _____
Kenneth Payne
Utilities Director

SACRAMENTO SUBURBAN WATER DISTRICT

By: _____
Robert Roscoe
General Manager

CITY OF ROSEVILLE

By: _____
Derrick Whitehead
Environmental Utilities Director

Cc (w/encl.): Ms. Linda Adams, California Environmental Protection Agency
Mr. Dale E. Bonner, Secretary, California Business, Transportation and Housing Agency
Mr. Mike Chrisman, California Resources Agency
Mr. A.G. Kawamura, Secretary, California Department of Food and Agriculture
Mr. Michael R. Peevey, President, California Public Utilities Commission
Mr. Lester Snow, Director, California Department of Water Resources
Mr. John Moffat, Deputy Legislative Director, Office of the Governor

Phillip Isenberg ASSEMBLYMAN, TENTH DISTRICT
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ELECTIONS, REAPPORTIONMENT
CONSTITUTIONAL AMENDMENT
HEALTH
JUDICIARY
REVENUE & TAXATION
WATER, PARKS & WILDLIFE

March 10, 1992

TO: Sacramento County Board of Supervisors
Sacramento City Council

FR: Phil Isenberg

RE: Future water source for Sacramento

I've enclosed a letter that should be of more than passing interest to you. It outlines a significant opportunity to assist in resolving Sacramento's water supply problems, if additional water is needed, at a relatively cheap price.

First, a little background:

- The principal purpose of the federal Central Valley Project (as proposed in 1920) was to export Sacramento River water to the San Joaquin Valley for agriculture. Fortunately for us, the Sacramento Valley legislators at the time objected to the project unless the Sacramento Valley (the area where the water originates) was given the right to use this water if it was needed in the future.

- In 1933, the state authorized the Central Valley Project and enacted what are now known as the "area of origin" laws, which give the Sacramento Valley original rights to the water. The primary section of these laws (Water Code Section 11460) declares that the export project shall not deprive the area of origin directly or indirectly of the prior right to all the exported water that is needed to supply the beneficial uses of water within the area of origin. This means that a public agency may, at any time, enter into a contract with the export agency for a supply of water.

- The federal government's lawyers claim that the area of origin laws do not apply to the CVP because the project was built by the federal government and not the state. On the other hand, the federal government has usually not wanted a fight with the area of origin, so it negotiates a solution. (As an aside, I

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disagree strongly with the fed's interpretation; the fed's water comes from a water right issued by the state, so it's clear that they are subject to state area of origin laws.)

- When the State Water Project (Oroville Dam) was built in the 1960s, however, the area of origin laws clearly applied to it -- there was no legal uncertainty.

I should note that no one in the Sacramento Valley (public agency or person) has ever asked the Department of Water Resources for a water supply contract for Oroville water under area of origin laws. So I asked the director of DWR, David Kennedy, how one would go about applying for water from the project. My letter and his response are attached. To summarize his response, Mr. Kennedy said that his department would enter into a contract, as required by law, and the price would be about $20.27 per acre-foot.

You might recall that the Bureau of Reclamation, five years ago, estimated the cost of firm water from Auburn Dam at between $178 and $240 per acre-foot. Some experts thought these figures were too low because the bureau greatly over-estimated what anyone would pay for electricity (if electricity earns less, then water users would have to pay more to make up the difference).

If local studies show that our future water supplies are not sufficient, it's clear that we should exercise our area of origin rights. It certainly would be our least expensive option.

If you'd like more information on this issue, please call me.

cc: Bill Edgar
Butch Hodgkins

MBK ENGINEERS

Water Resources • Flood Control • Water Rights

MEMORANDUM

DATE: September 10, 2008

TO: L. Ryan Broddrick, Northern California Water Association

FROM: Dan Easton

SUBJECT: Delta Vision – Evaluation of System Water Demands

In accordance with your request, we have evaluated the potential system water demands of the third draft of the Delta Vision Strategic Plan (Draft Strategic Plan). Several mechanisms for restoring Delta habitat were discussed in the Draft Strategic Plan. The focus of this memorandum is to quantify the water demands above existing operations of three habitat restoration elements. The three elements are:

1) "Increase inter-annual inundation frequency on the Yolo Bypass ... [by implementing] the necessary infrastructure and operational modifications to allow the Yolo Bypass to flood at least 60 days continuously between January and April every other year except during critical years."

2) "In the spring ... provide a minimum increase of 10% of unimpaired runoff in most years, with the highest percentage increases in drier years."

3) "In the fall following below normal, above normal, and wet years, the [Delta outflow] requirements should provide two months between August and November with Delta Outflows of 12,000 to 18,000 cubic feet per second."

Because the Draft Strategic Plan contains few details about these proposals' implementation, we made several assumptions and evaluated water demand under low and high bookend scenarios for each habitat restoration element. Table 1 summarizes the annual average demand above existing flows by year type classification. It is important to note that the system-wide impacts of meeting the Delta Vision habitat restoration water demands were not quantified in this analysis. However, as will be discussed in the remainder of this document, the timing of the demands – prior to and during droughts – could be significant.

Table 1 Summary Table of Annual Average Delta Vision Water Demands

Year Type Classification	Wet	Above Normal	Below Normal	Dry	Critical
Annual Average Yolo Bypass Inundation Demand (acre-feet)					
Scenario A (revised Fremont Weir + pumps)	0	49,000	189,000	260,000	0
Scenario B (current Fremont Weir)	540,000	1,443,000	1,879,000	3,267,000	0
Annual Average Spring Delta Outflow Increase Demand (acre-feet)					
Scenario C (10% all years)	59,000	120,000	130,000	104,000	132,000
Scenario D (10% wet years-25% critical years)	59,000	120,000	203,000	238,000	357,000
Annual Average Fall Delta Outflow Requirement Demand (acre-feet)					
Scenario E (12,000 cfs all years)	497,000	841,000	772,000	0	0
Scenario F (12,000 cfs below normal-18,000 cfs wet)	1,110,000	1,189,000	772,000	0	0

Basis of Calculation

Our evaluation of the restoration demands is based on simulation output from CalSim CACMP Version 9. CalSim is a planning model developed for the Central Valley Project (CVP) and State Water Project (SWP). The model simulates project operations and the underlying hydrology at a monthly time step over an 82 year historical period (1921-2002) with a superimposed level of development. For these calculations, an existing level of development (2005) was assumed.

For each of the elements analyzed, it was first determined whether existing operations as defined by the baseline CalSim results were sufficient to meet the proposed Draft Strategic Plan criteria in any given month of the 82 year simulation. In months that additional upstream releases would be required, the size of those releases – an increase in system demand – was quantified. It is important to note that the additional demand may not result in a direct water supply impact. The cumulative impacts to project operations have not been simulated. It is possible that in some years high flows in following months would refill any storage deficit caused by the Delta Vision criteria prior to a reduction in water supply. It is also possible that the "hole" created by the proposed action may result in less carryover storage and impact water supply availability in subsequent years. Furthermore, the impact of each Delta Vision element was considered separately. There is potential that a release for Yolo Bypass inundation could also meet the increased spring Delta outflow requirements, and that was not considered in this estimate. The Draft Strategic Plan does not provide sufficient detail to determine the extent of the possible overlap. Lastly, no transportation costs such as seepage or evaporation nor potential changes in Delta water quality and how that may effect project operations were considered in this analysis.

Element 1: Yolo Bypass Inundation

The Draft Strategic Plan does not provide key details for the Yolo Bypass inundation plan necessary for quantification of water demand. For instance, the minimum Yolo Bypass flow necessary for beneficial inundation was not specified. A minimum flow of 5,000 cfs was mentioned in supporting documents.[1] Also, proposed changes in infrastructure for providing the inundation flow were unmentioned. In some work related to the Bay Delta Conservation Plan, scenarios were analyzed where Fremont Weir was modified so that an upstream flow of 35,000 cfs would be sufficient to push 5,000 cfs into the bypass. Currently, upstream flows must exceed 62,000 cfs to initiate spills over Fremont Weir into the Yolo Bypass.

While it was not likely intended by the Delta Vision Task Force, one potential scenario would be to reroute 5,000 cfs of existing Sacramento River flow through the Yolo Bypass. This would require no additional release from upstream reservoirs however it would reduce flows in the Sacramento River between the Freemont Weir and Cache Slough by 5,000 cfs. It is unknown how this would be done, but the reduction to Sacramento River flow downstream of the diversion would at times be a significant fraction of existing flow. Since this was not likely intended by the task force, we will not discuss it further except to mention that it represents the absolute minimum increase in upstream releases.

To address the uncertainty regarding the details of the inundation plan, bookend estimates of the releases necessary for Element 1 are provided. For each estimate, it is assumed that a minimum flow of 5,000 cfs is needed to inundate the bypass. The assumptions common to each estimate are:

- Beneficial inundation requires a minimum of 5,000 cfs flow in the bypass over a two month period from January to April.
- Inundation must occur every other year except critical years as defined by the 40-30-30 Sacramento Basin index.
- In any year that inundation is required, selection of the two month inundation period is made to minimize water supply impacts.

Scenario A: Low estimate

- Fremont Weir is modified so that spills into the Yolo Bypass start when Sacramento River flows reach 30,000 cfs, rather than 62,000 cfs.
- The minimum inundation flow of 5,000 cfs will spill over Fremont Weir into the Yolo Bypass when Sacramento River flows reach 35,000 cfs.
- If Sacramento River flows are below 30,000 cfs, then 5,000 cfs could be released upstream and diverted into the Yolo Bypass using pumps that currently do not exist.

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[1]The Draft Strategic Plan does not state what flow is considered necessary to inundate the bypass, but its relevant proposal appears to be based on The Bay Institute's proposal, which used 5,000 cfs as the flow necessary for bypass inundation. (See Delta Vision document 2008-ES-14, attachment 1, p. 11.)

Scenario B: High estimate

- Fremont Weir is not modified and 62,000 cfs of Sacramento River flow is necessary to initiate spilling over the Fremont Weir and 67,000 cfs of upstream flow will provide the minimum 5,000 cfs needed to inundate the Yolo Bypass

Table 2 provides the annual average demand by year classification – wet (W), above normal (AN), below normal (BN), dry (D), and critical (C) – and over the entire 82-year period of analysis (All) in thousand acre-feet (TAF). As shown, there is no inundation demand in the critical years as recommended in the Draft Strategic Plan. For Scenario A, where it is assumed that the Fremont Weir is modified to divert water into the Yolo Bypass when the Sacramento River is flowing at 30,000 cfs instead of the current 62,000 cfs, existing flows are sufficient for inundation of the bypass in wet years. In Scenario B, which assumes the existing Fremont Weir, more than half of a million acre-feet would have to be released on average in wet years alone to maintain the inundation standard. In dry years, the annual average release was 260 TAF and 3,267 TAF in Scenarios A and B, respectively.

Table 2 Annual Average Yolo Bypass Inundation Demand

Annual Average Yolo Bypass Inundation Demands		
Year Type	Scenario A (TAF)	Scenario B (TAF)
W	0	540
AN	49	1443
BN	189	1879
D	260	3267
C	0	0
All	96	1420

Figures 1 and 2 compare annual inundation demand with CalSim baseline Lake Shasta carryover storage for Scenarios A and B, respectively. Years in which there is no inundation demand are labeled "P" if there was inundation demand in the previous year, "C" if it was a critical year, and "I" if existing flows were sufficient to inundate the bypass. For Scenario A, no annual inundation demand exceeds 600 TAF because it was assumed that the maximum release necessary to generate inundation would be 5,000 cfs over the two month period. While the demands in Scenario A are generally much smaller than in Scenario B, they are still significant. For instance, in 1930 and 1932, two dry years during the drought of 1929-1934, the Scenario A Yolo Bypass inundation demand estimates were 600 TAF each. As shown in Figure 1, CalSim baseline Shasta carryover storage was drawn down to 650 TAF in September 1931 and 626 TAF in September 1934. Shasta dead pool storage is 550 TAF. During such an historical drought, there would not be sufficient water to meet this additional 1.2 million acre-feet of habitat demand while still meeting other project obligations.

In Scenario B, enough water has to be released to initiate a spill over Fremont Weir and then an additional 5,000 cfs must be released for inundation. (This is a low estimate, since a significant

fraction of the flow exceeding the spill threshold would continue down the Sacramento River.) As shown in Figure 2, the Scenario B inundation demands would be enough to drain Lake Shasta in many years.

Element 2: Increase spring Delta outflow

The Draft Strategic Plan recommends that the State Water Resources Control Board (SWRCB) revise the Bay-Delta Water Quality Control Plan (WQCP) to increase spring Delta outflow in all but the wettest years. Specifically the Draft Plan states that "[I]n the spring, the requirements should provide a minimum increase of 10% of unimpaired runoff in most years, with the highest percentage increases in drier years."

Increases in Delta spring outflow are intended to push X2 -- the location of the two parts-per-thousand salinity threshold -- downstream. As written in the Draft Strategic Plan, "Delta outflows in February through June have a strong and statistically significant correlation with the abundance and/or survival of numerous estuary-dependent organisms in the Bay-Delta ecosystem." Currently, from February through June the Delta is operated to maintain X2 at or downstream of specific locations for a number of days dependent on the water year type as specified in the WQCP. The Draft Strategic Plan appears to be intended to build on this standard by increasing spring outflows by at least 10%. As stated in the Draft Strategic Plan, it is not expected that much additional outflow would be required in wet years. (This is true because the X2 Delta outflow requirements are rarely controlling in wet years.) The Draft Strategic Plan specifically calls for the greatest percent increase in spring Delta outflow in the drier years. (Note that there will be overlap between Element 1 and Element 2 and that this analysis is not accounting for the periods when the inundation release might also meet the spring Delta outflow demand. The Draft Strategic Plan does not provide sufficient detail to determine the extent of the overlap.)

Scenario C: Low estimate

- Increase X2 Delta outflow requirements in the months of February through June by 10%

Scenario D: High estimate

- Increase X2 Delta outflow requirements in the months of February through June by 10% in wet and above normal years, 15% in below normal years, 20% in dry years, and 25% in critical years

Table 3 provides annual average spring Delta outflow demand by year type classification for Scenarios C and D. Annual SWP Table A allocations as compiled from the baseline CalSim results are also listed. From Scenario C to D, there is no change in wet and above normal spring Delta outflow demand since it was assumed that required X2 Delta outflows would be increased by 10% in each. It was in the below normal, dry, and critical years where the requirements were ramped up in Scenario D. As expected in the Draft Strategic Plan, wet year increases in spring Delta outflow were small on average. For dry and critical years, if 20% and 25% increases are

implemented as assumed in Scenario D, the annual average increase in spring outflow demands are 238 TAF to 357 TAF respectively.

Table 3 Annual average spring Delta outflow demands

	Annual Average Spring Delta Outflow Demands		
Year Type	Scenario C (TAF)	Scenario D (TAF)	CalSim SWP Annual Allocations (TAF)
W	59	59	3928
AN	120	120	3885
BN	130	203	3333
D	104	238	2472
C	132	357	1481
All	101	175	3142

Figures 3 and 4 show annual spring Delta outflow demands for Scenarios C and D, respectively. Each year is labeled with its year type classification. Note the additional demand placed on the system during droughts such as 1929-1934, 1976-1977, and 1987-1992. These increased Delta outflow requirements during the drier years could significantly affect upstream reservoir storage and Delta export operations.

Element 3: Increase fall Delta outflow

The Draft Strategic Plan calls for 12,000 to 18,000 cfs required Delta outflow in at least two months in the period from August to November in wet, above normal, and below normal years. Each year, the two months selected to increase Delta outflow, if necessary, were selected to minimize water demand. As such, the estimates of the increased demand of the proposed Delta outflow requirements may be conservative.

Scenario E: Low estimate

- Maintain a minimum Delta outflow of 12,000 cfs for at least 2 months from August to November in wet, above normal, and below normal years.

Scenario F: High estimate

- Maintain a minimum Delta outflow of 12,000 cfs for at least 2 months from August to November in below normal years
- Maintain a minimum Delta outflow of 15,000 cfs for at least 2 months from August to November in above normal years
- Maintain a minimum Delta outflow of 18,000 cfs for at least 2 months from August to November in wet years

Table 4 summarizes annual average fall Delta outfall demands by year classification for Scenarios E and F. For comparison, annual SWP Table A allocations are also listed. As

recommended in the Draft Strategic Plan, no additional fall Delta outflow releases were made in dry and critical years. For both Scenarios E and F, the increases in fall Delta outflow are large and could impact project reservoir and Delta export operations.

Table 4 Annual average fall Delta outflow releases

	Annual Average Fall Delta Outflow Demands		
Year Type	Scenario E (TAF)	Scenario F (TAF)	CalSim SWP Annual Allocations (TAF)
W	497	1110	3928
AN	841	1189	3885
BN	772	772	3333
D	0	0	2472
C	0	0	1481
All	412	658	3142

Figures 5 and 6 show annual fall demands in Scenarios E and F. Each year is labeled with the year type classification (wet, above normal, below normal, dry, and critical). Unlike the spring Delta outflow requirement (Element 2), the fall Delta outflow requirement would not impose a large drought demand on the system. However, it could significantly reduce the amount of water in storage in upstream reservoirs heading into the droughts. For Scenario E, it was estimated that an additional 900 TAF would be needed in the fall of 1928 and 1986 heading into the droughts of 1929-1934 and 1987-1992. In Scenario F, the additional water required was approximately 1,300 TAF and 1,600 TAF. In either scenario, meeting the Draft Strategic Plan's fall Delta outflow demands would have diminished the ability of the upstream reservoirs to provide water during the following dry periods.

Daniel Easton, P.E.

DE/MVC/pp
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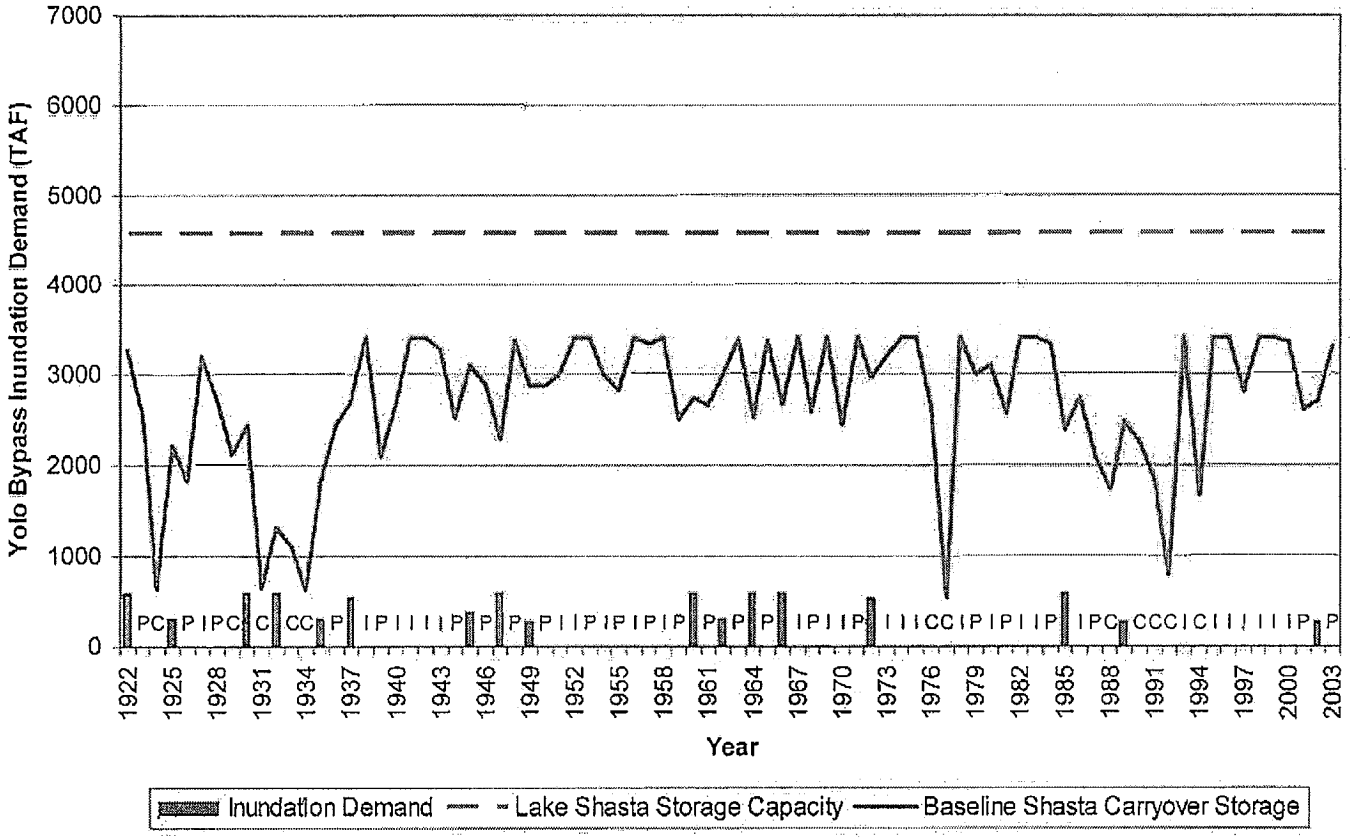

Figure 1 Scenario A annual Yolo Bypass inundation demands as compared to Lake Shasta storage capacity and baseline end-of-September carryover storage

P: No demand due to previous year inundation

C: No demand in critically dry years

I: No demand because existing flows were sufficient

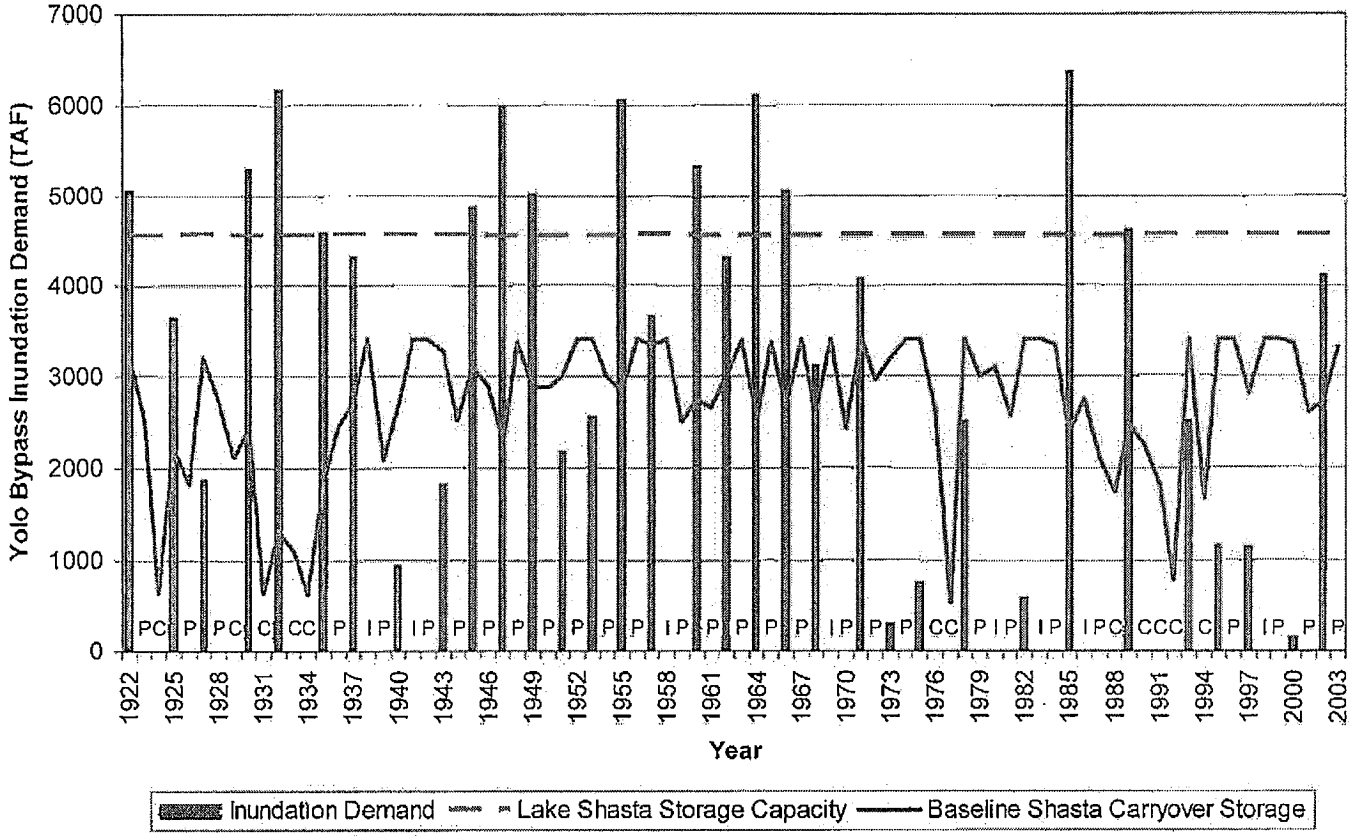

Figure 2 Scenario B annual Yolo Bypass inundation demands as compared to Lake Shasta storage capacity and baseline end-of-September carryover storage

P: No demand due to previous year inundation
C: No demand in critically dry years
I: No demand because existing flows were sufficient

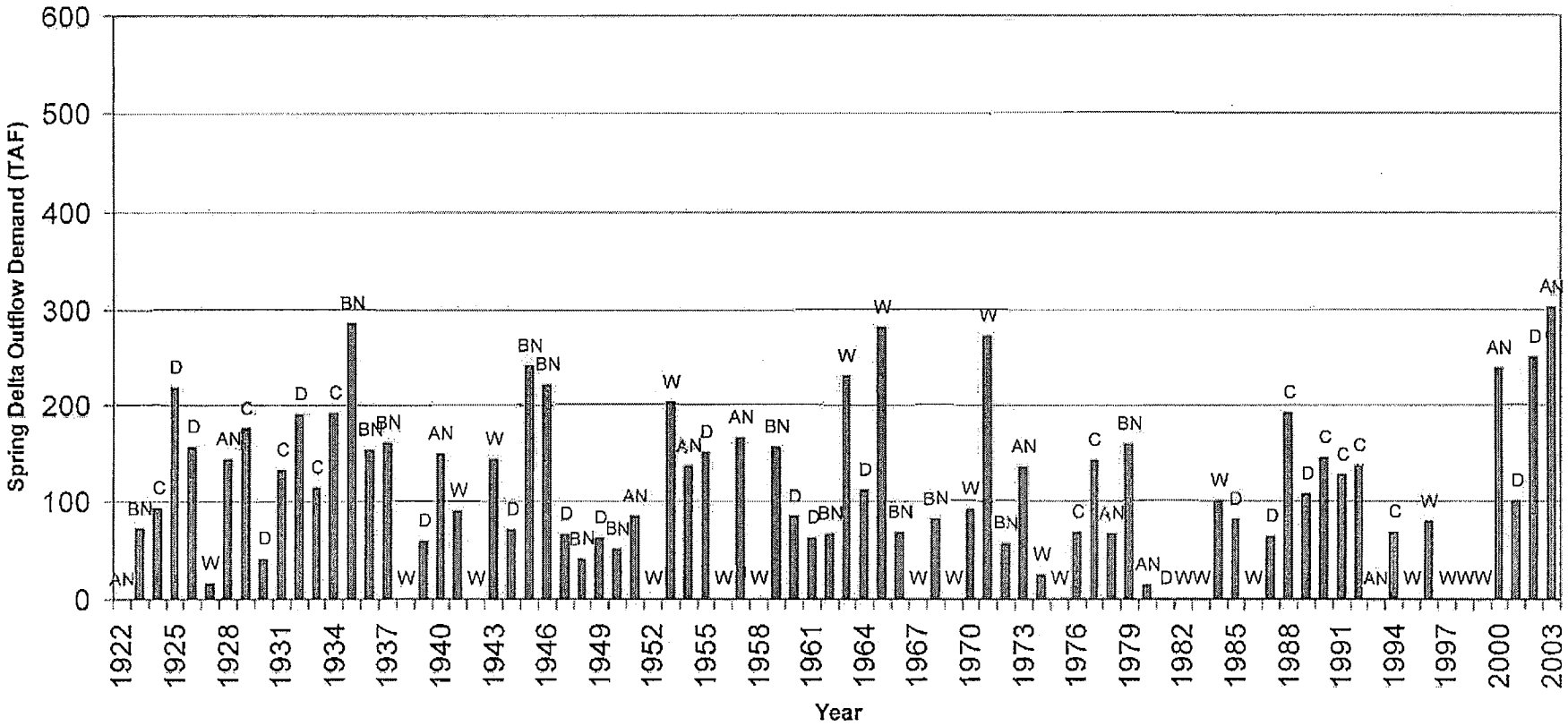

Figure 3 Scenario C annual spring Delta outflow demand

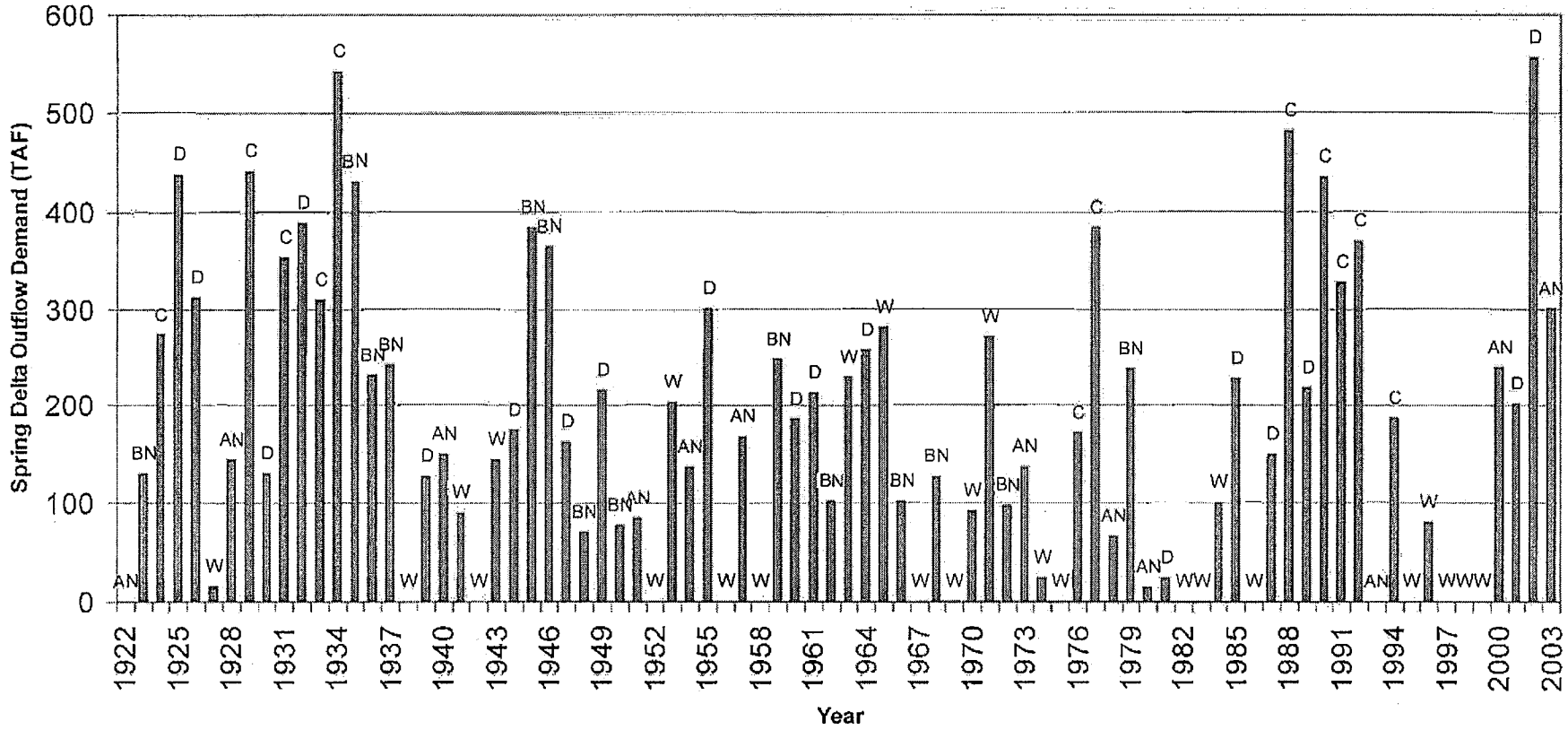

Figure 4 Scenario D annual spring Delta outflow demand

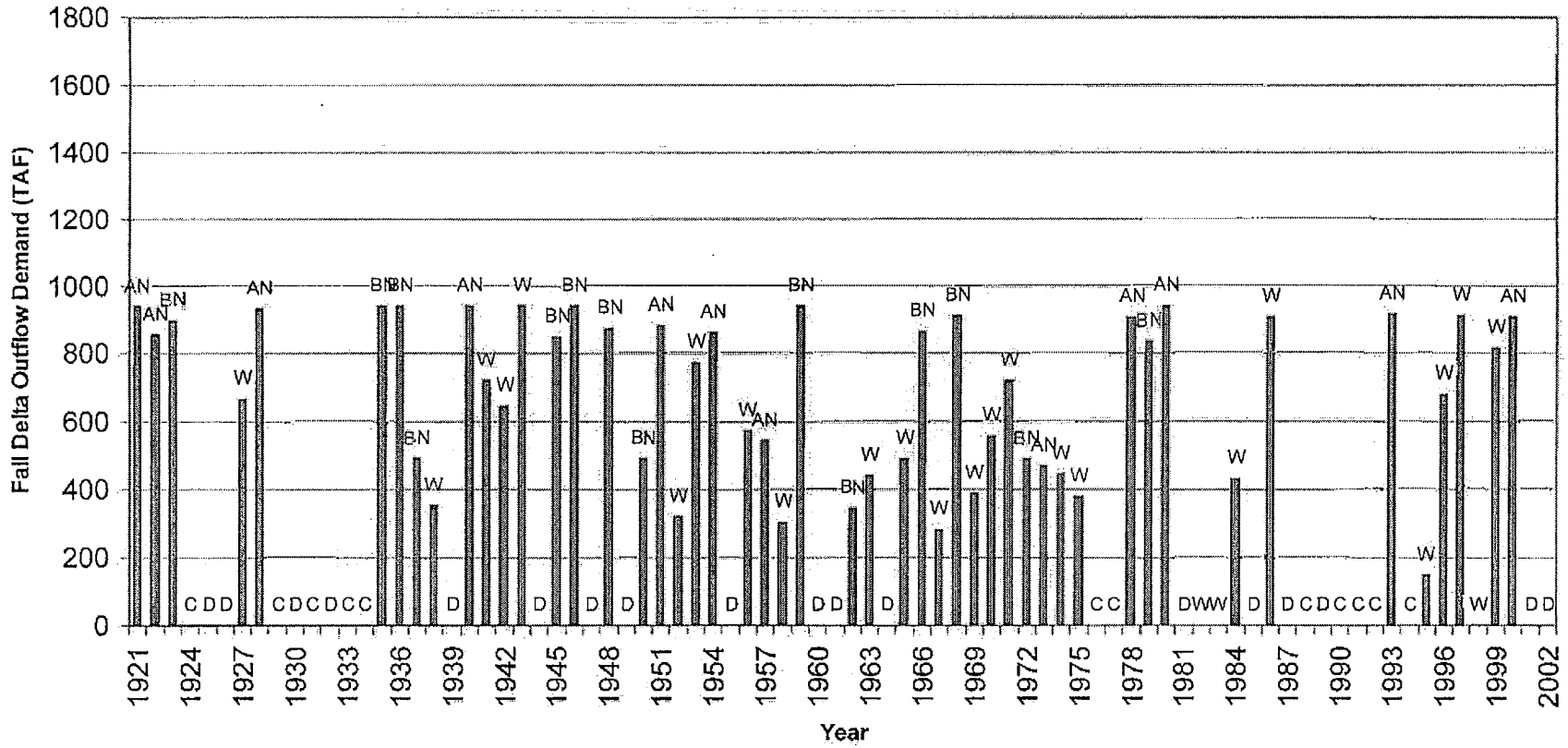

Figure 5 Scenario E annual fall Delta outflow demand

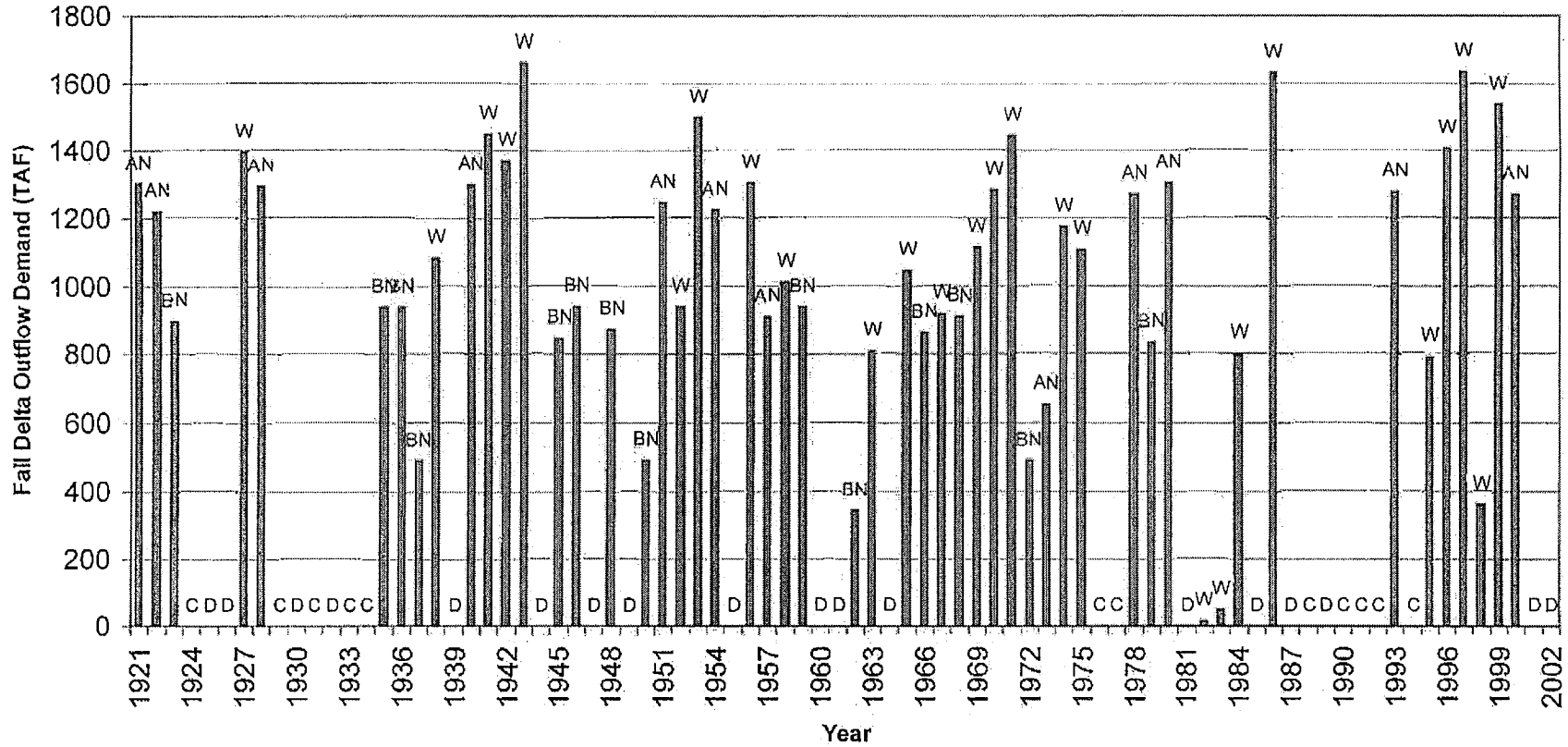

Figure 6 Scenario F annual fall Delta outflow demand