

Meral
North Coast
file

A LOOK AT THE RECENT HISTORY
AND FUTURE OF THE EEL AND RUSSIAN RIVERS*

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I welcome this chance to talk to the Eel-Russian River Commission. I commend the Commission for their role in the relicensing agreement for the Potter Valley power project. Although it's too early to say for certain, the current three-year operating agreement appears to have enhanced the fishery on the Eel River. For the first time in over 13 years, Fish and Game was able to take a few salmon spawners at Van Arsdale Dam. Our Department is glad to participate in evaluating the current release schedule and will work with the interested parties and your Commission to assist Judge Kolko of the Federal Energy Regulatory Commission (FERC) in arriving at a long-term solution.

Today I will compare past efforts of flood management on the Eel and Russian Rivers systems, and I will be talking about our major State water program embodied in Senate Bill 200, which is being carried by Senator Ayala.

Floods in both the Eel and Russian drainage areas are caused by intense rainstorms, preceded by precipitation that has soaked the watershed. These two rivers respond very quickly to precipitation. Typical flood-producing storms consist of a series of warm fronts moving inland from the Pacific Ocean over a several-day period.

*Presented before the Eel-Russian River Commission
at Ukiah, California, on February 8, 1980.

Comparing damage along the Eel and Russian Rivers from these storms is interesting. The 1964 flood on the Eel caused widespread and severe damage. Since 1964 the river has reached flood stage only once, and flood damage has been negligible. The Eel River has essentially no structural flood protection features. However, since 1964 an improved flood warning system has been established and the counties are developing flood plain regulations.

The Russian River, with Lake Mendocino on the East Fork and bank stabilization work along its main stem and principal tributaries, has the highest frequency of damaging floods of any river in the State.

Peak discharge of 93,000 cubic feet per second was recorded for the Russian River near Guerneville in 1964, a flood frequency of about once in 30 years.

The most severe floods occurred in December 1955 and December 1964. These claimed four lives; the 1955 flood inundated about 90,000 acres. During the 1964 flood, the Russian River Basin sustained unprecedented damage of about \$17 million, which at today's price levels would be \$40 million. The U. S. Corps of Engineers says that unless protective measures are taken, future flooding will cause damage estimated to average \$1 million per year.

Grape crops, which are generally compatible with periodic inundation, grow along much of the lower Russian River. But the grapes and the land have become so valuable that channel erosion and flooding cause substantial economic losses.

Guerneville and the surrounding community have developed as a resort area. The peaceful summertime climate and quiet river

led to extensive development of summer homes in the flood-hazard area. In recent years, more and more of these homes are occupied year-round and the flood threat is increasing.

Warm Springs Dam on Dry Creek is currently under construction by the Corps and will reduce the flood frequency and magnitude, somewhat. The Corps estimates the damage reduction will be about 50 percent along the Russian River below Dry Creek, and areas that are now typically flooded once in three years will be flooded once in five. This all sounds fine, but without dedicated flood plain management, greater damages may occur in the future because of accelerated encroachment.

Now a quick look at the Eel River 1964 flood damage. This flood is generally regarded as being of once-a-century magnitude. The Eel River drains an area of approximately 3,600 square miles through narrow, steep-walled, V-shaped canyons except for that portion near the mouth.

The stages and discharges reached in 1964 were unprecedented throughout the Eel River Basin. For example, at the Scotia gaging station the Eel River exceeded its 1955 record peak stage by 10.1 feet and discharged a remarkable 752,000 cubic feet per second. This compares to a peak flow of 541,000 cubic feet per second in 1955. The peak flow in the lower delta probably reached 825,000 cubic feet per second.

The flood damage in the Eel Basin from the December 1964 flood was almost unbelievable. Communities were totally destroyed, bridges were washed out, lumber mills were severely damaged and the delta agricultural area devastated. The communities of Pepperwood

and Myers Flat were completely destroyed. Lumber mill losses were disastrous; for example, the Pacific Lumber Company at Scotia lost 23 million board-feet of lumber and 18 million board-feet of prime redwood logs. The agricultural area in the Eel delta in the vicinity of Ferndale was left a sea of mud and debris. Farm buildings and homes were destroyed and livestock losses were high.

The Northwestern Pacific Railroad, along its 100-mile reach from Rio Dell to Outlet Creek, adjacent to the Eel River, lost 30 miles of track and roadbed, and three major bridges. Because of the December 1964 flood, service on the railroad from San Francisco to Humboldt County was interrupted for 177 days. The number of lives lost in the Eel River Basin was 19. The Corps estimated that basin flood and storm damages totalled \$81,600,000 in 1964 dollars. This would be over \$175 million in today's dollars.

Following this disastrous flood, the Department and the U. S. Weather Service cooperated in the installation of a network to provide early warning of floodflows along the Eel, Russian, and other North Coast rivers. This system, installed at State and Federal expense, is now being upgraded. This early warning system, combined with Humboldt County efforts to alert people along the Eel, has helped limit storm damage since 1964. Flood damages along the Eel since 1964 have been so slight that the Corps has not made annual damage estimates. There's no room for complacency, though. The Eel reached flood stage only once since '64 and that was in January of '74, at which time the flow was scarcely more than half that of 1964 (1964 - 752,000 cfs; 1974 - 387,000 cfs).

The flood plain management programs along the Eel River include requirements that building permits consider available base-flood data and provide for flood-proofing or raising the first floors of homes above the base-flood level. New subdivision proposals are required to show flood boundaries and give best available flood elevations.

Present regulation of residential development within the flood plains of the Eel and Russian Basins is not as tough as the Federal Emergency Management Administration (FEMA) rules for the regular federal flood insurance program. All communities within the basin, except Ferndale, are in FEMA's emergency program. Flood insurance studies are underway, and more stringent regulation of residential development will probably be enforced within two to three years as a condition for communities to get federal flood insurance.

These nonstructural measures--flood plain management and a flood warning network--are not costly and are certainly an important method of limiting flood losses on North Coast rivers. They should also be used to limit further developments on the Russian River flood plains and to find ways to reduce future damage as development takes place.

Recently I understand there has been a tendency by county planning commissions to approve mobile home parks, recreational campgrounds, and logging decks in the Eel River flood plain. These developments are only compatible with flood plain uses if the logs and vehicles can be very quickly removed from the flood plain, possibly under severe weather and flood fighting conditions. This would be very difficult. The counties should be careful not to let the use of

the flood plain slip back to its pre-1964 overdeveloped condition. One of the main causes of bridge failure in 1964 was debris piling up against bridges, and much of the debris was logs and houses introduced by people into the flood plain during a long period of low-flow conditions.

I'd like to now turn to water development, and show you a slide (Figure 1) of the demand for water in California today and in the year 2000. As you can see, the principal requirement for water comes from irrigated agriculture. The next slide (Figure 2) shows the location of irrigation water use. The San Joaquin Valley is by far the single largest user of water for irrigation in California. Furthermore, of the total ground water overdraft in the State (2.2 million acre-feet), the San Joaquin Valley accounts for about 1.5 million acre-feet. Despite this overdraft, for the past twenty years about 50,000 acres of new land has been brought into production in the San Joaquin Valley per year. Thus, it is the combination of a major existing demand for water, severe ground water overdraft, and increasing irrigation of new lands that make the San Joaquin Valley the greatest threat to the rivers of the North Coast.

On reviewing data like these, many people immediately conclude that there is no real hope for the North Coast rivers; they will be dammed and diverted one by one, and probably in the same unthinking, heedless manner as the Trinity. Their fisheries will be destroyed, and local needs for power and flood control will be ignored. But this is an unrealistic fear. For this scenario to come true, three things would have to happen. First, local objections would have to be overruled. Second, there would have to be an ability to pay for this new water in the San Joaquin Valley. Third,

there would have to be no cheaper alternative supply of water available. I would like to argue that none of these three things will happen in the foreseeable future, and further, that the Peripheral Canal and the other features in SB 200 will meet California's needs for many years to come without North Coast development.

Let's consider these items in reverse order. First, what alternatives are available, and what do they cost compared to North Coast development? Contrary to the January 16, 1980 editorial in the Santa Rosa Press Democrat (attached), the Peripheral Canal itself is the cheapest alternative water supply available, next to water conservation. (We estimate the cost to be \$50/acre-foot.) This is because the Canal itself has a water yield of up to a million acre-feet, just like a surface reservoir. The Canal makes the transfer of water across the Delta more efficient, and actually increases the usefulness of existing Federal and State water systems by a million acre-feet.

Obviously if the Canal makes an additional million acre-feet available to the water exporters, that is a million acre-feet that are not needed from the North Coast or anywhere else. Since the Canal would make most of this yield available immediately, the Press Democrat is obviously wrong when it suggests we wait to build the Canal until additional storage facilities are available. The Canal yield does not rely on more development, but uses water already developed in the Sacramento Basin.

But more water than a million acre-feet is needed, according to our recent estimates of supply and demand. We believe the rest of the demand could be provided through a combination of conservation,

waste water reclamation, underground storage and development of surface facilities such as Cottonwood Creek, enlarged Shasta or Glenn Reservoir. These projects are more cost effective, and do not endanger significant fisheries or scenic resources as do most North Coast developments.

Eel River development as an alternative to supply water to the San Joaquin Valley was suggested by members of the Assembly Committee on Water, Parks, and Wildlife at a hearing on SB 346, the predecessor of SB 200. In response to a question of how much it would cost to develop the Eel, the Department made a very rough appraisal in November 1977. This appraisal included the Dos Rios Dam and Reservoir, Grindstone Tunnel to Glenn County, and a canal to carry Eel water into the San Joaquin Valley. Cost of water from such a project was estimated to be \$250 per acre-foot, which is about \$100 per acre-foot higher than any project now being studied in the Sacramento Valley. Without the San Joaquin Valley conveyance system, Eel water would still be about ten percent higher in cost than any Sacramento Valley project now under study.

Turning to the second point, can the San Joaquin Valley farmers pay enough to import water from the North Coast? While the State Water Project provides water to valley growers, it relies on facilities already in place, in addition to surplus water in the Delta to keep the price of water low. Additional facilities will raise the price of water greatly, but still not to levels that make the price prohibitive. The State Project can meet all of its demands without going to the North Coast, as can the Central Valley Project under its existing contracts. Perhaps the Central Valley Project

will add new contractors, but for many years such new contractors could be served out of Sacramento Valley supplies such as enlarged Shasta. Could a new project designed to serve San Joaquin Valley irrigators come to the North Coast for water? It seems unlikely. The cost of water, which I mentioned earlier, appears to be quite a bit more than we believe farmers could afford to pay. It is impossible to say what farmers will be able to afford thirty or more years from now, but there is no sign that construction costs will rise less quickly than the farmers' ability to pay.

Finally, even if the Central Valley Project or an independent group of farmers decides to go to the North Coast, what are the chances they would be successful? We pointed out to the Assembly Committee that the Wild and Scenic Rivers Act not only prohibits the State from building dams on rivers named in the Act, but it also prohibits the Department from studying dams and reservoirs on those rivers. The Act does, however, place the Eel River in special status in that it requires a report by Department of Water Resources (DWR) to the Legislature by late 1984 on the need for water supply and flood control projects on the Eel River and its tributaries. Other rivers protected by the Act have no such provision. Since there is water available in the Sacramento Valley to be developed, DWR would not recommend that the Eel be removed from the protected rivers to allow construction of dams; and even if it did the Legislature would have to vote to remove the Eel from the Wild and Scenic Rivers System before such dams could be studied in detail or built.

As long as the Legislature does not alter the State Wild and Scenic Rivers Act, there is little likelihood that Congress would authorize any projects for water export on the North Coast. Federal projects must be approved by the governor of a state before they are implemented, and approval of a water export project over the objection of a governor and the state legislature would be unprecedented.

Despite this law, we often hear that the votes are in the South, and they will take the water when they want it. But I have already pointed out that the urban demands in Southern California can easily be met from the Sacramento Valley. So the demand and political strength to take North Coast water must come from the San Joaquin Valley, a place with far fewer votes, although certainly not without political influence.

But does history indicate that water is often taken from one place to another over the protests of the area of origin? The example that comes to mind is the Owens Valley. While Los Angeles did indeed engage in deceptive practices to obtain its Owens Valley water supply, it is nevertheless true that no one was forced to sell their land and water rights. Indeed the price paid was often so high that the sellers were most willing.

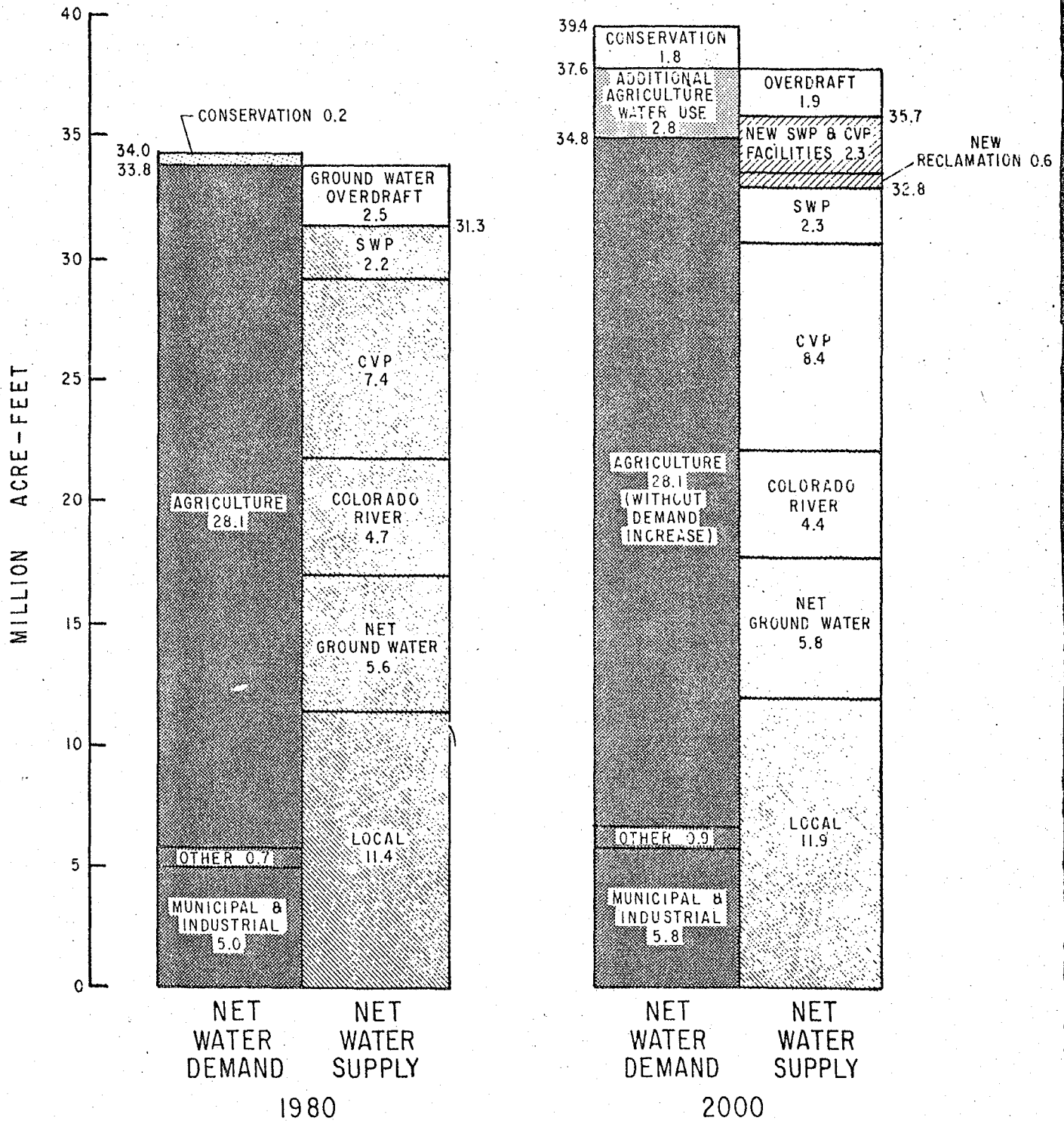
What about the State Water Project? Was that a classical contest of the northern area of origin losing water to the South? A look at the vote in 1960 indicates a key northern county favoring the project: Butte County, which received Oroville Dam. It is true that the Delta and Bay area counties continue to oppose the State Water Project and the Peripheral Canal, and this opposition

proves two things. First, local opposition makes water project development very difficult. Second, if there is any way to develop a project which does not arouse local opposition, the developers will choose that project. Water developers are fighting for the Peripheral Canal only because it is a vital link in an existing project. If there was any viable alternative, it would long ago have been selected. Which brings me back to the beginning: Since there are viable projects that, in fact, cost less and have much less local opposition, why would any logical proponent of water development advocate going to the North Coast, where environmental and local opposition has already spelled the death of at least two major proposed dams: Dos Rios and English Ridge?

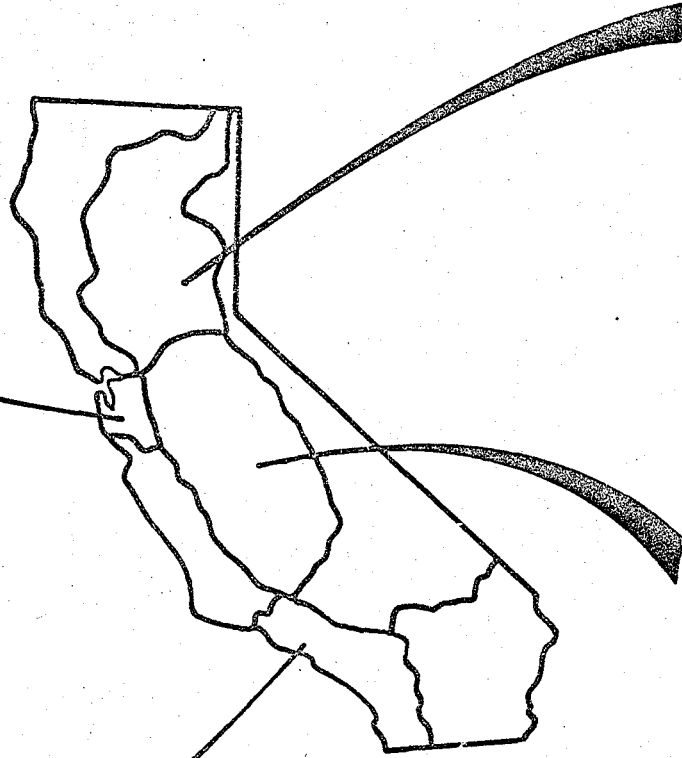
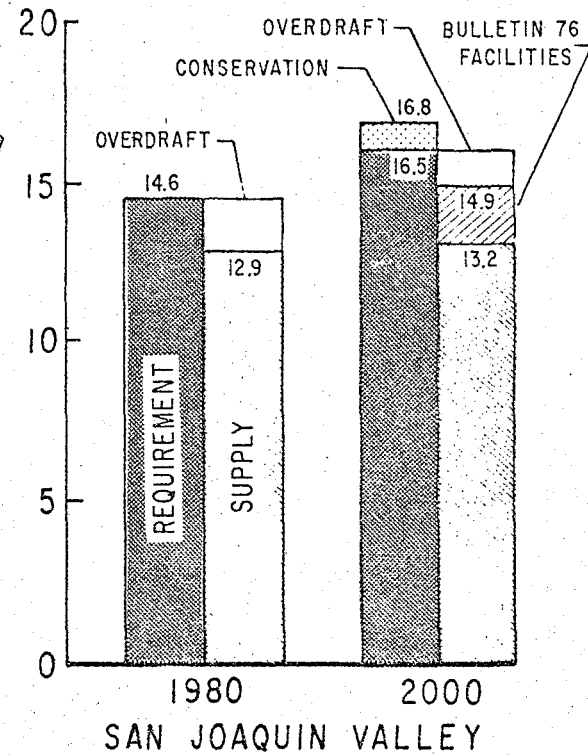
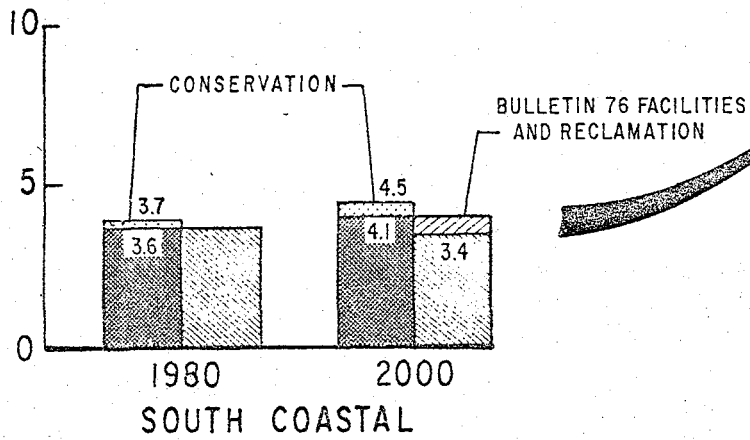
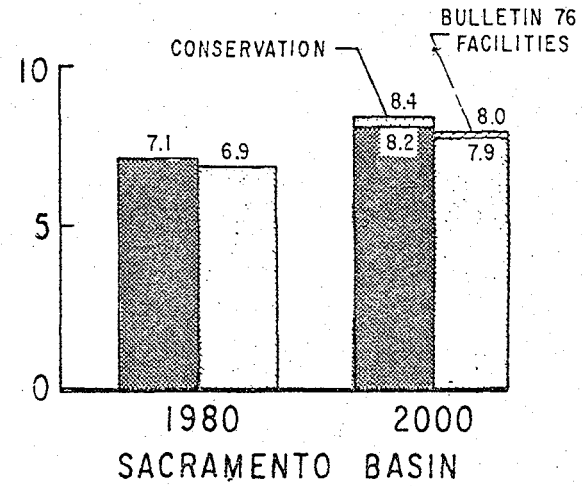
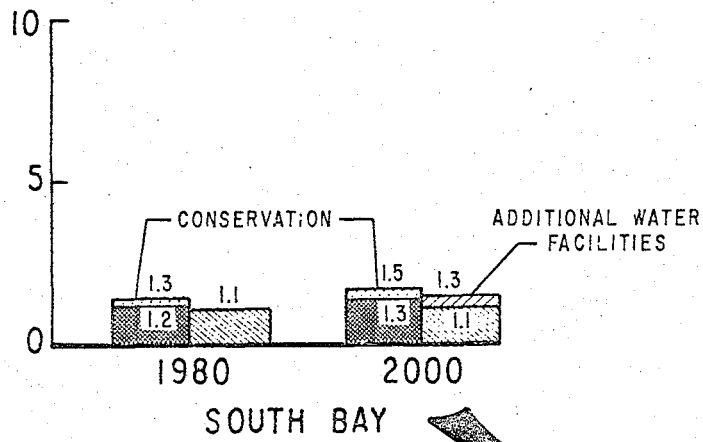
I'd like to close by saying that California's historical tradition of home rule and protection of areas of origin has never been stronger. Those who oppose the export of North Coast water must indeed be vigilant--the water is there. But I believe it will be nearly impossible to export it over the protests of those who live by the banks of the North Coast rivers.

Attachments

STATEWIDE WATER REQUIREMENTS AND SUPPLIES



WATER REQUIREMENTS AND SUPPLIES



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Why we oppose Peripheral Canal

Legislation to permit construction of the Peripheral Canal appears to be moving through the California Legislature.

We are opposed to it for a couple of reasons.

First, the Peripheral Canal is simply a big ditch to transport water from the Sacramento River to the aqueduct which would carry the water to San Joaquin Valley and Southern California users. This water would thus not pass through the Delta, which needs an influx of fresh water to maintain the present salinity balance. Just what happens to the Delta ecology if the Peripheral Canal is constructed isn't clear. Certainly the salinity level would rise in the upstream portion of the Delta, presenting problems to those who farm delta lands and use the water for both domestic use and irrigation.

The advocates of the Peripheral Canal assure the rest of the state that ample additional supplies of fresh water will be found to maintain the Delta balance.

That brings us to the second reason we are against the Peripheral Canal bill. It seems certain that the only additional water supplies available to make the project viable would have to come from the North Coast. The most logical source would be the Eel River, and we join with Redwood Empire legislators in op-

posing siphoning off North Coast water for Southern California.

Some advocates of the Peripheral Canal have pointed to legislation authorizing a study on the feasibility of enlarging Shasta Dam as the answer to additional water supplies. Enlarging the capacity of Lake Shasta by raising Shasta Dam 200 feet would provide plenty of water, true. Raising the height of the dam would increase the capacity of the reservoir to three times its present capacity.

The flaw in relating enlarging Shasta Dam to the water needed to make the canal project work is in the time involved. The Peripheral Canal could be constructed in a few years. Some of it has already been constructed. Enlarging Shasta Dam, on the other hand, would take years of study, Environmental Impact Reports and the like. It is estimated that a realistic date of completion for enlarging Shasta Dam would be after the turn of the century. If San Joaquin and Southern California are willing to wait until then for the additional water needed to make the Peripheral Canal viable, then we would have no objection to the project.

If, instead, they want to construct the canal immediately, and then search for new water supplies, then we are opposed to the canal and urge Northern California legislators to oppose it, too.

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Editorials

Here We Go Again

Pushers of a plan to build three large-scale dams on the Eel River act as though California has exhausted its other water resources. Either that, or they show a disdain for the environmental damage their project would do to the north coast.

The dam-the-Eel proposal has reappeared this time as a ploy. It is served up by Southern California, Sacramento-San Joaquin Delta and San Joaquin Valley interests as an alternative to the Peripheral Canal, a project to carry export water around instead of through the maze of Delta channels.

The new drive chooses to ignore the fact the Legislature as recently as 1972 incorporated the Eel as one of the rivers protected by the Wild and Scenic Rivers Act. The others, like the Eel the last of the state's free-flowing waters, are the Smith, Klamath, Trinity, Van Duzen and Mad.

The north coast streams contribute about one-third of the natural runoff in the state. They have long been the target of water developers. The last scheme for a high-level dam at Dos Rios, in Mendocino County, would have flooded 18,000-acre Round Valley and its Indian reservation.

About 1,500 persons would have been displaced. Gov. Ronald Reagan rejected the project in 1969.

The 1978 version calls for dams not only at Dos Rios but two others downstream, and 46 miles of tunnels through the coastal mountains to move the water on its way to the Delta. The price would be high in money, \$3.6 billion, and in its disruption of the environment.

Perhaps the time will come when the state's population will make it absolutely necessary, as a last resort, to tap the wild rivers at whatever the cost.

At this point, efforts should be concentrated on the water plan advocated by Gov. Brown — or a reasonable variation — to meet projected needs to the turn of the century. It includes four new reservoirs outside the north coast, as well as the Peripheral Canal to transfer water more efficiently to the San Joaquin Valley and Southern California. The dam-the-Eel forces should recognize the futility of trying to get the voters to approve a huge bond issue while that alternative to their alternative is pending in the Legislature.