



**THE PAUL F. ROMBERG
TIBURON CENTER FOR ENVIRONMENTAL STUDIES**
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July 6, 1988

To Interested Parties

Enclosed you will find peer reviews of the report "The role of water diversions in the decline of fisheries of the Delta-San Francisco Bay and other estuaries" by M. Rozengurt, M. Herz and S. Feld. This report was prepared as part of a series of investigations conducted at the Romberg Tiburon Center for Environmental Studies, School of Science, San Francisco State University, and presented at the State Water Resources Control Board Hearings in 1987.

We would highly appreciate your comments.

Sincerely,

Joan McNamara
Joan McNamara
Administrative Secretary

Enc.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
Tiburon Laboratory
3150 Paradise Drive
Tiburon, CA 94920

March 15, 1988

F/SWC3:JAW

James C. Kelly, Dean
School of Science
San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132

Dear Dean Kelly:

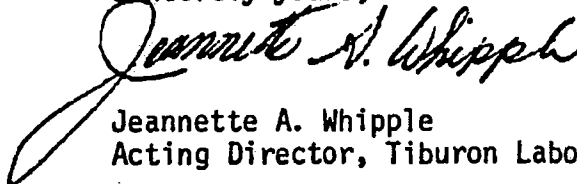
Recently I evaluated a report by Michael J. Rozengurt, Michael J. Herz and Sergio Feld entitled "The role of water diversions in the decline of fisheries of the Delta-San Francisco Bay and other estuaries." In February I forwarded six pages of comments to Dr. Michael Rozengurt and discussed the report with him. My primary intent was to be helpful wherever possible.

In my opinion, Dr. Rozengurt has made some extremely important points with regard to the determination of valid historical flow. I think he has raised some serious questions about how water quality decisions are made by the State of California. I agree with his redefinition of flow and his analysis. I believe the review of Dr. Luna Leopold also substantiates Dr. Rozengurt's analysis. In particular, I agree that the increased probability of subnormal wetness due to water diversion is probably a major factor contributing to fisheries declines in the San Francisco Bay-Delta area. The decreased wetness of the spring period is particularly important in affecting spawning and larval development of striped bass.

I recommended that Dr. Rozengurt have his work evaluated by a fisheries statistician, and I also recommended that he do further editing on the ms for purposes of clarification. On the whole, however, I feel he has made an important contribution to understanding environmental problems in the San Francisco Bay-Delta ecosystem.

If you would like a copy of the more specific editorial comments I sent to him, I would be happy to provide them.

Sincerely yours,


Jeannette A. Whipple
Acting Director, Tiburon Laboratory

✓ BCC: M. Rozengurt (TCES)





L. Eugene Cronin
Coastal Consultant
12 Mayo Avenue, Bay Ridge
Annapolis, MD 21403
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8 May 1988

James C. Kelley, Dean
San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132

Dear Dean Kelley:

I have reviewed the Report The Role of Water Diversions in the Decline of Fisheries of the Delta-San Francisco Bay and Other Estuaries with exceptional interest.

My response is in three parts:

- a. Marginal and text annotations on the manuscript, which has been sent to Dr. Rozengurt.
- b. The enclosed "Review comments" on general aspects of the report.
- c. This letter, including response to the specific requests of your letter of 8 March 1988.

The most effective and important among a number of significant contributions in the Report appear to me to be:

1. The basis for analysis and managerial control of the flows from the Sacramento-San Joaquin-Delta system to the estuary has been seriously in error, leading to damaging potentials for the estuary. It should be corrected as recommended. The basis for that conclusion is well laid and convincing.
2. Massive reduction in the release of fresh water because of diversions, especially in spring, has contributed heavily to reduction in the production of valuable species of anadromous fish. The evidence is very impressive and I believe that the conclusion is correct. It is, obviously, unfortunate that there is a lack of the data required to link flows more closely to the production of salmon, striped bass and shad. We all wish that additional detailed observations had been made in the past - but they do not exist.

The approach employed by the authors is imaginative, carefully executed and about as good as I have seen among those who attempt to hindcast, or rather identify possible relationships in retrospect. There are always serious

uncertainties in developing and evaluating co-incidences and even more in attempting to prove co-relations or causality. The authors are fully aware of these difficulties. The Report may receive criticism based on the inherent limitations or retrospective search for relationships, and some of the criticism may be valid. However, the strength of developing indications of the importance of time-lagged flows on the abundance implied by harvest is very impressive.

In my opinion, any significant critics should bear the burden of demonstrating equally well any more probable cause of the declines.

In fine, I consider that the Report reveals quite probably relationships between flow and stock production. I suspect that there may be additional negative effects of the massive diversions on other parts of the estuarine ecosystem, but these will require additional data and analysis.

If I were seeking a basis for rational management of diversions based on a commitment to protect valuable estuarine resources, I would adopt the recommended flow patterns until, and unless, even more convincing evidence is provided and broadly accepted favoring a different management regime.

Thank you for the opportunity to participate in this review.

Cordially,

L. Eugene Cronin

cc: Dr. Rozengurt

Estuarine Research

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**Chemistry, Biology,
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Edited by
L. Eugene Cronin
Estuarine Research Federation



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UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

June 20, 1988

College of Ocean and Fishery Sciences
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Dr. James C. Kelly, Dean
School of Science
San Francisco University
1600 Holloway Avenue
San Francisco, CA 94132

Dear Jim:

Thank you for the opportunity to review the report "The Role of Water Diversions in the Decline of Fisheries of the Delta-San Francisco Bay and Other Estuaries" by Rozengurt, Herz, and Feld.

I am sorry to be so late with my evaluation, but I have been traveling quite a bit of late and the report is not something that can be reviewed with a casual reading.

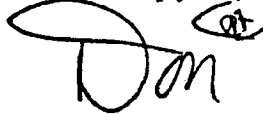
I have limited my detailed study to Chapters 4, 5, 6, 7, and 8, since I do not believe I should venture a professional opinion outside of my own field.

The methodologies employed are appropriate for the data analyzed and the analysis supports the conclusions reached.

My major criticism of the report is with its length, which is the result of too many similar but not identical analyses without adequate explanation of the need for the apparent redundancies. A summary table combining the correlation coefficients for identical time periods, moving averages, and lags from Tables 5-4, 6-3, and 7-2 would help tie together the results for the three species.

I will send some detailed comments to Michael Rozengurt which I hope the authors can accept as constructive.

Sincerely,



Donald E. Bevan
Professor Emeritus

Note: Dr. Bevan specialized in fishery biology and biometrics, and population dynamics.

DB:pf
dbk

cc: Rozengurt ✓

JMc