Whose Water, 6-91

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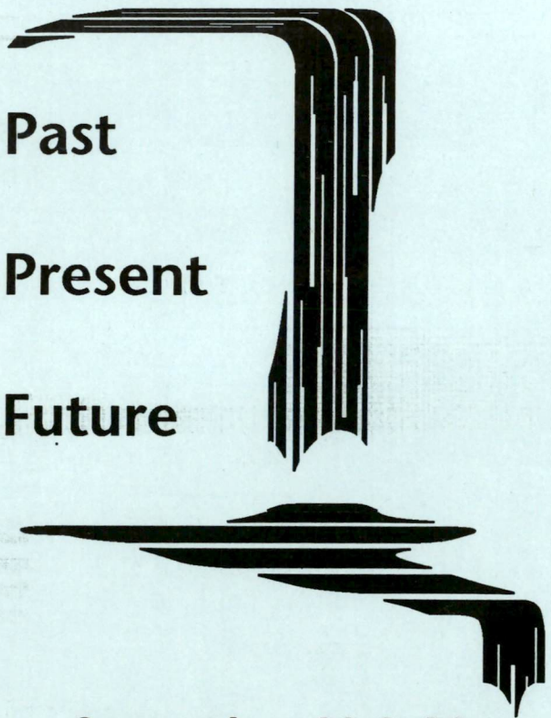
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# WHOSE WATER?




**September 29 & 30**
**Seattle Center**
**Snoqualmie Room**

## "Whose Water? Past; Present; Future?"

Growth of Washington State's population and economy places increasingly greater demands on available water resources; and in 1988 the Legislature established a Joint Select Committee on Water Resource Policy. To explore the current situation, one needs to know something about the past. To take a long look into the future, some innovative thinking can help.

This conference is an opportunity for you to become up-to-date on a number of aspects about ***Whose Water? Past; Present; Future.*** Some provocative questions posed to invited speakers and repondents may stimulate your thinking about solutions. The first of five is *"Can Western water law rooted in the 19th Century serve the public interest in the 21st Century?"*

*"Water Rights and Water Wrongs"* is the Keynote Address by Huey Johnson, former Secretary of Resources, State of California. Now President of the Resource Renewal Institute, one of its major new programs is the Water Heritage Trust.

Continuing Legal Education Credit (CLE): 12.75.

REGISTRATION INFORMATION:

Regular Fee, $95.00 each; 3 or more from same organization, $80.00 each; Student, $45.00. If you are unable to attend or send a substitute, a refund will be made of the registration fee, less $20.00 for handling, if written request is received by Sept. 25. A limited number of scholarships are available; apply to: Institute for Environmental Studies, Univ. of Washington, FM-12 Seattle, Wash. 98195

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# Whose Water? Past; Present; Future?

September 29 & 30, 1989

Snoqualmie Room, Northwest Court, Seattle Center, Seattle, Washington

## FRIDAY, SEPT. 29

7:45 a.m. Registration desk opens

8:15 a.m. **PAST TO PRESENT:**
Moderator: Jovana Brown,
The Evergreen State College

**PHYSICAL: Where? How much?**
William Funk, Director, State of Washington
Water Resources Research Center

**LEGAL FRAMEWORK & GOVERNMENT STRUCTURE FOR WATER**

**Federal**
James L. Huffman, Professor,
N.W. School of Law, Lewis and Clark College

**Washington and Western States**
Charles Roe, Assistant Attorney General,
Washington Dept. of Ecology

**Tribal**
Richard DuBey, Attorney at Law

**Building Better Relationships: Intergovernmental Cooperation**
Kaleen Cottingham, Executive Policy Analyst,
Office of the Govenor of Washington

**HISTORICAL USES**
Marion Marts,
Professor of Geography,
University of Washington

12:15 p.m. Lunch (on one's own)

1:15 p.m. **TODAY'S CONFLICTS & DECISIONS**
**MODERATOR: Steven Zubalik,**
**Washington State Energy Office**

**BACKGROUND: CURRENT PROCEDURES**
Doug Clausing, Regional Resource Supervisor,
Central Regional Office,
Washington Dept. of Ecology

**PROVOCATIVE QUESTIONS**

**Provocative Question 1.** ***Can Western water law rooted in the 19th Century serve the public interest in the 21st Century?***
Presenter: **Ralph Johnson**, Professor of Law,
University of Washington
Respondents: **Donald H. Bond**, Attorney,
Halverson & Applegate, P.S. Yakima, Wash.
**Audrey Simmons**, President,
Water Watch, Portland, Oregon

**Provocative Question 2.** ***How should Treaty Reserved Water Rights, with regard to quantity and quality, fit into state water plans?***
Presenter: **Mason D. Morisset**, Attorney at Law, Pirtle, Morisset, Schlosser & Ayers
Respondents: **Paul Chasco**, Secretary-Manager Kennewick Irrigation District, Pasco, Washington
**Betty Tabbutt**, Washington Environmental Council

**Provocative Question 3.** ***Should Washington have free-flowing rivers in the next Century?***
Presenter: **Sandra Nelson**, Executive Director, Northwest Rivers Council
Respondents: **Merrill English**, Director, Washington Rivers Coalition
Representative **Dick Nelson**, Chair, House Energy & Utilities Committee,

5:30 p.m. Adjourn

## SATURDAY, SEPT. 30

8:00 a.m. Registration desk opens

9:00 a.m. **KEYNOTE ADDRESS**
**"WATER RIGHTS AND WATER WRONGS"**
Huey Johnson, President, Renewable Resources Institute, Calif. (former Secretary, The Resources Agency, State of California)

**MODERATOR: Claire Dyckman**

**Provocative Question 4.** ***How should economic considerations affect allocation decisions? Can the pricing of water at "true costs" improve the allocation of water? How can values that cannot be reduced to dollars be protected?***
Presenter: Prof. **Mason Gaffney**, Dept. of Economics, Univ. of Calif. at Riverside
Respondents:
Out of Stream **Jim Miller**, Washington Water Utilites Council
Instream **Ed Whitelaw**, President, ECO Northwest, Eugene, Oregon

**Provocative Question 5.** ***What are the ethical considerations related to water and present and future generations?***
Presenter: John Miles, Dean, Huxley College, Western Wash. University
Respondents: Member invited, Joint Select Committee on Water Resource Policy, Washington State Legislature
Robert M. Benton, Professor of English, Central Washington University

1:30 p.m. Adjourn

**Please photocopy this form for additional registrants. Direct questions to (206) 543-1812**

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positions since 1978 and 1974, respectively. Among other academic responsibilities, he was a Fulbright Professor at the University of Athens, Greece, and Visiting Professor at the University of Oregon Law School in 1988. He was a Fellow at the Institute for Humane Studies in California in 1981 and Visiting Professor 1980-81 at the University of Auckland in New Zealand. Prior to joining academia, Professor Huffman was with the Montana Department of Planning and Economic Development and a research economist in the private sector in Montana. Currently he is a Chairman of the Oregon State Advisory Committee for the U.S. Commission on Civil Rights, a member of the Board of the Rocky Mountain Mineral Law Foundation, and the Association for Canadian Studies in the United States. His many past activities included membership on the Committee on Public Interest Determination for the Oregon Water Resources Commission (1986-87), and the National Academy of Sciences Committee on Socioeconomic Effects of Earthquake Prediction. Of his numerous publications, he is the author of the book, Government Liability and Disaster Mitigation: A Comparative Study (University Press of America, 1986). He holds a B.A. from Montana State University, M.A., Fletcher School of Law and Diplomacy at Tufts University, and a J.D. from the University of Chicago Law School, and was a Post-Doctoral Fellow (Raymond Fellow) there upon graduation.

**Floyd E. Ivey**, is an attorney admitted to practice before all courts of the State of Washington, the Federal District Court for the Eastern and Western Districts of Washington State, the Ninth Circuit Court of Appeals, the U.S. Supreme Court, and the U.S. Court of Claims; he is a member of the Benton-Franklin County and Washington State Bar Assns. He represents the Kennewick Irrigation District; the City of Yakima with regard to the State vs. Acquavella; and the Naches-Selah Irrigation District related to the Acquavella case. He served in the Navy, attaining the rank of Lieutenant, and later was an electronic engineer with EG&G, Inc., a prime contractor with the Atomic Energy Commission. He holds a B.S. Electrical Engineering from the University of New Mexico, M.B.A. from the University of Nevada at Las Vegas, and J.D. (Cum Laude) from Gonzaga University Law School.

**Huey D. Johnson**, President, Resource Renewal Institute, Sausalito, CA. In 1963 he was Western Regional Director for the Nature Conservancy; then, founded and served as first president of the Trust for Public Land, a nonprofit land-acquisition corporation. From 1977-1982 he was California's Secretary for Resources, serving in Governor Jerry Brown's cabinet, where as part of a 100-year plan for California he successfully tested the resource renewal concept through a program called Investing for Prosperity. $125 million of state monies were invested each year in programs to restore fisheries and forests and to develop alternative energy and energy conservation projects. Currently, he serves on the board of Defenders of Wildlife, and previously served on the Governing Council of The Wilderness Society, and the board of the International Institute for Environment and Development (IIED).

**Professor Ralph W. Johnson**, University of Washington School of Law, is an Adjunct Professor in the Institute of Marine Studies and Environmental Studies. He has been teaching since 1955 and specializes in water law, coastal zone law, and American Indian law. He has served as Chief Consultant to the United States Senate Committee on Interior and Insular Affairs, and as consultant to the National Water Commission, National Academy of Sciences Committee, the Stanford Research Institute, the Hudson Institute, and state and federal agencies. He has received Ford Foundation National Science Foundation and EPA grants to study and write about water management in Europe, has served as a United Nations consultant to Papua, New Guinea, has lectured at Law Schools in England, Israel, Canada, and China, and taught as a Visiting Professor at Harvard Law School in 1981-82, and at UCLA in 1986-87. He has authored numerous law review articles on water law and American Indian law topics, co-authored books, "Cleaning Up Europe's Waters: Economics, Management, and Policies," and "Ocean and Coastal Law," and was an

author and editor of the treatise "Felix Cohen's Handbook of Federal Indian Law." Professor Johnson served, in 1977, on the National Academy of Sciences Committee to Evaluate the OCS Environmental Studies Program. He is currently a member of the National Academy of Sciences Panel to review the OCS Environmental Studies Program, and services on the Socioeconomics panel. He is admitted to practice in Oregon and Washington. He earned his B.S. and his J.D. at the University of Oregon and a Diploma from the Hague Academy of International Law.

**Marion Marts**, Professor Emeritus, Geography, University of Washington, first joined the faculty in 1951, specializing in water resource policy issues, particularly in the Pacific Northwest. Prior to retiring from University of Washington in 1986, Dr. Marts was also Director, Evening Classes (1957-63), Dean, Summer Quarter (1960-80), Vice Provost (1963-69), Ombudsman (1980-84); he also served as Adjunct Professor in Urban Planning and the Institute for Environmental Studies. Currently he is teaching courses on Rural Regional Geography and Urban Geography at Seattle Pacific University. Marts received his Ph.D. (Geography from Northwestern University; and his MA (Geography) and BA (English) from the University of Washington. While a Ph.D. candidate and following graduation he was a resource economist in the planning branch, Bureau of Reclamation's regional office, Boise. He is a member of the Join Scientific Committee of the Washington Water Research Center.

**James W. Miller**, is General Manager of Federal Way Water and Sewer (FWWS), the largest water/sewer district in the State, providing service for about 80,000 people in the Federal Way area. Mr. Miller was Director of Water Management and Engineering for the Seattle Water Department for seven years prior to joining FWWS. After receiving training and certification in Municipal Public Works Administration, Miller has developed and/or implemented several new organizational structures including a matrix project management organization, several water district mergers, and a Committee, the High-Level Nuclear Waste Board, and is a member of the Governor's Committee for Environment of Water and Natural Resources to 2010. He continues his many years of service as a Reviewer for the National Science Foundation, the U.S. Environmental Protection Agency's Proposals and Grants, and U.S. Department of Interior. In addition, he is Publications Reviewer for Water Research, the International Journal of Water Pollution Research, Freshwater Ecology, and Northwest Science. He has served as President or Chairman of the PNW Pollution Control Association, North American Lake Management Society (NAIMS) National Association. of Water Institute Directors, V.P. of the American Water Resources Association - Washington, and on the Boards of the Universities Council on Water Resources and the Water Pollution Control Federation (WPCF). Among his many honors are the Arthur Sidney Bedell Award from the WPCF, and the Secchi Disk Award for Individual Achievement from NALMS. Funk holds his B.S. (Biology), M.S. (Zoology and Botany), and Ph.D. (Limnology and Microbiology) from the University of Utah, Salt Lake City.

**Mason Gaffney** is Professor of Economics at the University of California, Riverside. Among his water-related activities, he served four years on the Utilities Commission for the City of Riverside, was Executive Director of the British Columbia Institute for Economic Policy Analyses for three years, and a Senior Research Associate with Resources for the Future in Washington, D.C. He is author of a number of papers, including "Diseconomies Inherent in Western Water Law" in the Western Journal of Agriculture Economics (1960), followed by a subsequent Debate with Frank Trelease of the University of Wyoming in the Journal of Farm Economics. Gaffney holds a B.A. in Economics from Reed College and earned his Ph.D. in Economics from the University of California at Berkeley.

**James L. Huffman** is a Professor of Law with the Lewis and Clark Law School and Director of the Natural Resources Law Institute in Portland, Oregon, serving in those

in 1976, Mr. Du Bey served as Assistant Regional Counsel with the Seattle Regional Office of the Environmental Protection Agency. He entered private practice in 1980 and established the Du Bey Law Firm in 1985, representing Indian Tribal governments and Tribal organizations in Montana, New York, Arizona, Colorado, Maine, Alaska and Washington.

**Claire Dyckman**, currently Community Liaison for the Puget Sound Water Quality Authority, works with the agricultural community as well as the broader public. Prior to joining PSWQA, she was Environmental Analyst for Seattle City Light where her analyses included consideration of the water rights and water wrongs of electrical generation. Dyckman is also a curriculum writer and educator about watersheds and watershed issues, including rights and wrongs related to salmon and urban storm drains. She holds a B.A. from Smith college, and an M.Ed. from Western Washington University; she has been a member of the faculty for the Huxley College of Environmental Studies.

**Merrill, H. English** was raised in a rural environment in Arkansas and Missouri. He attended the University of Missouri, and earned his B.S. in Agriculture at the University of Arkansas. He continued post graduate work at the University of Washington. He spent five years as an educator in the bush country of Alaska, then was in the investment business, as a stockbroker, in the Seattle Area until 1980. He is presently semi-retired on an alfalfa ranch in Eastern Washington, which has a free-flowing river.

**William H. Funk**, has been Director of the Washington Water Research Center since 1982, a consortium of the public universities in Washington State. He is also a Professor in Environmental Engineering (limnologist) at Washington State University, appointed in 1966. At WSU he has served as Chair of the Environmental Science and Regional Planning Program, the Environmental Research Center, and Director, of the Institute for Resource Management. He was a member of the State of Washington Centennial Water merged water and sewer district. He holds a BS, Civil Engineering, from Seattle University and an MS in Water Resource Management from the University of Washington. His Master's Thesis was on "The Effects of Minimum and Peak Stream Flows on Fish Production and Water Supply".

**Mason D. Morisset** is a partner in the law firm of Pirtle, Morisset, Schlosser & Ayer, a professional services corporation with offices in Seattle and Washington, D.C. He is admitted to all courts in the State of Washington, the Ninth Circuit Court of Appeals, United States Tax Court, Claims Court, and the United States Supreme Court. He has been an active litigator for over twenty years, primarily in the area of natural resource litigation. He has participated in numerous U.S. Supreme Court appeals, and has argued in two cases, *Antoine v. Washington* (1975) and *Washington v. Fishing Vessel Association* (1979) (the "Boldt" decision). Active in civic affairs, he served as Mayor of the Town of Clyde Hill, WA, and is now Chairman of the Town Board of Adjustment, hearing zoning and land use variance matters. He received his B.S. from Lewis & Clark College; M.A. in Political Science, University of Washington, and J.D. from the University of California, at Berkeley.

**Representative Dick Nelson** was first elected to the Washington State House of Representatives in 1976, now serving his seventh term as a 32nd District legislator. He is currently a self-employed technical consultant. In addition to serving on the House Local Government and Transportation Committees, Dick chairs the House Energy and Utilities Committee. He has participated in legislative efforts to establish a water resource policy for the state and has introduced a plan to protect Washington streams from hydroelectric development that would adversely impact environmental values. He is a member of the State Nuclear Waste Board, and the National Conference of State Legislature's Energy Committee. A Seattle native, Dick graduated from Ballard High School, received a degree in engineering from the University of Washington, and earned a Doctor

of Science from the Massachusetts Institute of Technology.

**Sandie Nelson**, Executive Director, Northwest Rivers Council, previously served for nine years as a community organizer and legislative liaison for Environmental Action in Washington, D.C. , traveling nationwide working with citizen groups in the environmental movement. She has been an active volunteer with Friends of the River in California and with American Rivers, based in Washington, D.C. Her activities include public speaking, editing, and production, as well as administration and fundraising.

**Ernest Partridge** is visiting Associate Professor of Philosophy at California State University, Fullerton. His specialties include Environmental Ethics, Policy Analysis, Moral Philosophy, and Applied Ethics. He received his Ph.D. from the University of Utah and has recently taught Philosophy at several campuses of the University of California. He has published numerous papers dealing with moral philosophy of education, and has presented many papers before the American Philosophical Association and other scholarly societies. He is a member of the Board of Editors of Environmental Ethics and The Journal of Environmental Education. Under a grant from the Rockefeller Foundation, Dr. Partridge conducted research relating to the moral question of the duty to posterity. One product of that research, an anthology titled *Responsibilities to Future Generations* was published in 1981 by Prometheus Books. Dr. Partridge is presently at work on three scholarly books, *Nature and the Future* (a collection of his papers), and *To Ourselves and Our Posterity*. In June, 1983, he was awarded an Interdisciplinary Incentive Award from the National Science Foundation and the National Endowment for the Humanities and, from the summer of 1984 through the summer of 1986, he engaged in research on the ethical aspects of earthquake prediction and seismic safety analysis at the University of Colorado. Work on that project continues, and is expected to result in the publication of several additional papers and a third original book.

reservation. She received her Ph.D. from the University of California, Berkeley.

**Doug Clausing**, Regional Resource Supervisor, Central Regional Office, Washington Department of Ecology, has been in water resources for over 20 years. He recalls starting in an entry level position as "Water Master" settling disputes with farmers and making some permit decisions. He has been a supervisor since 1974, and has worked in all regions of the State except the Southwest.

**Kaleen Cottingham** is an Executive Policy Analyst on the staff of the Governor of Washington, advising on natural resource issues and tribal issues, with primary emphasis on water, fisheries, wildlife, and agriculture. Her previous positions, mostly relating to natural resource programs, included Senior Counsel for the Washington State Senate's committees on Natural Resources and Agriculture as a Legal Intern for the Attorney General's Office, first with the Division of Fisheries and Game, then with the Division of Natural Resources. Prior to entering law school, Ms. Cottingham was Supervisor of Land Planning for Burlington Northern's Timber and Land Department, and a Land Use Planning Forester with the Oregon State Department of Forestry. She holds a B.S. in Forest Resources from the University of Washington and earned her J.S. (cum laude) from the University of Puget Wound Law School, were she was the recipient of the Dean's Award for Academic Achievement.

**Richard A. Du Bey** is an attorney whose principal areas of practice include environmental and administrative law, water quality management, land use, hazardous waste, and Native American natural resource law. He is also a visiting associate professor at the University of Washington's Institute for Environmental Studies, where he has developed and taught courses since 1978 in environmental law and the administrative hearing process for nonlaw students.

After graduating from the New England School of Law in 1975 and receiving his masters in law and marine affairs from the University of Washington School of Law

## BIOGRAPHICAL SKETCHES

**Robert M. Benton,** Professor of English and Coordinator of Central Washington University's Lynnwood Center, has been Visiting Professor of Environmental Studies at the University of Washington since 1981. He was one of the Directors of the Washington Environmental Council from 1970-1973 when the Shoreline Protection Bill was formulated. Following the passage of shoreline legislation, he served for 18 months as a member of the Kittitas County Shoreline Advisory Committee.

**Donald L. Bond**, an Attorney at Law in Yakima for the past thirty-two years, practices at all levels before Washington State Courts, the U.S. District Court, U.S. Court of Appeals, U.S. Supreme Court, and the U.S. Tax Court. His legal expertise is in water rights and water rights law, Indian law, and he was legal counsel for twelve years in the pending general adjudication of the surface waters of the Yakima River Basin. He is author of "Crops," the Real Property Desk Book of the Washington State Bar Association; he served on WSBA's Board of Governors from 1983 to 1986. Currently is his President of the Board of Directors for Valley Memorial Hospital in Sunnyside, Washington, is Founder and President of the Yakima Valley Hearing and Speech Center, and is Chairman of the Yakima Valley Chapter of the Red Cross. He received his BA, Economics, from Washington State College, where he was elected to Phi Beta Kappa and Phi Kappa Phi, academic honor societies. A graduate of the University of Washington School of Law, where he was awarded Order of the Coif.

**Jovana J. Brown** is a member of the faculty in Environmental Studies at the Evergreen State College, teaching natural resource policy, which includes Public Land Policy and Tribal Resource Development. Her current area of research is state-tribal relations in Washington state in regard to natural resource issues, paying particular attention to water policy formulation and Indian water rights issues. Fall and winter quarters she will teach in a new Evergreen program on the Quinault Indian Nation

**Charles B. Roe, Jr.**, is a Senior Assistant Attorney General, State of Washington. He is a graduate of the University of Puget Sound (B.A. 1953) and the University of Washington (J.D. 1960). He joined the Washington State Attorney General's Office in 1960, became division chief of that office's Water Resources Division from 1963 to 1970 and then chief of the Environmental Protection Division from 1970 to 1985. He served as assistant director of the Washington State Department of Water Resources from 1967 to 1969. Roe also served as a counsel to Governor Daniel J. Evans on natural resource-environmental protection matters from 1969 to 1977. Roe is former chairman of the Environmental Law Section of the Washington State Bar Association and the Water Resource Committee of the Natural Resources Section of the American Bar Association. He was an Adjunct Professor at Gonzaga University School of Law from 1973 to 1977 and has served in that capacity at the University of Puget Sound School of Law since 1986. In 1971 to 1972 he was a contractor for the National Water Commission..

**Audrey Simmons**, is a founder and President of Water Watch, a nonprofit, public interest, membership, tax exempt organization incorporated in the State of Oregon, "in recognition of the need for a long-term commitment on the critical issue of changing water management to address the needs and concerns of the latter part of the 20th Century and the beginning of the 21st Century. " Ms. Simmons chaired the conference in 1988 on "The Public Trust and Water of the American West: Yesterday, Today, and Tomorrow," held at the Northwestern School of Law, Lewis & Clark College. She is active in the League of Women Voters of Oregon, a member and chair of its Land Use and Water Resource committee. In 1979 she was a founder and vice president of the Columbia River Citizens Compact.

**Betty Tabbutt** represents the Washington Environmental Council before the Washington State Legislature and state agencies in issues relating to resource management, pollution control, and waste reduction. She is Adjunct Faculty at the Evergreen State College where she teaches Environmental Policy in the graduate program of Environmental Studies. She holds a B.A. from Oberlin College and a M.A. from Radcliffe College.

**Don Tahkeal,** a member of the Confederated Tribes of the Yakima Indian Nation, serves on the Tribal Council. In addition he is responsible for a number of Natural Resource programs, including being Chairman of the Timber and Grazing Overall Economic Development Committee; Chairman, Radioactive Hazardous Waste Committee; Chairman, Timber, Fish, and Wildlife Committee; and he serves as Secretary to the Roads, Irrigation, and Land Committee. Mr. Tahkeal has participated on several conference/symposium planning committees for the Continuing Environmental Education Program of the Institute for Environmental Studies.

**Ed Whitelaw** is the president and founder of ECO Northwest, an economic and financial consulting firm in Eugene, Oregon,and EPI Northwest, a non-profit research institute. His consulting, research, and teaching focus on state and local economies, resource and environmental economics, and the economic role and performance of small businesses. His current and past positions include membership in Governor Goldschmidt's Economic Development Commission, the Statistical and Scientific Advisory Committee to the Northwest Power Planning Council, Governor Atiyeh's Council of Economic Advisors, and the Advisory Committee on Cities to President Carter's Domestic Council.

**Karla Wilson** is Representataive in the Washington State Legislature from District 39. She is serving her third term as vice-chair of the Natural Resources Committee; and was recently appointed to the Joint Select Committee on Water Resource Policy. A special education teacher at Lake Stevens High School, she has worked at a variety of jobs from ad clerk at the Everett Herald to Engineering

**Out-of-Stream**

11 a.m. — **Jim Miller**, Chair
Washington Water Utilities Council

**Instream**

11:15 — **Ed Whitelaw**, President
ECO Northwest, Eugene, Oregon

**Provocative Question #5**

11:30 — ***What are the ethical considerations related to water and present and future generations?***

**Ernest Partridge,** Professor
Dept. of Philosophy
California State University at Fullerton

**Respondents:**

12 - 12:15 — **Representative Karla Wilson**, Member, Joint Select Committee on Water Resource Policy, Washington State Legislature

12:15 - 12:30 — **Robert Benton,** Professor of English, Central Washington University

12:30 - 1:30 — Audience Discussion of Provocative Question

1:30 — Adjourn

**Respondents:**

4:30 - 4:45 — **Donald H. Bond**, Attorney, Halverson & Applegate, P.S. Yakima, Washington

4:30 - 4:45 — **Audrey Simmons**, President Water Watch, Portland, Oregon

4:45 - 5 p.m. Question & Answers for Afternoon Session

**Saturday, September 30**

8:00 Registration Desk Opens

9 a.m. (45 min.) **"Water Rights and Water Wrongs"**

**Moderator: Polly Dyer**

**Huey Johnson**, President, Renewable Resources Institute, California (former Secretary, The Resources Agency, State of California)

9:45 - 10:05 (20 min.) Question & Answer Session

10:05 (10 min.) **Moderator: Claire Dyckman**

**Provocative Question #4**

*10:15 - 10:45* ***How should economic considerations affect allocation decisions? Can the pricing of water at "true costs" improve the allocation of water? How can values that cannot be reduced to dollars be protected?***

**Presenter:Prof. Mason Gaffney**, Dept. of Economics, University of California at Riverside

10:45 **Break**

**Respondents:**

Assistant at General Telephone. She returned to college to complete her bachelor's degree at the University of Washington in 1972, and her Master's in Special Education in 1976. She has been a Church School Superintendent and Vice-President of Snohomish County United Church Women, worked on the Lake Stevens Planning Commission, and has been President of, and Chief Negotiator for, the Lake Stevens Education Association. She was a charter member of the Snohomish County DWI Task Force and served on the board of the Human Services Council of Snohomish County. In 1988 she was chosen as one of 100 women nationally to participate in a 3-part symposium, "Leadership America". She has served on the house Transportation and Higher Education Committees, and currently sits on the Education, Financial Institutions and Insurance committees.

**Steven Zubalik,** with the Washington State Energy Office, is Manager of Geographic Information Systems Applications to look at environmental and energy resources. He is also State Coordinator for the Pacific Northwest Rivers Study and a member of the State Hydropower/Resources Protection Task Force. Mr. Zubalik is Director of Research for the Florence R. Kluckhorn Center, a nonprofit corporation working with cross cultural communication. Formerly he was Water Resources/Shorelines Planner for the Lummi Indian Business Council. He received his MS in Civil Engineering, Program of Social Management of Technology, from the University of Washington, and his MS in Environmental Planning from Huxley College, Western Washington University.

**Respondents:**

2:15 - 2:30 — **Merrill English**, Director
Washington Rivers Coalition,
Dayton, Washington

pvt. rights

2:30 - 2:45 — **Representative Dick Nelson**, Chair
House Energy & Utilities Committee
Washington State Legislature

**Provocative Question #2**

*2:45 - 3:15* — ***How should Treaty Reserved Water Rights, with regard to quantity and quality, fit into state water plans?***

**Presenter:**

**Mason D. Morisset**, Attorney at Law,
Pirtle, Morisset, Schlosser & Ayer, Seattle,
Washington

3:15 - 3:30 — **Break**

**Respondents:**

3:30 - 3:45 — **Floyd Ivey**, Attorney
Kennewick Irrigation District,
Pasco, Washington

3:45 - 4 p.m. — **Betty Tabbutt**,
Washington Environmental Council

**Provocative Question #3**

*4 - 4:30* — ***Can Western Water law rooted in the 19th Century serve the public interest in the 21st Century?***

**Presenter:**

**Ralph Johnson**, Professor of Law,
University of Washington

10:45 **Building Better Relationships:**
**Intergovernmental Cooperation**

**Kaleen Cottingham,**
Executive Policy Analyst,
Office of the Governor of Washington

11:15 **HISTORICAL USES**

**Professor Marion Marts,**
Dept. of Geography,
University of Washington

11:45 - 12:15 **Audience Question & Answer Session**

12:15 - 1:15p.m. Lunch (on one's own)

1:15 - 1:25 **TODAY'S CONFLICTS & DECISIONS**

**Moderator: Steven Zuballk**
Washington State Energy Office

1:25 - 1:45 **BACKGROUND: CURRENT PROCEDURES**

**Doug Clausing**, Regional Resources
Supervisor Central Regional Office,
Washington Dept. of Ecology

**Provocative Question #1**

1:45 - 2:15 ***Should Washington have free-flowing rivers in the next Century?***

**Presenter: Sandra Nelson**, Executive Director,
Northwest Rivers Council

**Friday, September 29**

7:45 a.m. Registration Desk Opens

8:15 a.m. **PAST TO PRESENT:**

Moderator: **Jovana Brown**, Member of the Faculty,
The Evergreen State College

8:30 **WATER: Where? How much?**

**William Funk**, Director
Water Resources Research Center,
Washington State University

**LEGAL FRAMEWORK & GOVERNMENT STRUCTURE**

9 a.m. **Federal**

**Prof. James L. Huffman**
Northwestern School of Law
Lewis & Clark College, Portland, Oregon

9:30 **Washington and Western States**

**Charles Roe**,
Senior Assistant Attorney General,
Washington Dept. of Ecology

10 a.m. Break

Moderator: **Don Tahkeal**, Tribal Council
Confederated Tribes of the
Yakima Indian Nation

10:15 **Tribal**

**Richard A. DuBey**, Attorney at Law
The Du Bey Law Firm, Seattle, Washington

## COOPERATORS

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State of Washington Water Research Center
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Washington Department of Fisheries
Northwest Rivers Council
The Evergreen State College
Friends of the Earth Northwest
American Water Resources Assoc., Washington Chapter
Washington Environmental Council
Washington State Water Resources Association


## ACKNOWLEDGEMENTS

The Institute for Environmental Studies greatly appreciates the participation by representatives of the Cooperators in developing this symposium. Planning started over six months ago, and the program's comprehensiveness is due to the wealth of knowledge by all of them.

Polly Dyer
Continuing Environmental Education Director
Institute for Environmental Studies


***Washington State Bar Association has approved 12.75 CLE***
***1.2 CEU is also available.***


The Institute for Environmental Studies greatly appreciates the participation of those who helped develop the program:

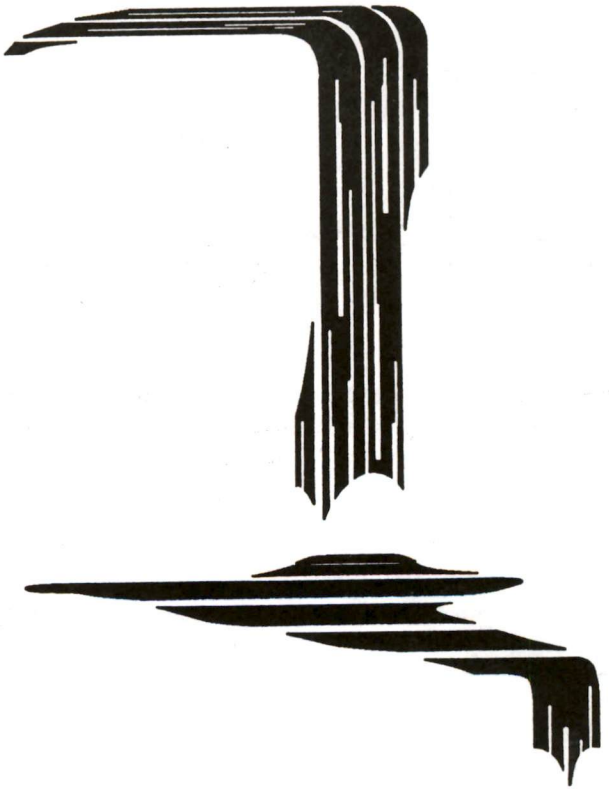
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# Whose Water? Past; Present; Future?

**A public conference sponsored by**

**The Institute for Environmental Studies,**
**University of Washington**

**Sept. 29 & 30, 1989**



**Snoqualmie Room Northwest Court**

**Seattle Center, Seattle, WA**

# Whose Water? Past; Present; Future?

September 29 & 30, 1989

Snoqualmie Room, Northwest Court, Seattle Center, Seattle, Washington

## FRIDAY, SEPT. 29

7:45 a.m. Registration desk opens

8:15 a.m. **PAST TO PRESENT:**

Moderator: Jovana Brown,
The Evergreen State College

**PHYSICAL: Where? How much?**
William Funk, Director, State of Washington Water Resources Research Center

**LEGAL FRAMEWORK & GOVERNMENT STRUCTURE FOR WATER**

**Federal**
James L. Huffman, Professor,
N.W. School of Law, Lewis and Clark College

**Washington and Western States**
Charles Roe, Assistant Attorney General,
Washington Dept. of Ecology

**Tribal**
Richard DuBey, Attorney at Law

**Building Better Relationships: Intergovernmental Cooperation**
Kaleen Cottingham, Executive Policy Analyst,
Office of the Govenor of Washington

**HISTORICAL USES**
Marion Marts,
Professor of Geography,
University of Washington

12:15 p.m. Lunch (on one's own)

1:15 p.m. **TODAY'S CONFLICTS & DECISIONS**

**MODERATOR: Steven Zubalik, Washington State Energy Office**

**BACKGROUND: CURRENT PROCEDURES**
Doug Clausing, Regional Resource Supervisor,
Central Regional Office,
Washington Dept. of Ecology

**PROVOCATIVE QUESTIONS**

**Provocative Question 1.** ***Can Western water law rooted in the 19th Century serve the public interest in the 21st Century?***
Presenter: **Ralph Johnson**, Professor of Law, University of Washington
Respondents: **Donald H. Bond**, Attorney, Halverson & Applegate, P.S. Yakima, Wash.
**Audrey Simmons**, President,
Water Watch, Portland, Oregon

**Provocative Question 2.** ***How should Treaty Reserved Water Rights, with regard to quantity and quality, fit into state water plans?***
Presenter: **Mason D. Morisset**, Attorney at Law, Pirtle, Morisset, Schlosser & Ayers
Respondents: **Paul Chasco**, Secretary-Manager Kennewick Irrigation District, Pasco, Washington
**Betty Tabbutt**, Washington Environmental Council

**Provocative Question 3.** ***Should Washington have free-flowing rivers in the next Century?***
Presenter: **Sandra Nelson**, Executive Director, Northwest Rivers Council
Respondents: **Merrill English**, Director, Washington Rivers Coalition
Representative **Dick Nelson**, Chair, House Energy & Utilities Committee,

5:30 p.m. Adjourn

## SATURDAY, SEPT. 30

8:00 a.m. Registration desk opens

9:00 a.m. **KEYNOTE ADDRESS**

**"WATER RIGHTS AND WATER WRONGS"**
Huey Johnson, President, Renewable Resources Institute, Calif. (former Secretary, The Resources Agency, State of California)

**MODERATOR: Claire Dyckman**

**Provocative Question 4.** ***How should economic considerations affect allocation decisions? Can the pricing of water at "true costs" improve the allocation of water? How can values that cannot be reduced to dollars be protected?***
Presenter: Prof. **Mason Gaffney**, Dept. of Economics, Univ. of Calif. at Riverside
Respondents:
Out of Stream **Jim Miller**, Washington Water Utilites Council
Instream **Ed Whitelaw**, President, ECO Northwest, Eugene, Oregon

**Provocative Question 5.** ***What are the ethical considerations related to water and present and future generations?***
Presenter: John Miles, Dean, Huxley College, Western Wash. University
Respondents: Member invited, Joint Select Committee on Water Resource Policy, Washington State Legislature
Robert M. Benton, Professor of English, Central Washington University

1:30 p.m. Adjourn

**Please photocopy this form for additional registrants. Direct questions to (206) 543-1812**

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**To Register** enclose this form in an envelope with your check or purchase order and mail to:

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Institute for Environmental Studies
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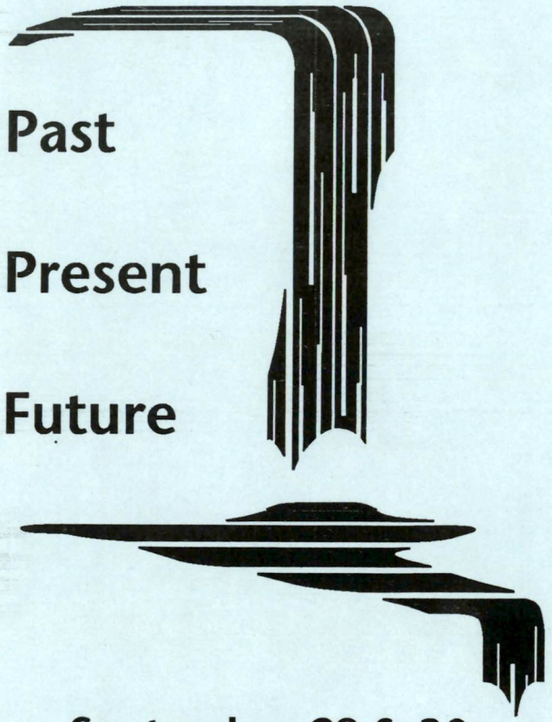
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# WHOSE WATER?

Past

Present

Future



**September 29 & 30**
**Seattle Center**
**Snoqualmie Room**

## "Whose Water? Past; Present; Future?"

Growth of Washington State's population and economy places increasingly greater demands on available water resources; and in 1988 the Legislature established a Joint Select Committee on Water Resource Policy. To explore the current situation, one needs to know something about the past. To take a long look into the future, some innovative thinking can help.

This conference is an opportunity for you to become up-to-date on a number of aspects about ***Whose Water? Past; Present; Future.*** Some provocative questions posed to invited speakers and repondents may stimulate your thinking about solutions. The first of five is *"Can Western water law rooted in the 19th Century serve the public interest in the 21st Century?"*

*"Water Rights and Water Wrongs"* is the Keynote Address by Huey Johnson, former Secretary of Resources, State of California. Now President of the Resource Renewal Institute, one of its major new programs is the Water Heritage Trust.

Continuing Legal Education Credit (CLE): 12.75.

REGISTRATION INFORMATION:

Regular Fee, $95.00 each; 3 or more from same organization, $80.00 each; Student, $45.00. If you are unable to attend or send a substitute, a refund will be made of the registration fee, less $20.00 for handling, if written request is received by Sept. 25. A limited number of scholarships are available; apply to: Institute for Environmental Studies, Univ. of Washington, FM-12 Seattle, Wash. 98195

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Jim Miller, Federal Way Water & Sewer, ~~PO Box 4249,~~ 31627 1st Av. So., Fed. Way Wa. 98063

Send bio. to Polly Ayer
fax 206/543-9285

Ed White Law, ECO No. West, 99 W. 10th, Eugene OR 97401

# State of Washington gets new chapter of Common Ground

The seven thoughtful citizens of the State of Washington, who have formed a new chapter of Common Ground — USA there have chosen their own name.

The group will be active as the Washington Georgist Association for the time being, according to word from Los Angeles Chapter Secretary Marion Sapiro, who adds, "they are considering the name, Washington State Public Revenue Association.

The charter members: Melville Forde, Victor Overstreet, Hamlet Hilpert, Roland Ballen, Wendy Rockwell, and Gene Levin.

Hamlet Hilpert is President, Melville Forde is Vice President and Wendy Rockwell is Secretary/Treasurer.

The new group starts out with a five point activity list. They will 1) conduct research on selected issues and problems that can be addressed with Georgist principles, 2) communicate with elected officials, 3) meet with and supply material to influential journalists, 4) hold public meetings featuring speakers, videotapes and slide shows on topics relevant to Georgists, and 5) write letters to the editor on timely issues, and sponsor and conduct Henry George classes.

Their object, however, is singular.

The new Washington Georgist Association has set out to "develop a state tax structure which promotes economic development, based on seven principles."

They plan monthly meetings at one another's homes as things get started.

Here are the principles on which their single objective is based.

1) Application of sound environmental policies,

2) Maximizing job opportunities and removing tax penalties on labor and capital,

3) Minimizing the exhaustion of natural resources and collecting for society the value of natural resources extracted or used,

4) Maximizing opportunities which will promote home ownership by young people,

5) Maximizing the wide participation of all segments of society in an organized plan which has a stable base and one in which the taxpayer can look down the tunnel and see his/her role and responsibilities for making the system fair and equitable for all citizens regardless of their location and placement on the economic ladder,

6) Collection of socially created land values, and

7) Untaxing of improvements and personal property.

following account of what was accomplished during those few days.

**Research** Steve assisted us in research into the Oakland property records at the Alameda County Assessor's Office. He taught us how to calculate the building-to-land ratio and how much the tax has to be shifted onto land values to make up for the loss from the building assessments. We looked up property values and ownership for several parcels and learned how to use microfiche and map records. *Harold Julian*, an appraiser for Alameda County, was most courteous in his assistance and very knowledgeable.

**Government Officials:** Letters with enclosures were sent to all council members and assemblymen representing Oakland.

Steven met with *Dexter Robeson*, an aide for *Councilwoman Aleta Cannon*, for about an hour. *Vickie Dempf* arranged for this meeting. Dexter would like to view "A Tale of Five Cities" as a next step.

While in the council office Steve met briefly with Councilmembers *Wilson Riles, Jr.* and *Marge Gibson*, the latter having called with questions after receiving the letter and the former having sent his aide *Natalie Bayton* to the Bay Area Common Ground meeting with Steve.

At the request of *Assemblyman Elihu Harris*, Steve spoke for some length over the phone with his staff expert, *Adam Thurber*. *Assemblyman Johan Kley*'s staff person called to say he was in Sacramento during the time of Steve's visit, and *Mayor Lionel Wilson*'s assistant *Antoinette* called to say he would be out of town.

**Media Meetings**: A luncheon meeting with *Jonathan Marshall*, the editorial column editor for the *Oakland Tribune*, who took notes on what Steve had to say; one hour meeting with *San Francisco Chronicle* columnist *Harold Gilliam* in Grimm helped us with this contact. A *KPFA* radio interview was scheduled and then cancelled due to the station's accidental double booking. All in all, about a dozen media packets with cover letters were sent to newspapers, radio, and television and followed up with phone calls to arrange for the above media meetings.

**Clergy Meetings**: Steve had lunch with the *Rev. Donald Seaton* of St. Paul's Episcopal Church in Oakland (Cap Weinberger was once Deacon there). Don was most interested and supportive, is very active with the Interreligious Council of Oakland, and later gave us names of eight key religious leaders in the city. Letters of invitation with enclosure ( the *Christian Century* article on "Land as Gods Gift" by Walter Rybeck) were sent to all of them using the word processor to personalize each letter inviting them to a luncheon with Steve during his return visit with us. Several called to say they regretted being unable to attend, but one of the most politically active ones, the *Rev. Robert Eller-Isaacs* of the First Unitarian Church of Oakland, did meet with us for the lunch hour and really seemed to understand the relationship of the land value tax to Jubilee justice. Rob would like to see "The

Billings, "Severance Tax of Wtr." Paper at Conn. Mtg. of WTA. Long Beach.

Ariz. Tax to be implemented in yr. 2000, @ 50¢/af. Collected for wtr. cons.

Regulated more by needs.

Bonnie Colby, Ag. Econ; U.A.

C.V. Journ. Boulder, on Wtr. pricing. Works w. Bruce.

Mason —
I'll try to identify
$$ sources to
allow you to research
and publish your
concerns, if you
wish —

Bill

# Dam fights and water policy in California: 1969-1989

By Harrison C. Dunning

*Professor Dunning's article originally appeared in the July 1990 issue of* ***Journal of the West****, accompanied by photos and footnotes not included in this version. Reprinted with permission of the author and of Robin Higham, editor of* ***Journal of the West****, Manhattan, Kansas.*

Water policy in California has been through many transitions since the prior-appropriation doctrine was first developed in the mid-nineteenth century. The rise of irrigated agriculture, the growth of coastal cities with their demands for water-storage projects, and the rapid increase in water-related outdoor recreation since World War II have all led to shifts in emphasis and, sometimes, to very dramatic changes in legal doctrine within the state. In many instances the evolution has been provoked by a highly publicized controversy over the proposed construction or the operation of a dam or related facilities. These dam fights have served to highlight the underlying clash in values regarding the best use of water and to give focus and life to what otherwise might have remained rather abstract policy debates.

In this century California's most famous dam fight undoubtedly has been that over San Francisco's project in the Hetch Hetchy Valley of Yosemite National Park. That valley was regarded by many, foremost among them John Muir, as one of the Jewels of the Sierra Nevada, comparable in beauty to Yosemite Valley itself. Muir and the still-young Sierra Club fought hard to preserve Hetch Hetchy Valley from the water project, but to no avail. Los Angeles had built its Owens Valley project, other urban areas in California would in the near future be enjoying water from the Mokelumne River and the Colorado River, and San Francisco's plans for the Tuolumne River could not be defeated by Muir. This was an important dam fight, one that had a major effect on national-park policy. But it did not lead to any significant change in water policy in the state.

Dam fights in California in the last 20 years, however, have had very different outcomes. Some major water development proposals have been defeated altogether and are today no longer live possibilities. Even more important, perhaps, is the way some of the dam fights have led to a distinctly more preservationist and environmentally sensitive water policy. The most important change came from the dispute over Dos Rios.

**Dos Rios: Development of a California "Wild and Scenic" River System**

Dos Rios was a large dam and reservoir proposed for the Middle Fork of the upper Eel River on California's north coast. It would have been a major source of water supply for the State Water Project, with a storage capacity of over seven million acre-feet of water. To understand its significance, one must understand something of the history of state involvement in water development in California.

During the early decades of this century, major players in California water development were water districts and cities. A multitude of districts like the East Bay Municipal Utility District (EBMUD) and the Metropolitan Water District of Southern California (MWD) brought water hundreds of miles to their urban service areas. Engineers for the state of California were on the sidelines, but they were busy making plans to emulate the districts and the cities by developing projects in the Sacramento Valley to supply water to agricultural areas in the San Joaquin Valley to the south.

These plans for a major state water project, however, met many frustrations. The fact that a state water project would bring with it public power caused serious political problems in the 1920s. Although these were overcome during the Great Depression, by then state officials had concluded they would not be successful in selling the bonds necessary to finance a state water project. As a consequence, the state's Central Valley Project (CVP) was turned over to the federal government in 1935. Ultimately it was constructed by the U.S. Bureau of Reclamation, which impounded water not only at Shasta Dam on the upper Sacramento River, but also later at Trinity Dam on the Trinity River on the north coast. That water is brought by tunnel eastward to the Sacramento River, so as to join the Shasta Dam water, most of which is exported to the San Joaquin Valley.

After World War II, with the state economy recovered and with many large landowners restive over restrictions in federal reclamation law designed to ensure that federally developed water be limited to family farm enterprises, state officials again developed plans for a water project. The principal supply features of the state project, initially widely known as the Feather River Project but now termed the State Water Project (SWP), paralleled much of the CVP: a major impoundment facility in the Sacramento Valley, this one on the Feather River near Oroville; use of river channels to convey released water to the Sacramento-San Joaquin Delta; pumps to lift water from the Delta into an aqueduct heading south; and an off-stream storage reservoir in the San Joaquin Valley, to be shared with the CVP. California's legislature endorsed these initial features of the SWP in 1959, and with approval by the people of the financing in 1960, construction of the project got underway.

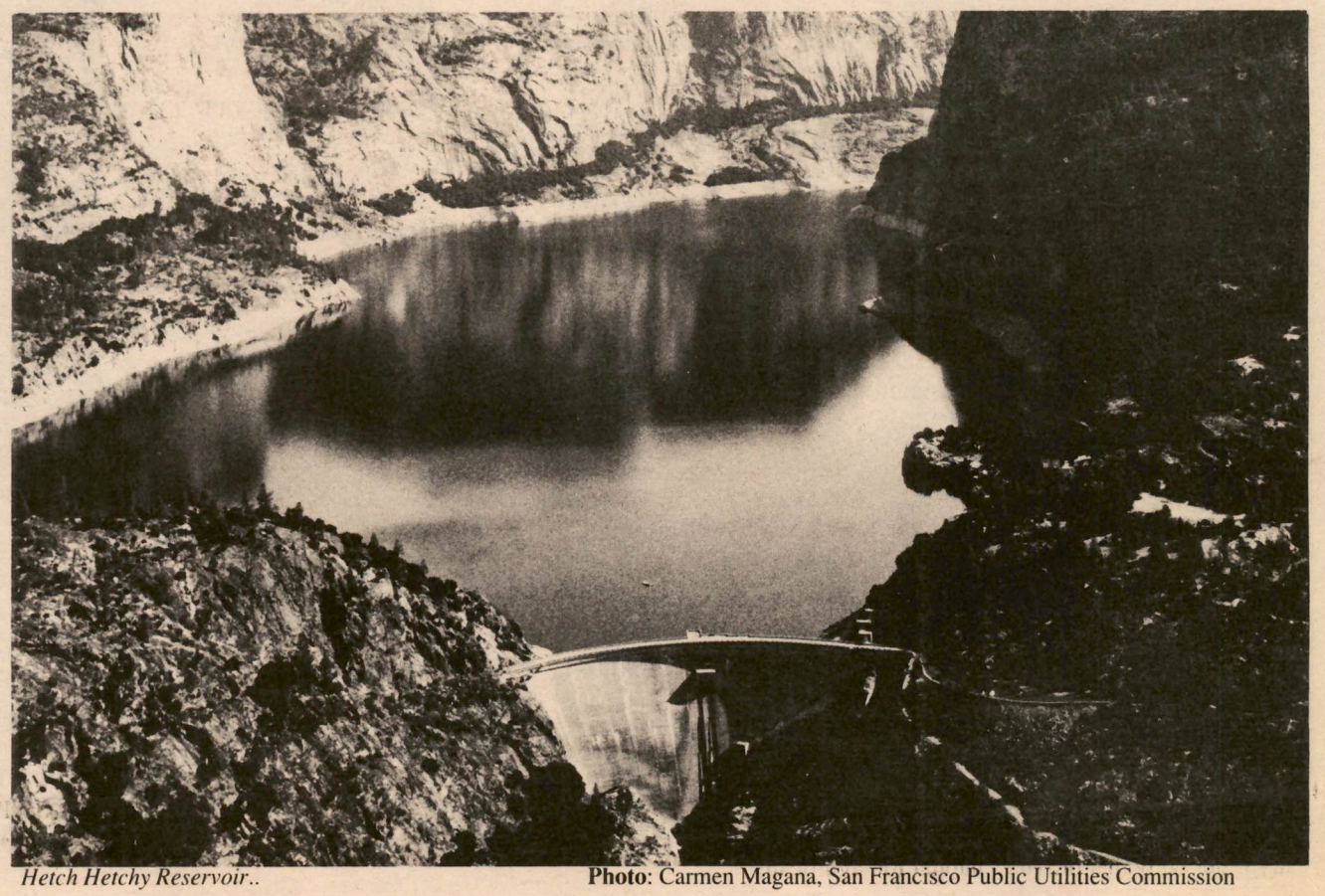
By 1964 the California Department of Water Resources (DWR), which had been created in 1956 to design, build, and operate the SWP, decided that the first additional supply facility for the SWP should be on the north coast. Just as the CVP had gone to the Trinity River, the SWP would go to the Eel River, where there had been serious flood problems that the U.S. Army Corps of Engineers wanted to remedy. After several years of studies, in 1967 the DWR entered into a memorandum of understanding with the Army. The Corps would design, construct, and operate the Dos Rios Rios Dam and Reservoir, while the DWR would contract for the project's water supply and would construct conveyance facilities to the Sacramento River. There the north coast water would join that from the Feather River for supply of the various SWP contractors.

Opposition to Dos Rios came from several sources. Regional tensions remained from the vote to approve the financing for the SWP — the Burns-Porter Act had received public affirmation by only a very narrow margin, with all northern counties voting against except Butte County, where Oroville Dam was to be constructed. Environmentalism had developed very strongly in the late 1960s: 1969, the year when Governor Ronald Reagan first expressed reservations about Dos Rios, was the year Congress, wiht hardly a dissenting vote, approved the National Environmental Policy Act. Local opponents of the dam mounted an effective campaign, publicizing their concerns to a statewide audience. Spiraling cost estimates were a major difficulty. And, apparently of greatest importance to the gubernatorial decision, Indians whose lands at the reservoir site would have been flooded were strongly opposed.

Thus, astoundingly to many observers of California politics, the energetic director of the DWR lost the debate over Dos Rios to the conservationist Secretary for Resources. A conservative governor sided with the opponents of a dam that SWP supporters said was badly needed to meet the water-supply commitments undertaken contractually by the DWR. Opponents led by rancher Richard Wilson had succeeded in Sacramento in the sort of dam fight John Muir had lost in Washington. Alternative water projects that would protect the Indian lands were studied, but in 1971 the whole idea of an upper Eel River project was abandoned.

Dos Rios, moreover, was more than elimination of a particular site from active

***Continued next page***



*Hetch Hetchy Reservoir..* **Photo**: Carmen Magana, San Francisco Public Utilities Commission

The basic problem, according to Davoren, is that the state system is overcommitted. After it was approved, the bureaucrats went wild and signed up agreements to deliver about twice as much water as they have ever been able to deliver, even in the wettest of years. Hence the strong interest in a peripheral canal to provide more water to send south, and hence a very big water- and land-use flap that is waiting to happen.

At some point rather soon, Davoren believes, the state will find itself in a three-way stretch, required to admit the limits of its supply and make a tough decision: Either (a) it fails to deliver on its future commitments to urban Southern California, (b) it cuts off some agricultural deliveries, or (c) it keeps up all commitments to Southern California and the farmers but drains the Delta dry in the process. Whatever happens, of course, leads to screams of protest and mobilization of all possible political clout: Southern California clout, farm clout, Delta/Bay Area/ environmental clout. Davoren figures the farm clout, formidable in the past, will lose. "The message to urban users south of the Tehachapis," he says, "is that if they want what they've paid for for thirty years, they're going to have to take it away from Kern County agriculture." As Davoren sees it, some regions will become rangeland, as they were before the system brought them irrigation water.

**Selenium — ecological dynamite**

Other huge expanses of farmland may go back to the cowboys before the next water war is over. On the western side of the San Joaquin, selenium is another problem.

Selenium is a nonmetallic element, chemically similar to sulfur. Animals need it in small — *very small* — *quantities*. Above the trace level, it becomes toxic to fish and wildlife. It becomes, in fact, ecological dynamite. There are high natural concentrations of selenium in the soil of the western valley — land that has become, thanks to the Bureau of Reclamation, irrigated farmland. Under irrigation, the selenium gradually leaches out of the soil and flows away in the runoff water. Some of it goes into the San Joaquin River, and eventually into the Delta and the Bay — or back through the pumps and canals for another round of irrigation. Some of it stays in the valley — but no longer in the soil.

As early as 1939 — well before the federal government began delivering water to the western valley — scientists warned that the selenium would become a problem. But the water flowed. From time to time other scientists warned about selenium. The state and federal governments took drainage seriously, but not too seriously; they planned a drain to carry runoff out of the valley to the Delta. The feds actually began construction of a 200-mile-long drain, but completed it only as far as the Kesterson Reservoir near Gustine. In 1983, the selenium finally hit the fan when it came out that the Kesterson National Wildlife Refuge was poisoning the wildlife it was supposed to be protecting. Only 8,000 contaminated westside acres drained into Kesterson, the first of several planned holding ponds for what turned out to be extremely toxic agricultural drainage. According to Davoren, "Once they started putting this really awful water in the drain and running it down eighty-two miles to Kesterson, the stuff concentrated and they found that it was killing first fish and then birds, attacking their reproductive process." Investigators found dead and deformed embryos and chicks, and mosquitofish with the highest levels of selenium ever reported in any living fish. Kesterson became a big-time environmental disaster, featured on CBS' *60 Minutes* and in newspapers all over the country. The government stopped draining agricultural runoff water into Kesterson, but the irrigation continues and so does the basic problem that comes with it. Selenium now sits quietly in holding ponds all over the valley, trickles into sloughs and ditches, and finds its way into aquifers and public drinking water supplies. [See story on sampling.]



*Dead American Coot chick found at Kesterson.* **Photo**: Bay

Sooner or later — probably sooner, Davoren thinks — the real selenium problem, the one for which the Kesterson flap was merely a preview, will be discovered by the public and the press. It's already known to scientists — who for the last few years have been holding an annual "selenium symposium" in Berkeley — and it is no secret to the various government agencies who will be held responsible for it. It could be a real headache for the federal government, with lawsuits and huge cleanup costs. It could also result in taking more land — perhaps as much as a million and a half acres — out of irrigation.

**Looking to the future**

These developments signal that we are in a time not only of shifting alliances but of changing attitudes. Already there are unmistakable signs of change: grudging awareness, even among the most retrograde engineers and bureaucrats, that you can't completely overlook environmental cost. There is more interest in innovative management notions.

Water marketing is one way to put some flexibility into what has been an incredibly rigid system. Under the water laws that have been in place for decades, you either used all the water you were entitled to or lost the entitlement. Under water marketing a farmer currently growing a low-profit crop might find it more profitable to sell water to somebody else. This may be a relatively painless way to redistribute some of the wasted water.

Another change is that almost everybody now at least pays lip service to conservation. This is a revolutionary development in some circles.

**Three futures**

As I wandered about Contra Costa and surrounding areas talking to various people about water, I began to get several different ideas. Here, somewhat oversimplified, are three scenarios: the first is the greenest, the second sort of high-tech pragmatic, and the third more of a back-to-the-fifties number.

**Future One: Waste not, want not**

The motto of the first would be, No new plumbing, lots of conservation and water management. This is basically Davoren's view of the future. In it, some agricultural uses are cut back, and that, along with better use of existing resources, takes care of ecological restoration and the demands of urban growth.

**Future Two: The free-market approach**

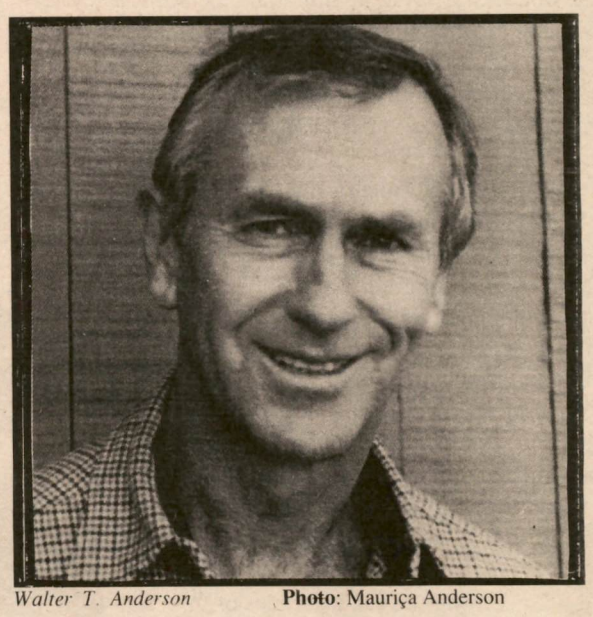
The motto of the second would be, some new plumbing, lots of conservation and water management. Sunne McPeak, who favors this vision, talks about "water banking" in Los Vaqueros and other as-yet-unconstructed reservoirs, water storage in underground aquifers, and careful monitoring of the downriver flows so that most water is drawn off at the end of the high-volume "pulse" flows. This entails a little more emphasis on voluntary transfers, taking the market approach, instead of just turning off the faucets.

**Future Three: Drink and be merry, then pray for rain**

The motto of the third would be, lots of new plumbing, and don't get too excited about that other weirdo stuff. Build the peripheral canal, build some new dams and reservoirs, build an aqueduct from the Columbia, and pay for them by sticking it to people who move into new urban developments and don't know any better.

Under any of the above — except perhaps the third, which is the least likely — the prospects of the Contra Costa urban user look pretty good. Reasonable supplies are likely, quality will probably improve, and with luck so will the Delta. If we have a serious drought, the pressure will be heaviest on the agricultural users and the ecological restoration prospects. Urban supplies should be adequate, but conservation and reclamation are here to stay.

Even if some variation on the third scenario comes to pass — peripheral canal and all — we are not likely to return to the extravagant water-development and water-consumption practices that were in place when the system was created. Slowly, with much kicking and screaming, California is moving away from those practices and the state of mind that went with them, figuring out how to take a system built by pre- and post-World War II values into the twenty-first century.



*Walter T. Anderson* **Photo**: Mauriça Anderson

*Walter Truett Anderson, is a writer and political scientist. In the sixties and seventies he wrote and edited for California Tomorrow. He has authored numerous books and is presently the environmental editor for the Pacific News Service. His most recent book is titled* ***Reality isn't what it used to be****, and was released this August by Harper and Row. He is now revising* ***To Govern Evolution****, published in 1987 by Harcourt, Brace, Jovanich. He lives in Albany California with his wife Mauriça.*

# Water wars

**continued from page 9**

the peripheral canal — and local officials strongly suspect that the project is not dead. Its backers at first claimed it would increase the water supply; now they are saying it would improve water quality. Anti-canal folks fear the pro-canal gang will try to use the current state hearings on water quality of the Bay and the Delta [the Bay-Delta Hearings] to build up new support for their cause.

**Other battlegrounds**

Supervisor Sunne McPeak of Contra Costa County says, "Whoever the new governor is, you can bet that he or she is going to see this issue come around again. They're going to try to jam a peripheral canal through before the end of the decade."

McPeak, who plays a pretty good game of water politics, is chairperson of the Committee for Water Policy Consensus, an innovative local organization that brings divergent local interests — developers, business, agriculture, environment — together in one forum, tries to get them to stop arguing and speak with one voice in statewide dialogues such as the current Bay-Delta hearings. The committee has pushed local water conservation and reclamation projects, and took the lead in forming, with a similar organization in Southern California, the State Water Conservation Coalition.

However, Contra Costa is still not exactly united about water policy. The lines are drawn for another battle — and another election campaign — about the Los Vaqueros reservoir project, a big storage facility that the CCWD hopes to build in the hills south of Brentwood.

It's significant that people on both sides of the argument about Los Vaqueros use the threat of a peripheral canal as an argument for their point of view. Ralph A. Hernandez, co-chairman of the Citizens for Reasonable Water Costs, which calls the reservoir a boondoggle, says it can easily be hooked into the new system that the canal would create, and could then serve as a facility for storing more water to ship to Southern California. Sunne McPeak, who supports the reservoir, says it is the key to a new water-management policy that will make the canal unnecessary, and that the Citizens are "inviting a peripheral canal" by trying to stop the reservoir project. So it goes in the Contra Costa water wars: divided about the reservoir, united against the canal.

The larger water wars, waged in Sacramento and Washington, seem to be in a transitional stage. There was a time when you understood clearly where the lines were drawn: the good guys were the North, and the bad guys were the South. You didn't hear about things like the State Water Conservation Coalition.

When I was living in San Francisco in the 1950s and the prevailing water war was over the proposed State Water Project, the Chronicle used to run editorial cartoons showing an archetypal bad guy. A Hollywood hipster, he wore dark glasses, sandals and a beret, and was always headed south with a couple of buckets of water. Like all San Franciscans I waxed indignant about this sleazy character carrying off "our" water, and didn't give it too much thought that the water I brushed my teeth with came from Hetch Hetchy over John Muir's dead body.

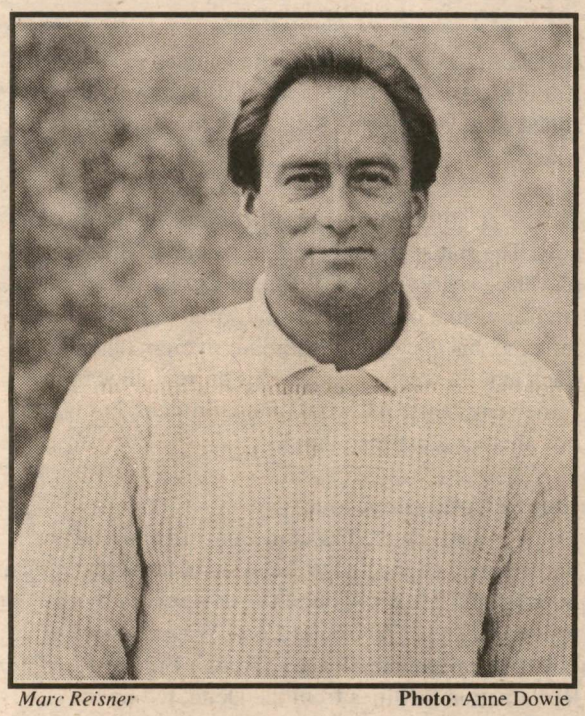


*Contra Costa County Supervisor Sunne Wright McPeak*

But the old North-South division is giving way to a new alignment. The next the water wars may be cities versus agriculture.

Marc Reisner, author of *Cadillac Desert* (a history of California's lurid water politics), is one of many people who believe that the future of water security in California lies not in running a pipe to Oregon, not in drying up the swimming pools in Beverly Hills, but in taking a hard look at who gets what out of the present system. "What we have in [California and] the American West," he wrote recently, "is a stupefying inefficient — almost soviet style — system of water management and allocation."

It's not hard to see what he's getting at if you look at figures on water use: In California, agriculture takes 83 percent of the water, mostly for irrigation. The big water drinkers have been irrigated pasture, alfalfa, cotton, and rice. Yes, there are rice paddies in California. These crops represent an enormous drain on the water system, are reasonably profitable for the farmers — particularly those who are getting water at extremely low cost — but don't do much for the state's economy. Agriculture accounts for a very small portion of the state's gross annual product and employs only one percent of its workforce.

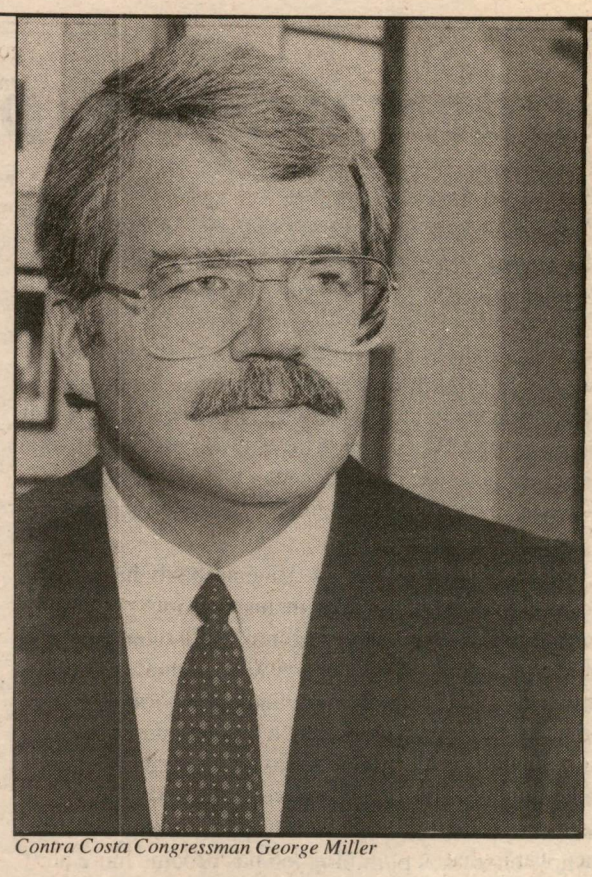


*Marc Reisner* **Photo**: Anne Dowie

The case is not precisely against agriculture, but against some kinds of agriculture in some areas that use colossal amounts of water and don't produce anything of great value. This puts the North-South stand-off in a different perspective. As Reisner points out, alfalfa alone uses more water than metropolitan Los Angeles and the Bay Area combined. It also puts the ecological issues in a different perspective, because a few million acre-feet of water could do a lot to restore wetlands and fisheries and the Delta and the Bay. And a restored Delta means better water for the Contra Costa.

**Get a Life**

It is good for Contra Costa that its representative in Congress, George Miller, is quite aware of the above statistics — and is also chairman of the House Subcommittee on Water, Power, and Offshore Energy Resources. For years Miller has been concerned about low-cost public water being pumped out over the fields, and especially about the size of some of those farms.



*Contra Costa Congressman George Miller*

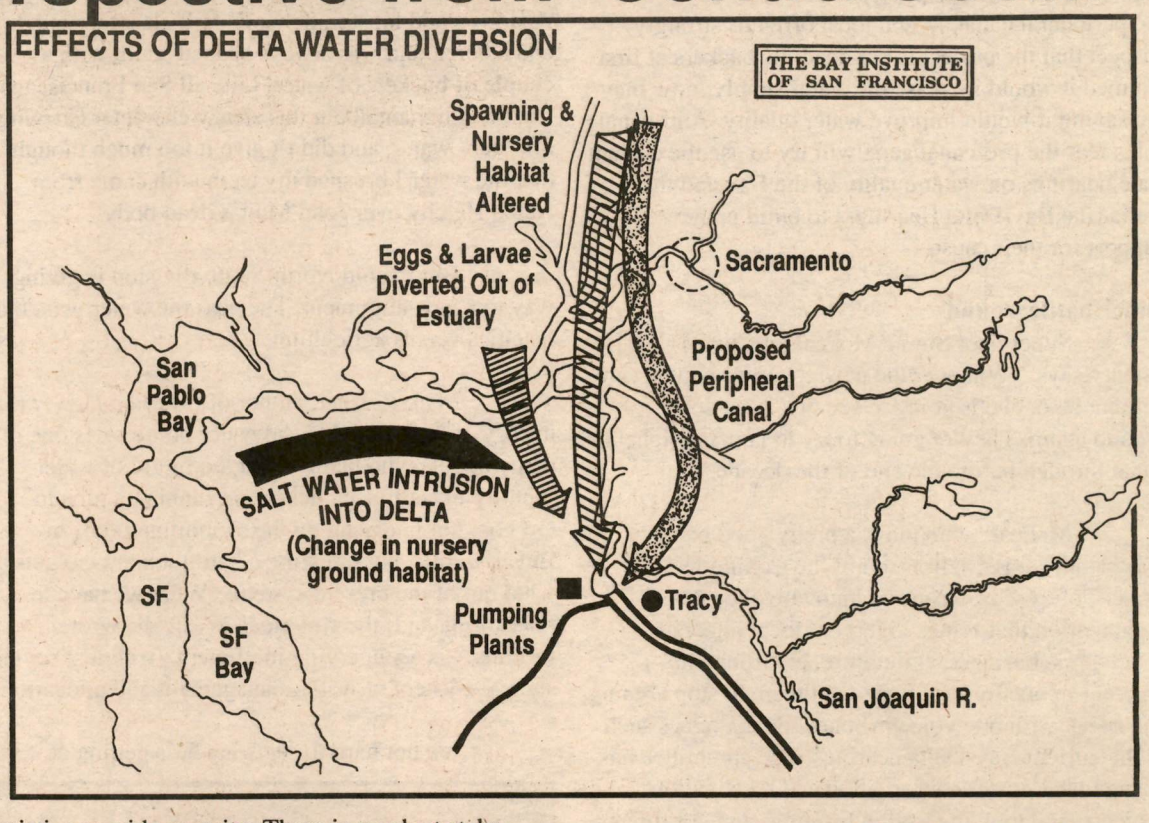
Ironically, the system that today delivers water to mechanized agribusiness operations, where you can hardly find a human being or a farmhouse, is a direct product of the old agrarian mystique of simple folks tilling the land. The Reclamation Act of 1902 authorized irrigation projects to furnish water at low cost — actually a federal subsidy — to farms not exceeding 160 acres, or 320 for a husband and wife. The Central Valley Project was constructed under that act, but the size limit has always been casually enforced. A lot of that low-cost water went to outfits like Tenneco and the Santa Fe Land Company, which owned tens of thousands of acres and got around the law by dividing farms (on paper) into smaller sections that are actually under the same management. The Reclamation Act was "reformed" not long ago to make the limit 960 acres, but a lot of the big farms got around that, too. The J.G. Boswell company, for example, divided its 23,000 acres into parcels that are owned by employees but managed as one operation by a trust.

Miller recently got the House to ban subsidized rates for any farm operation over 960 acres that is under one management. "When do the taxpayers get a rest?" Miller said to the press. "When do we say, 'You're rich. You're wealthy. You're on your way. Get a life'?"

Miller is working to provide federal water for fisheries and wildlife in the Delta and the Central Valley. Other people are training their guns on the State Water Project. State water is nowhere near as subsidized as federal water (which runs as low as $3.50 per acre-foot), but much state water is used for doubtful agricultural practices. And the state system, too, turns on assumptions and values that have seen better days.

One of many critics of the state operation is Bill Davoren, a genial troublemaker who heads a water-policy think tank in Sausalito called The Bay Institute of San Francisco. Davoren believes the Bay and Delta are being sold down the river — or down the canal — to agricultural interests. And he says some of the land now getting water should not be irrigated, period.

# Water wars: A perspective from Contra Costa




**By Walter Truett Anderson**

*This article originally appeared in the September 1990 issue of* ***Diablo Magazine****. It is reprinted here, slightly abridged, with* ***Diablo Magazine's*** *permission.*

John Muir, Contra Costa homeowner and way-before-Earth Day environmentalist, said that when you try to pick out anything by itself, you find it is connected to everything else in the universe. He was not talking specifically about the California water system at the time, but he might as well have been.

Newcomers to this state probably have no idea, that they are hooking themselves into the largest water system that human ingenuity and money have ever put together anywhere. A huge, complex tangle of canals, reservoirs, pumps, and pipes — and federal, state, and local agencies, and a few private water companies — work together to move water all over the state. This system was never intended to be a single system, but as its various parts have grown, the whole enormous plumbing job has become more and more interconnected. Thus the state's cities, farms, and ecosystems also are connected into close but not altogether friendly relationships.

Water has always been big-time politics in California. Every step in construction of the system caused big-time political conflict.

One of the first was John Muir's struggle to keep San Francisco from building a dam in his beloved Hetch Hetchy Valley. Muir lost, and today water flows through the Hetch Hetchy aqueduct to San Francisco.

In the Owens Valley war of the early 1900s, farmers took to blowing up the aqueduct that carried their water south to Los Angeles. The farmers lost, and the water moved along to suddenly valuable farms in the San Fernando Valley, some of which blossomed into urban sprawl.

A long series of conflicts began in the 1930s over the huge dam-and-canal operation that became the federal government's Central Valley Project. The opponents lost, and the project was built.

In the 1950s and 1960s came another civil war, over the also-huge State Water Project (SWP) to carry northern water into other parts of the Central Valley and on to Southern California. The North lost, and the project was built.

Today the plumbing is in place, but we do not have peace. The 1990s look to be a decade of still more water warfare. The new battles — what plumbing should be added, how it should be managed, who will get how much water and for what price — will be increasingly technical and complicated. Basic facts about the emerging situation are that:

- California is still growing.
- The water supply isn't.

**Era of Limits**

The total annual volume of usable water from precipitation (about 70 million acre-feet) is not going to increase. Every dry year reminds us that it could get smaller. In the drought winter of 1976-77 it was only 15 million acre-feet. Some developers still talk expansively about going to more northern rivers, such as the Columbia, but high costs, ecological concerns and the curious inability of Oregonians and Washingtonians to get turned on by the idea make this unlikely. There probably will be some new storage facilities and linkages, but few if any new sources. California's supply is limited. Only hope and weather statistics provide security. There is much at stake. Adding to the problem, some 700,000 new residents added each year — and they aren't bringing their own water.

California water politics wars are pretty quiet now. The status might be called guarded: The big players — agribusiness, urban water districts, environmental organizations — speak politely most of the time, but eye one another like riverboat gamblers. Each at least wants to protect his current allocations; some want more. All worry about drought, but watch one another more than the sky.

**Contra Costa connection**

Turn on the faucet in Concord and you are immediately connected to the system, thus becoming a hostage of the wars. Contra Costa is served by two water agencies. The Contra Costa Water District (CCWD) takes federal water through Bureau of Reclamation facilities from the Delta, fed by the Sacramento and San Joaquin Rivers. The East Bay Municipal Utility District, better known as East Bay MUD, takes water from the Mokelumne River via an aqueduct running from two reservoirs in the Sierra foothills through northern Contra Costa. The CCWD is also connected to the SWP, which draws water from the Delta. In fact, CCWD is connected to all the other users of Sacramento and Delta water, because diversions of riverwater allow salty water from San Francisco Bay to creep up into the Delta and degrade the water supply.

The Sacramento-San Joaquin Delta is sometimes called the heart of California's water system. Once it was a huge marshland, rich with fish and wildlife, with water from the two rivers flowing freely through it into the Bay. Now it is mostly levees, canals, and farms. It functions as a sort of switching station for the state and federal water projects. Water is stored the Shasta and Oroville Dams and released to flow down the Sacramento to the pumps near Tracy that suck it up and send it on its way to farms in the San Joaquin Valley and car washes in Santa Monica. The CCWD draws water from Rock Slough, beyond Oakley, through the Contra Costa Canal, which runs 45 miles to Martinez Reservoir.

Though Contra Coast, unlike many of the major urban regions in the state, is close to a supply of fresh water, there are complications. A big one is that, although CCWD's contract with the federal government guarantees 195,000 acre-feet of water a year, the government does not have a contract with nature guaranteeing adequate supplies. The California water system is ultimately connected to the global weather system, dependent on storms that build up far out over the Pacific and affected by all the mysterious vagaries of climate.

Another complication is that the fresh water comes into the Delta laden with industrial and agricultural runoff. Also, if the flow is meager, salt water from the Bay mixes with fresh water in the Delta.

**The Peripheral Canal**

Yet another complication is the proposed peripheral canal to take water straight from the Sacramento River, around the Delta, to the federal and state pumps. This proposal occasioned yet another water war. Backed strongly by the water bureaucrats, it was defeated at the polls in 1982. But like one of those monsters in a movie the peripheral canal stands constantly ready to spring again to life.

Backers of the canal always said, of course, that Bay Area users would continue to get their water. But Delta farmers and water districts like having the water in the Delta rather than flowing around it in a big canal to be doled out to them by big agencies with political connections elsewhere. If clients to the south were favored, the Delta would be left mainly with water from the San Joaquin — which is now little more than an agricultural drainage ditch.

In addition, the peripheral canal is considered by many to be an expensive fix for the wrong problem. The San Joaquin River is loaded with toxic irrigation runoff from Central Valley farms. Selenium, cadmium, boron, arsenic, molybdenum, lithium, uranium, and more are unleashed from the marine shales that underlie the valley soil. Environmentalists warn that if we do not clean up the San Joaquin River we will have an ecological disaster not only in the Central Valley but in the Delta, which requires a good amount of flow running through it to the Bay to maintain water quality for people and fisheries. Opponents of the peripheral canal point out that, although it may solve some of our water quality problems, it ignores the disaster in the backyard.

So feelings in this area run strongly against

***Continued next page***

# Books
## reviewed by Scott Hadly

***In Our Own Hands: A Strategy for Conserving Biological Diversity in California*** *by Deborah B. Jensen, Margaret Torn, and John Harte; A publication of the California Policy Seminar of the University of California, and the California State Government Program. The report is available from the California Policy Seminar, 109 Moses Hall UC Berkeley, CA 94720 for $10.00 plus tax and handling.*

Beyond the hard hitting statistics — 90% of the interior wetlands destroyed; at least 73 California species eliminated forever, and 220 vertebrates and 663 native plants near the edge of extinction — this book lays out the importance of biodiversity to the bounty and beauty of the State. It lays out the threats old and new, and the barriers to conservation. The authors write that today's failures and problems ".... are largely the legacy of the commonly held perception that resources are inexhaustible and ecosystems are resilient to any assault. This belief shaped the goals and operations of the state's first agencies established to manage resource exploitation, and has biased our economic analyses. Alternatives to many of the practices that threaten biodiversity already exist but have not been fully implemented. While the subsequent generation of environmental agencies has a different mandate, to protect the public and the environment against pollution, there is yet no effective agency empowered to protect biodiversity." State agencies are often still locked in archaic notions of how to manage our resources, but as threats to biodiversity mount, there is an imperative for innovation. The responsibility, however, doesn't just rest with the agencies, but with the people, who, as the book points out, cannot make responsible decisions if they don't "... know how their food is produced nor how their water reaches their faucets."

Conveying that knowledge and providing means to take the next step fill out the remainder of this report, which effectively details a practical policy to conserve biodiversity. The policy is based on three ingredients: "knowledge of what to do, empowerment to do it, and an administrative capacity to manage its execution." Some of the specific approaches include establishing a California Habitat Protection Act and Biodiversity Conservation Board to coordinate conservation. What's clearly laid out is that "the state is at a critical juncture — the decisions made in the next ten years will decide the fate of many of the species and ecosystems in California. In doing so, we decide our own fate, and the fate of California forever. The choice is in our hands."

***The Endangered Species Act: A Guide to its Protections and Implementation,*** *by Daniel J. Rohlf of the Stanford Environmental Law Society with foreword by Congressman John D. Dingell (D-MI) . The* ***Endangered Species Act Guide*** *may be ordered from the Stanford Environmental Law Society, Stanford Law School, Stanford, CA 94305. 415-723-4421, for $12.00 plus $1.50 postage and handling, and tax.*

Much as ***In Our Own Hands*** details the importance of biodiversity and the value of each species, the ***Endangered Species Act Guide*** attempts in the initial chapters to convey the magnitude of the extinction crisis.

The current rate of extinction is estimated as up to 50 times greater than before Europeans settled North America. Few have disputed the importance of species preservation or the need to slow the rate of extinction. "Disputes arise not over whether to conserve species, but over the question of to what degree species preservation should be enforced." Professor David Ehrenfeld is quoted in this book arguing that species should be conserved "because they exist and because this existence is itself but the present expression of a continuing historical process of immense antiquity and majesty." Unfortunately the social, economic, and political effects of plans for preserving species have made justifications for species preservation a little more problematic.

With this as a backdrop the book moves into the nuts and bolts of the Endangered Species Act, outlining the history of wildlife law leading up to the Act and then taking up the essential components of the Act itself. The ***Endangered Species Act Guide*** looks at the important sections of the Act mostly from a legal perspective with numerous footnotes and legal citations. For instance in Chapter 6 of the book, Rohlf discusses the requirements of section 7 of the Act, which mandates interagency consultation. (When it was first enacted there was little guidance for compliance.) This chapter examines the subsequent amendments that added procedural requirements such as "biological assessments", which are "designed to help agencies determine whether they must formally consult with the [Interior] Secretary concerning their proposed actions." The Chapter also details some of the cases that provide precedents for implementing the Act. The approach is appropriate for a book that is titled a "Guide" to the Endangered Species Act.

***... species should be conserved "because they exist and because this existence is itself but the present expression of a continuing historical process of immense antiquity and majesty." . . . . David Ehrenfield***

The most recent events surrounding the Act seem to indicate that it is imperiled, but the ***Endangered Species Guide***, which was written in 1989 before the recent Spotted Owl decision, comes to a different conclusion. Rohlf writes that despite amending the Endangered Species Act four times in its fifteen-year history, Congress has "steadfastly rejected efforts to significantly weaken its provisions ... [u]nderscoring a continuing congressional commitment to halt and reverse the trend toward species extinctions."

An August interview in the publication *Wilderness Record* with John Fitzgerald, a lawyer for Defenders of Wildlife, details present plans to weaken the Endangered Species Act by the Bush Administration. The present pressure to cripple the Act has been primarily associated with listing of the Northern Spotted Owl. There are three major changes to the Endangered Species Act being considered by Congress before it finishes this year's session in October. The first change would be actual amendments to the Act that would increase the number of cases in which exemptions would be possible. (As explained in chapters 2 and 6 of the ***Endangered Species Act Guide,*** there already is an exemptions committee, the so-called "God Committee" that was established during the Tellico Dam-Snail Darter debate to resolve conflicts between federal projects and endangered species habitat.) The second would be riders to appropriations bills limiting the funds available to pay for biological assessment and management plans, and the third would be constraining citizen's rights to sue to protect endangered species by limiting judicial review.

A report in the ***Washington Post*** in early September indicates that administration officials are backing off their earlier attacks on Spotted Owl protections. However, attacks in Congress on the Act itself are still coming from congressmen and senators from the Pacific Northwest. We will know when this session of Congress is over in late October whether Daniel Rohlf is correct in asserting that there is a congressional commitment to stand by the Act.

The ***Endangered Species Act Guide*** is a valuable tool for those interested in the Act. In May the National Wildlife Federation honored the guide with its Environmental Publication Award.

***California's Wild Heritage: Threatened and Endangered Animals in the Golden State,*** *by Peter Steinhart. Published by Sierra Club Books, supported by California Department of Fish and Game and California Academy of Sciences, and available from Sierra Club Books 730 Polk Street, San Francisco, CA 94118 (415-776-2211) for $12.50; add tax and $1.50 for postage and handling.*

This 108-page book is filled with unique full-color photographs of California's threatened and endangered animal species. The state is divided into ten geographic regions and the threatened and endangered species in each region are profiled.

Of course such a short book can't contain a great amount of detail on any one species, but this book wins the prize for conveying the unique beauty of each of the species in it. The pictures, the maps, and line drawings (one must remember that these are animals that are seldom seen) convey some of what is unique and beautiful not only about the species, but about California. Robert I. Bowman starts the introduction of ***California's Wild Heritage*** by stating: "California is one of the most biologically diverse areas in the world. Within its 160,000 square miles, California harbors more unique plants and animals than any other state." That this is a catalogue of part of what we are losing, is a distressing reminder that we must act to protect California's heritage. (It must be noted that threatened and endangered plants are omitted from mention in the book. There are so many that if they were included the book would have easily been twice as long.)

What is special about this book is that even though the description of each species is short, the author takes the space to detail something unique about each species. Small facts like the bugle calls of the four foot tall Greater Sandhill Cranes, or the name of the Bull Trout which was once the Dolly Varden because the very large brightly spotted trout resembled a fabric in vogue during the 19th century, which in turn derived its name from a character in the Dicken's novel *Barnaby Rudge*, or the American Peregrine Falcon which can fly at speeds up to 200 miles per hour making it the fastest creature alive, or the Delta smelt that must replace its entire population each year, and smells of fresh cucumber.

Each of these facts adds a personnel touch to the plight of these imperiled species that might have been lost in a barrage of startlingly low population numbers. From the Desert Slender Salamander and Owens Tui Chub to the exalted Bald Eagle each species has a place of importance — a fact made clear in ***California's Wild Heritage***.

# Drainage program report: No monument to courage

**Continued from previous page**

The goal of the plan is to make much happen structurally in time frames covering the next ten to 50 years to begin solving the drainage problems. The cost estimates provided — reduced from $48 million per year in the draft to $42 million in the final— are fuzzy. And who pays the costs is even fuzzier.

The plan is really a "program" involving construction, management, and acquisition intended as a practical start on "solving" the drainage problem that now exists on 500,000 acres of formerly prime farmlands on the west side of the San Joaquin Valley. Most of these lands generating the "problem water" are found in the Tulare Basin, location of the nation's three major farm-production counties — Kern, Kings, and Tulare. The report tells us there are about one million acres total on the west side of the Valley with the "problem-water" problem.

The intergenerational bite on public treasuries, state, federal and local, will be considerable. The intent of this plan is to be a "framework that will permit the present level of agricultural development in the valley to continue" (page 1-1, Draft Report). This objective carries an annualized cost of $48 million per year (page 1-7), a seemingly reasonable amount to rescue California's premier farm counties from waterlogging and salting up their lands forever. However, this estimate does not include financing and interest costs. So the total cost burden for the next several generations of taxpayers will be in the range of $6 billion, in the case of the draft report's $48 million-per-year estimate, or perhaps only $5 billion if the annualized figure is reduced to $42 million in the final report.

At these costs, obviously, the major public-policy question facing the drainage program is that maybe the public should simply buy the million acres of "problem-water" lands on the west side and do Mother Earth and themselves a favor. (You won't find this suggestion in the final report.)

Regardless of the costs — present or future —the report does provide the most authoritative review of the use and misuse of water on the San Joaquin Valley's west side since the Department of Interior's San Luis Project Task Force Report of 1978. And it represents a real swing of the pendulum since 1979, when the report of the federal-state Interagency Drainage Program called for completing the San Luis Drain so that all the lands of the U. S. Bureau of Reclamation's service areas on the west side could discharge all their drainage wastes into the Bay-Delta estuary near Chipps Island.

Thus the report's very existence reflects a long-awaited upgrade in documentation of the severity of the Valley's drainage problems. Its technical detail identifies, generally, the 500,000 acres within the one million acres with the highly mineralized soils that can and do produce selenium, arsenic, boron, chromium, molybdenum, and total dissolved solids when irrigated. The report's endorsement of extending the San Luis Drain to use the San Joaquin River for discharging selenium-tainted drainage from the Grasslands Subarea is a lawsuit-generator, or an invitation to the Environmental Protection Agency to get even tougher about the discharge standards the State and Regional Boards are allowing for the River and for Mud Slough and Salt Slough. The way the report segments the Valley's west side to identify high selenium areas is challengable because it defines the Northern Subarea as having only a minor selenium problem.

Despite such faults, the report's documentation of the Tulare Basin's incredibly serious problem of disposal of drainage is a political as well as a technical and economic bombshell. This is a necessary first step in saving the birds of the Pacific Flyway.

In addition to the issues cited above, the Bay Institute's criticisms of the Draft Report hammered at its serious shortcomings in coverage of public health issues. Also, the Bay Institute noted that the Draft Report contained no data on levels of selenium found in the the waters of the two aqueducts — the Bureau of Reclamation's Delta-Mendota Canal and the Department of Water Resources' California Aqueduct. This is a very serious glitch. Measures proposed to pond drainage waters of the Tulare Basin may no longer be viable due to the baseloads of selenium that may be present in the aqueducts delivering several millions of acre-feet of Sacramento River water every year to irrigate the Tulare Basin's "problem-water" lands.

We look forward to finding new data on the above points in the final report and revised, strengthened recommendations that fit the expectations of the public in the 1990s. (But we're not holding our breath.)

## Jury of peers needed

At press time our June 15 sampling results were being challenged by employees of the Department of Water Resources and the U. S. Bureau of Reclamation. They claim that our samples were contaminated in the laboratory because the form of selenium detected was predominantly selenite, not selenate, the principal form of selenium found in agricultural drainage. We strongly disagree on the contamination issue, and believe that the question of forms is complex, highly technical, and requires much more investigation.

The Bay Institute is now calling for peer review by a panel of qualified scientists. We want the methodologies used in analyzing our original samples, and the samples collected and shared in the "interlaboratory calibration exercise" on August 7 checked over and judged by experts. We suggest this same panel review the written and unwritten protocols that controlled how the interlaboratory test results were to be conducted and reviewed, and how a summary statement agreed upon by all parties would be prepared before the information was to be released to the public. The Department of Water Resources, with the support and encouragement of the Bureau of Reclamation, released the unreviewed summary of the August 7 test sampling late on Friday afternoon September 28th. Copies of the Institute's press releases and comments submitted to DWR on the sampling test results are available to interested parties for postage and copying charges.
**WTD & EG**



*W.T. Davoren by hazing canon at Kesterson in 1988. Cannon was used to scare waterfowl away from the tainted refuge.* **Photo**: Bay Institute

## The drainage team's overburden

The Draft San Joaquin Drainage Report opens with three pages of names in small type. This shows that the policy and technical overburdens on the staff were impressive. Traditionally, interagency planning of this type by design can aim no higher than the mission limits of the construction agencies sponsoring it. In recent decades a large infrastructure of consultants and academics has developed around this type of work. Many specialists are needed but not necessarily heeded.

For the $50 million Drainage Report, an Intergovernmental Coordination Team of ten people comes first; they represent key federal and state agencies overseeing the work. Then a Policy and Management Committee of five people comes next; these are directors of the five agencies doing and budgeting the work. A Citizens Advisory Committee of 14 follows, comprised of six environmentalists, six farm-industry representatives, and two academics. An Interagency Technical Advisory Committee (ITAC) of 13 is next, made up of, federal and state manager-types plus three academics, with seven satellites. The ITAC presumably rides herd on an array of subcommittees having a total of 93 members. These "technical" folks range from B. J. Miller, an all-purpose Berkeley consulting engineer for California's water establishment, to Felix E. Smith, the whistle-blowing ecologist who first let the public know about Kesterson in 1983.

Next comes a creative hierarchy of mostly academic folk associated with each other and the world of drainage through the National Research Council's Water Science and Technology Board. This board of 16 is sponsor of something called the Committee on Irrigation-Induced Water Quality Problems(CIIWQP). Five of the CIIWQP's subcommittees have a function in this drainage investigation. These are: Subcommittee on Data Management (four); Subcommittee on Economics, Policy, and Systems Analysis (13); Subcommittee on Public Health (five); Subcommittee on Treatment Technologies (three); and Subcommittee on Quality Assurance/Quality Control (four). A name of interest on this last subcommittee is J. Phyllis Fox, a consultant who is the principal author of the "Tule Theory" introduced as science in Phase I of the State's Bay-Delta Hearing.

Finally, on page 3, the report provides the names of the complete staff of the drainage program, identified as Federal/State Interagency Study Team. These are the 31 people who actually did the work. Of course, they were aided by several millions of dollars worth of consulting provided by the entities listed above and others not listed. Staff principals are: Edgar Imhoff, team manager, US Geological Survey; Carroll Hamon, State Department of Water Resources; Henry Hansen, U. S. Bureau of Reclamation; Stephen Moore, US Fish and Wildlife Service; Larry Puckett, State Department of Fish and Game; and Walter Swain, of US Geological Survey. Twenty-five others assigned to the staff provided technical, clerical and/or logistical support.**WTD**

**Editorial**

# Time flies and birds die

By William T. Davoren

The choreography of developing water projects extends over decades, creating its own music as it goes. It is no accident, for example, that the federal San Luis Project and the State Water Project were both authorized in 1960, the first by the U. S. Congress and the second by a vote of the California electorate. These two world-class water projects were designed to complement each other, to share the water and share the problems a certain future might bring. The service terrain was divided. This is how the San Joaquin Valley became the Middle East of water politics.

The California Water Plan was drawn up in the Twenties. But the two giant public projects it spawned, which dominate both the state's landscape and politics, have only been abuilding since 1935. Though some small Reclamation projects were developed earlier, 1935 is the practical start-up date for creation of the federal project because that's when dirt started flying under the aegis of Depression public works. In 1937 Congress gave formal, legal birth to the Central Valley Project we know today as the CVP. The State Water Project (SWP) was born of legislation in 1959 and confirmed by a statewide bond election in 1960. Together the CVP and the SWP comprise the"CWP" of the Twenties. Congress blessed the CVP with the bonus of the yield from any federal dams built by the Corps of Engineers' for flood control in the 6,000 miles of streambeds flowing into the Great Central Valley. California was on its way.

Relevant benchmarks from this past include these:

• In 1951 the Delta-Mendota Canal began delivering Sacramento River water to the west side of the San Joaquin Basin (not Valley) to irrigate 600,000 acres. Growers in this area were thus compensated for losing the flows of the San Joaquin River impounded at Millerton Lake starting in 1944 by Friant Dam, and then delivered to the north by the Madera Canal and all the way south to Kern County by the Friant-Kern Canal. The San Joaquin River in its entirety was shipped north and south along the high ridges on the west slope of the Sierra. Understandably, this double whammy resulted in the lower San Joaquin River becoming merely the wasteway for farm drainage and runoff that we know today.

• In 1960 the CVP gained the San Luis Unit and 600,000 or so more acres to irrigate in the Westlands Water District on the San Joaquin Valley's west side but south of the original service area of the Delta-Mendota Canal. The legislation also thoughtfully included a San Luis Drain to serve 96,000 acres of problem lands.

• In 1962 Congress amended the CVP to expand the San Luis Drain's service area to 300,000 acres. It also gave the Bureau of Reclamation, and the drain, a "regulating reservoir." Later that reservoir became known as Kesterson, the soon to be toxified heart of man-made Kesterson National Wildlife Refuge.

• In 1965 Congress amended the CVP's appropriations bill, this time requiring that the final discharge point for the San Luis Drain not be determined "until development by the Secretary of Interior and the State of California of a plan which shall conform with the water quality standards of the State of California as approved by the Administrator of the Environmental Protection Agency." The description of this piece of history, on page 2-2 of the Draft Final Report of the Drainage Program, adds ominously, "This proviso remains in effect today."

• In 1968 the CVP and the SWP began delivering water to the new Westlands area and to the Tulare Basin lands farther south. Together, the CVP and the SWP added about one million acres of new lands at this time. They tied the Delta-Mendota Canal and the California Aqueduct together at O'Neill Forebay and extended the San Luis Canal and California Aqueduct southward. Nature's shortcomings in supplying water to these prime agricultural lands was now remedied by man's foresight and his generosity with the Sacramento River.

• In 1979 came the Interagency Drainage Plan (IDP), produced by the Bureau of Reclamation, the State Department of Water Resources, and the State Water Resources Control Board. The state project's customers in the Tulare Basin did not think they needed a drain yet, so the DWR service area was deleted from the IDP. The report concluded that drainage would cost growers 50 cents per acre-foot, and that — "for environmental as well as economic purposes" — the 200-mile long San Luis Drain would discharge to the San Francisco Bay-Delta at Antioch.

• In 1983 the deaths and deformities caused to migratory birds by toxics in the drainwaters entering Kesterson Reservoir from only 8,000 acres of the Westlands became public knowledge.

• In February 1985 the State Water Resources Control Board ordered Kesterson closed within three years.

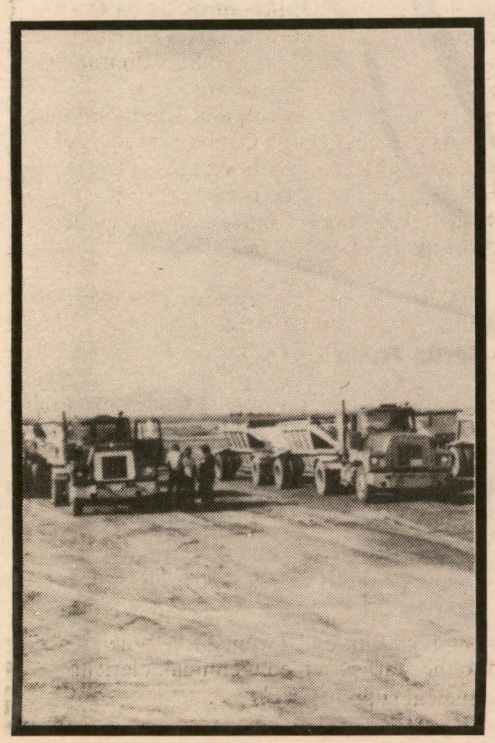
• In March 1985 the Secretary of Interior ordered Kesterson closed immediately, later postponing this order for one year.

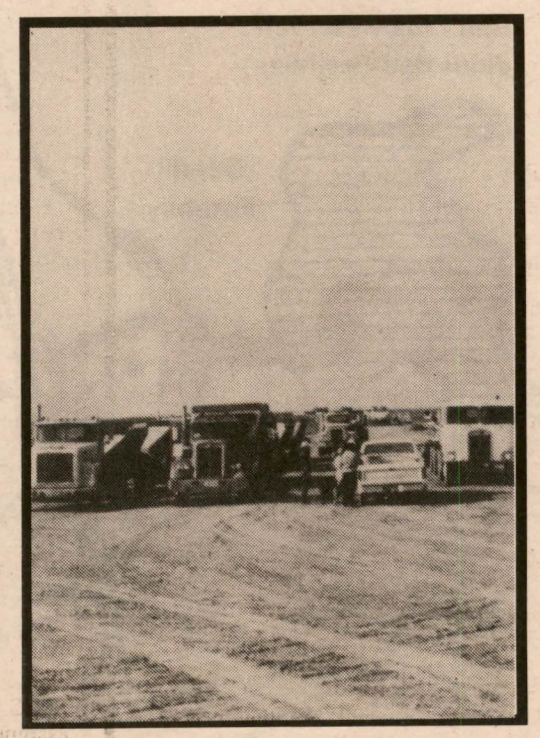
• In 1990 the six-year, $50 million, San Joaquin Drainage Program recommends "Land Retirement" of 52,000 acres of the worst lands in the next 10 years. Structural improvements in the plan cover 500,000 acres of the estimated million acres of "problem lands" being irrigated by the public projects on the west side.

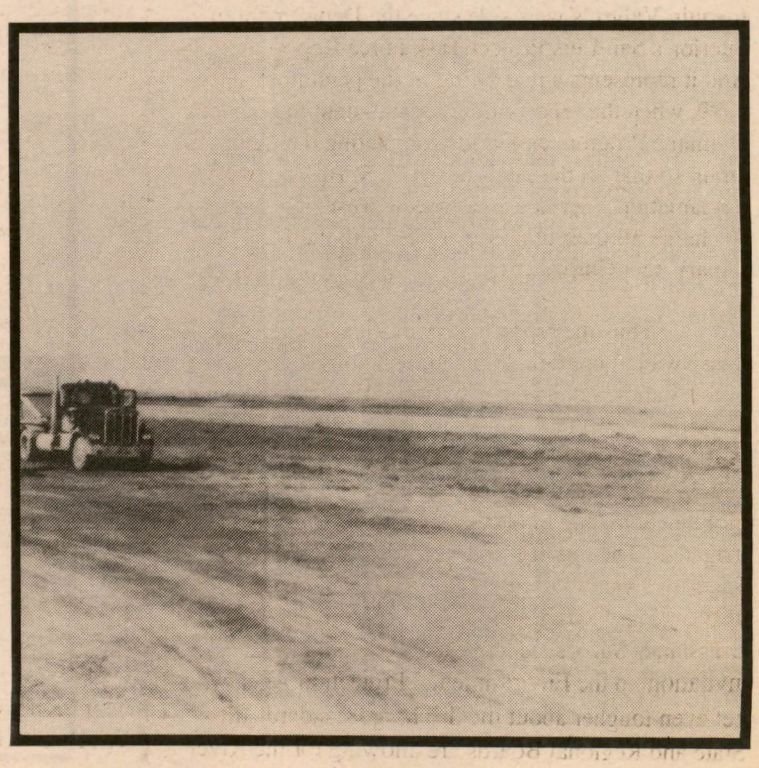
The numbers only get worse as time goes on. The potential for killing all aquatic bird life of the San Joaquin Valley grows stronger every year. The question now is can the new Drainage Report set off a wave of concern in the San Joaquin Valley, as well as the rest of California, not only for the birds of the Pacific Flyway but for saving the Valley itself from itself?

The San Joaquin Valley Drainage Program, set up six years ago in the wake of the Kesterson wildlife disaster, is grinding to a halt. The final report is being printed as this is being written. The career state and federal technicians who put it together are disbanding, some heading for earned retirements and others for new assignments.

A June 1990 draft of the final report was the subject of public hearings the last week of July in Sacramento, San Francisco, Los Banos, Fresno, and Merced. The Bay Institute livened up the San Francisco hearing considerably by reporting findings of high levels of selenium in the state's major aqueducts. The major points and recommendations of the final Drainage Report will not differ much from those of the draft report we reviewed this summer. Comments have been duly made by all parties on the Draft Report's findings and recommendations. All these become part of the $50 million, six-year effort's final record —to be printed as an appendix, we understand.







*Kesterson in late 1989. The Bureau of Reclamation spent millions to fill and level Kesterson to prevent water from ever ponding there again.* **Photo:** Bay Institute

# Sampling results met with shock and denial

The initial response to the Bay Institute's release of results from sampling the aqueducts was disbelief. "I think we ought to check their lab," said a spokesman for the Central Valley Regional Water Quality Control Board staff. "I don't know what to ascribe the Bay Institute's results to," said a middle-management spokesman of the Department of Water Resources. "We question the validity of the results. That is the first thing," said a Bureau of Reclamation specialist. Out of such doubt came an offer to the Bay Institute to take part in a joint sampling and testing exercise. Although this comparison of lab techniques confirmed that the Institute's lab (Anresco) used correct methods in analyzing for selenium, the Bay Institute was very disappointed over how the results of the interlab test were written up. Especially disturbing were the assumptions and conclusions the report contained about the meaning of the findings. Perhaps the most curious information contained in the summary report the Bay Institute challenged is the following paragraph, excerpted in its entirety:

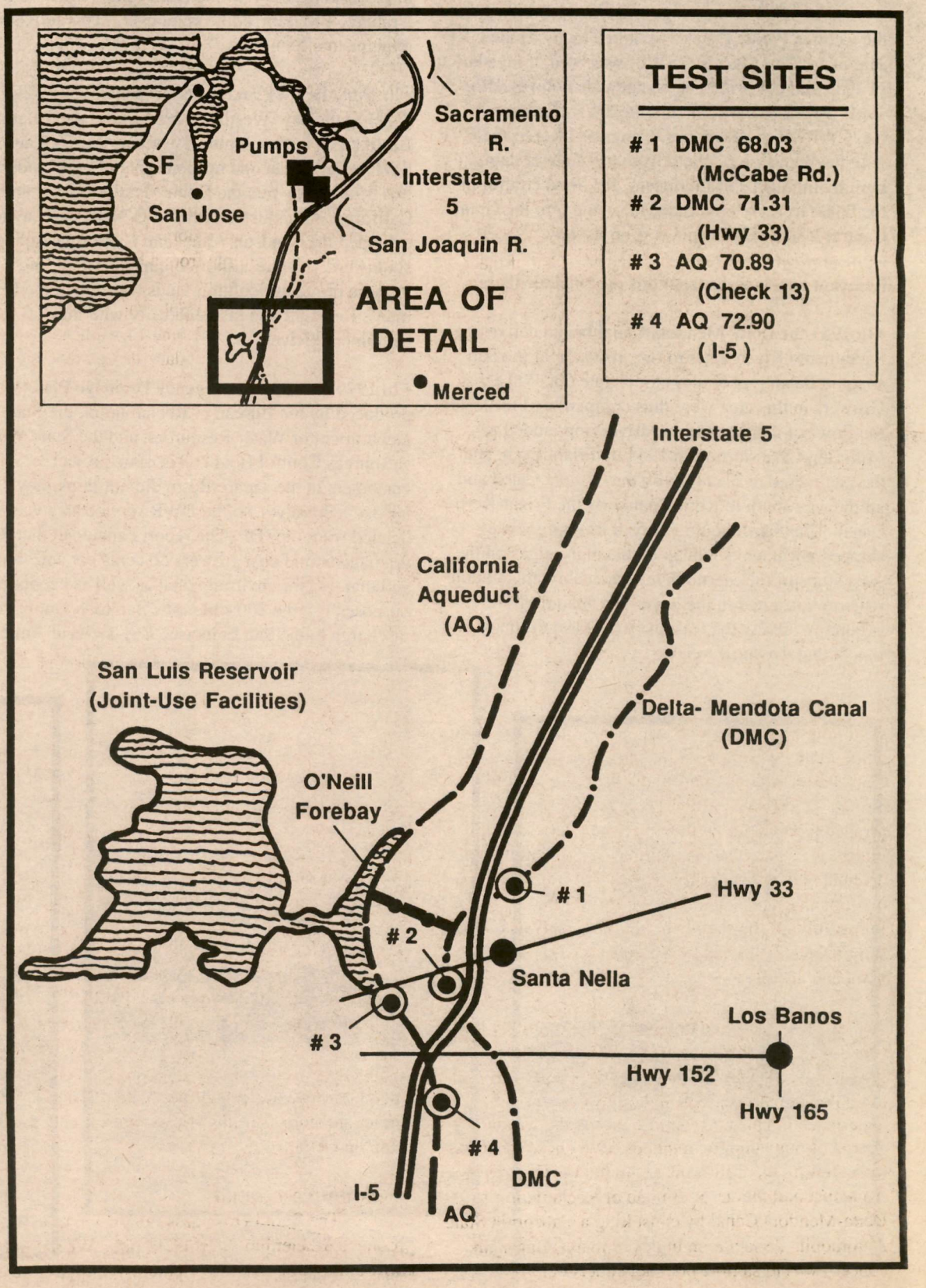
"When the Bay Institute sampled on June 15, the Aqueduct was closed for repair upstream of O'Neill Forebay. The San Luis Reservoir was releasing into the O'Neill Forebay at 9,689 cubic feet per second (cfs). No water was being pumped into the O'Neill Forebay from the DMC, however, water was being pumped out of the O'Neill Forebay into the DMC at 115 cfs. Therefore, the only source of water at Check 13, where the Bay Institute sampled, was San Luis Reservoir water. There were essentially two separate systems operating on June 15, 1990, the Aqueduct water coming from the San Luis Reservoir and most of the DMC water being pumped from the Delta. Therefore, there was no connection between the high selenium values reported by the Bay Institute in the Aqueduct and the DMC. This contradicts any hypothesis implying subsurface drain wastes contribute to high selenium concentrations in the Aqueduct."

This conclusion boggles the mind. There is definitely a connection between water quality parameters of the Delta-Mendota Canal and of the Aqueduct, under all conditions, because both the aqueduct and the canal mix their flows in O'Neill Forebay and San Luis Reservoir. The flows stored in San Luis Reservoir, therefore, always represent a blend of the water. Indeed, the reversal of flows so that San Luis and O'Neill Forebay waters are feeding into the DMC, rather than the other way around as usual, confirms the probability of obtaining a higher reading of selenium in the DMC,which the Bay Institute obtained (12 ppb, Aqueduct; 24 ppb, DMC). This is because of the direct disposal of drain wastewaters into the DMC upstream of the Aqueduct-Canal connector serving O'Neill Forebay and because of the selenium picked up in the Delta waters, first by the federal project pumps at Tracy, and second by the state project pumps at Byron.

The summary report includes comments on "speciation" of the Bay Institute's June 15 sampling results, i.e. finding the samples are dominated by selenite, not the selenate form of selenium. This leads the report's authors to charge that our samples were contaminated either in the sampling or the testing procedures used. The Institute does not accept the DWR's technical conclusions on this point and challenges the shallow analysis performed by DWR and the Bureau that supports this "speciation" claim. However, if the selenium found in the Aqueduct and the Canal is predominantly of the selenite form, this could mean simply that a conversion of the selenate to selenite forms had taken place in the aqueduct or canal, or that selenite forms were present in the waters flowing from San Luis Reservoir on June 15. This could explain the presence of selenite in both the Aqueduct and the DMC sampling sites the Bay Institute used.

One set of conditions that might have occurred and could have caused the release of selenite from the San Luis Reservoir, on June 15, involves the summertime phenomenon of stratification of waters in lakes and reservoirs with warm water on the top layer of such reservoirs and very cold water on the bottom layer. This condition can persist until cold surface-runoff waters of the new water year arrive and mix with the waters of a stratified lake or reservoir. In summer, if the cold bottom layer loses most of its oxygen, this condition could be responsible for converting the selenium present in the waters from selenate to selenite.

Another possibility: if the San Luis Reservoir on June 15, at about midday, were releasing deep water richer in sediment to O'Neill Forebay through the penstocks then, indeed, selenite could be the predominant form to be found in the waters released. This would be a simple matter to check. **WTD & EG**




# Serendipity

**Continued from previous page**

these would be located in the Tulare Lake Basin, handling drainage produced in Tulare, Kings and Kern Counties.

Ponding these toxic wastes poses a direct threat to the survival of the birds of the Pacific Flyway. It also creates air and water pollution threats that Valley residents will have to cope with for decades to come. The Drainage Report has two distinct classes of pondable drainage waters: those with selenium levels of 2 ppb or less, and those with selenium levels between 2 and 50 ppb. Both categories require special engineering to prevent the birds from using the ponds, but the latter category is so toxic that this drainage must be treated with the same respect and engineering criteria that govern disposal of hazardous wastes. If the aqueducts are delivering waters laden with selenium to be applied to fields, it appears that all subsurface drainage wastes produced in the Westlands and Tulare Lake Basin areas will have to be treated as hazardous waste. This would make farming these lands very expensive indeed.

# Aqueduct sampling

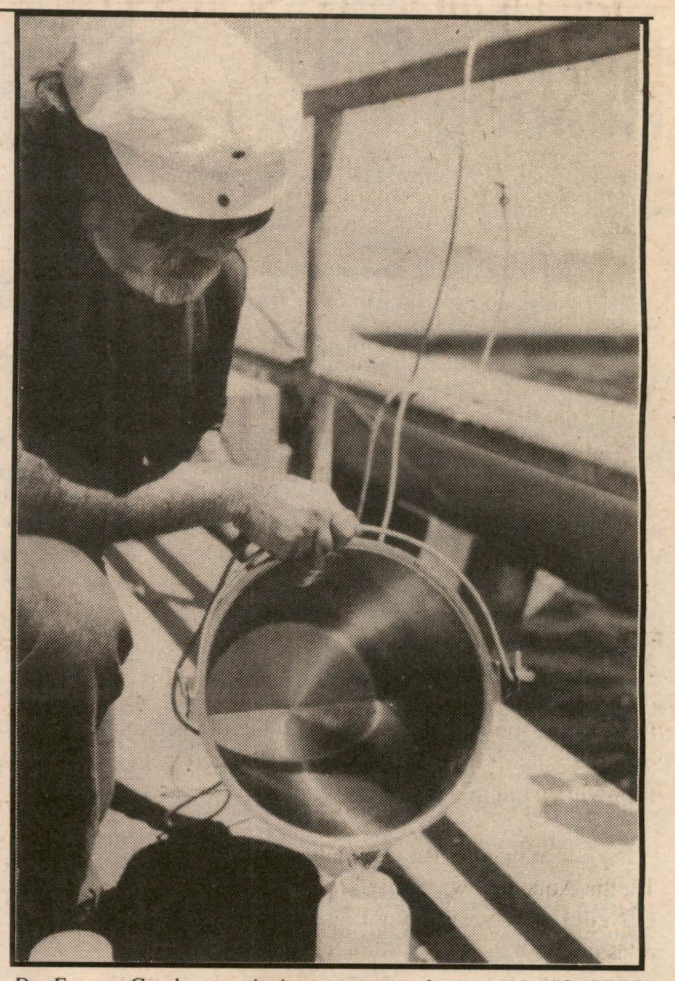
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California), and the US Geological Survey. Watching with interest as observers with some enforcement authority are the State Department of Fish and Game and the US Fish and Wildlife Service. Because of the involvement of anadromous species such as salmon, the National Marine Fisheries Service is also a player.

As a result of the results of our sampling, four of the above agencies invited the Bay Institute to take part in an "interlaboratory calibration exercise." The results of this exercise confirmed the accuracy of the methodology applied by the private laboratory the Bay Institute used for its analyses, Anresco Incorporated of San Francisco. The same sites, plus several more, were sampled and tested by a team of scientists from the four agencies and the Bay Institute on August 7. Even though the retest of our samples from June 15, as well as the test of the August 7 samples by the agencies, resulted in the same figures, the agencies contend that our original samples were contaminated.

**There Is Some Good News**

The good news is that our "grab" samples showed that neither of these major aqueducts was carrying, at that point in time and place, significant levels of arsenic. Arsenic is one of the elements — such as chromium, boron, molybdenum, and even lithium and uranium —that can accompany selenium that originates in the marine shales of the San Joaquin Valley's west side. Merely irrigating these lands unleashes this cornucopia of toxics and the lands must then be fitted with plastic drainage pipes to remove these subsurface waters from the root zones of crops grown on them. Other "good" news is that the aqueduct waters in our samples showed only insignificant levels of organochloride or organophosphate pesticide chemicals.



*Dr. Eugene Gardner retrieving water sample at test site #3, Check 13 on the California Aqueduct August 7.* **Photo**: Bay Institute

# Serendipity picked the test spots

**by William T. Davoren**

Our venture into aqueduct sampling started as a serendipitous addition to a business trip. The Bay Institute's staff scientist, Eugene Gardner, Ph.D., and I had been invited to talk to "Leadership Merced" at its meeting at Santa Nella on June 15. One of the organizers of the meeting, John Holmes, M.D., of Merced, had invited us to tell the group about the San Joaquin Valley's growing agricultural-drainage problem. Dr. Holmes is especially interested in how the toxics in drainage and farm runoff waters may be affecting public health by contaminating local drinking water supplies of the San Joaquin Valley. Holmes is an advisor to the Institute's Valley Health Project.

Along with us came George Pess, an economist who had been compiling and analyzing water-quality data on wells and groundwater on the Valley's west side for the Institute. Pess is now a graduate student at the Yale School of Forestry and Environmental Studies.

I suggested to Gardner and Pess that sampling the aqueducts would be a useful thing to do while in the vicinity of Santa Nella. We phoned Anresco Inc., the laboratory that had analyzed Bay striped bass tissues for the Institute in 1984, and arranged to pick up prepared sample bottles. Our budget was limited to testing only for selenium and arsenic, plus several of the organophosphates and organochlorines that are used as pesticides. Preparation of the sample bottles and analysis of our samples were directed by E. Jerry Oliveras, Anresco's associate director.

Our sampling equipment was primitive but functional. (See photos.) We followed Oliveras' instructions in handling the samples. Dr. Gardner, a toxicologist with degrees in biophysics and experience in lab and scientific protocols, was in charge of our sampling methods. We chose locations for sampling the California (Edmund G. "Pat" Brown) Aqueduct and the U. S. Bureau of Reclamation's Delta-Mendota Canal by consulting a California State Automobile Association highway map. Our main concern was to sample both aqueducts but not interfere with our commitment to lunch with and talk to the Leadership Merced group at Split Pea Anderson's Restaurant in Santa Nella.

We sampled the California Aqueduct before lunch and the Delta-Mendota Canal after lunch. (See map.) Our last sampling stop was South Dos Palos, to obtain a sample of a local domestic water supply. We collected this sample from a hose bib at the rear of the Dos Palos Health Center. We learned later that South Dos Palos's water supply was provided by the Delta-Mendota Canal until June 14 — the day before our sampling —and on that date was switched to the California Aqueduct. The official water supply records we had consulted before leaving our Sausalito office indicated that South Dos Palos obtained supplies from local groundwater sources. Thus our expedition failed to get a sample of local groundwater supply — but we did not know that at the time.

**Sampling results**

We received Anresco's results for selenium and arsenic on July 11, and for the organo-chemicals on July 17. We were surprised by the high level of selenium in the Delta-Mendota Canal — 24 parts per billion — and also intrigued by the fact that we had found one-half as much, 12 ppb, in the State Water Project's aqueduct. We did know in advance that waters of both aqueducts were mixed at the O'Neill Forebay, where they can be pumped into San Luis Reservoir which is a joint use facility built by both projects.

(The reservoir was added as a unit of the federal Central Valley Project by the San Luis Project Act passed by the U. S. Congress in 1960. The purpose was to provide a water supply for the Westlands Water District, headquartered in Fresno. The State's share of the reservoir resulted from passage of the Burns-Porter Act by the State Legislature in 1959, and approval by California voters in 1960. Now this same dynamic combination would like to construct a new San Luis in a neighboring canyon, a project called Los Banos Grande, to store "surplus" flows presumably available from the Delta.)

**South Dos Palos results**

The South Dos Palos sample we tested produced a selenium level of 10 ppb. We did not know at the time that the selenium we might find would inferentially confirm the presence and levels of selenium we would find in the aqueducts the same day. Later we learned that South Dos Palos cared little about the selenium level, but was quite disturbed by the arsenic values we obtained. Later re-tests, by Anresco and others, found that our result for the arsenic in South Dos Palos's water, at 76 ppb, was incorrect. Samples of South Dos Palos's water taken on August 7 yielded a level for arsenic of about 5 ppb. Although this may sound like more than you would want in your morning coffee, it amounts to only one-tenth of the EPA's Maximum Contaminant Level for drinking water (50 ppb). We owe South Dos Palos an apology on the arsenic; they owe us a thank-you for the news on selenium.

When Anresco's results came in, Dr. Gardner and I were in the process of reviewing the San Joaquin Drainage Program's Draft Final Report. On public health aspects, we found the report's conclusions timid and reactive. We were also not impressed with the report's lack of any data on selenium or other drainage constituents that might be found in the waters being conveyed by the two aqueducts. (This is like asking a heart specialist for a checkup but telling him to skip the arteries because they are OK.) This latter failing made the report's engineering recommendations for handling toxic drainage wastes produced in the Tulare Lake Basin specious, if not spurious. This is because the report's basic method for handling drainage waters generated in the vast Tulare Basin — the southern half of the San Joaquin Valley that does not drain into the San Joaquin River — calls for placing the wastes in "evaporation ponds." (We prefer to call these "toxic sumps.")

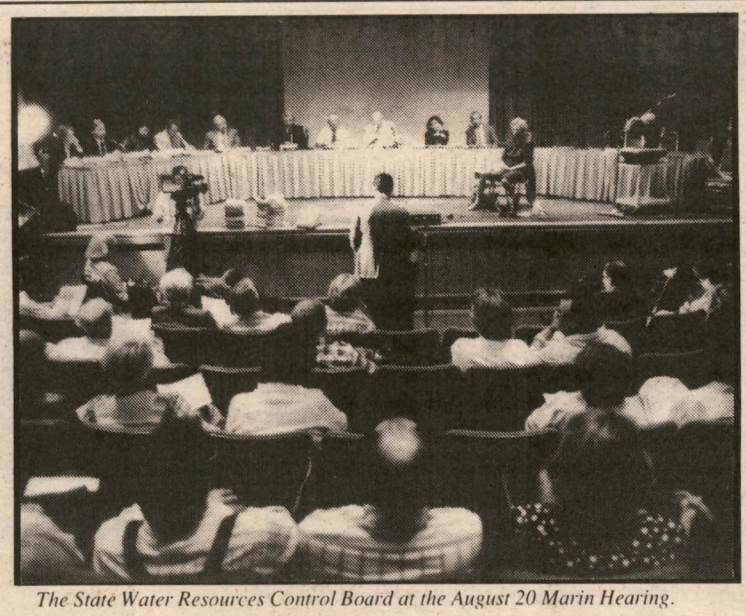
The report contains estimates of the thousands of acres needed for "ponding" the drain wastes that Tulare Basin growers will generate in the next 10, and 50, years. For reference, Kesterson's ponds had amounted to about 1200 acres and served 8000 acres of irrigated lands. Approximately 7,700 acres of such ponds now exist, legally, in the San Joaquin Valley. The Bay Institute estimates, based on Drainage Program data, that to keep irrigated agriculture going at its present level in the Valley would require 10,000 acres of very year. The bulk of

***Continued next page***

# Board's Marin Hearing

your staff on a fool's errand to develop standards without including flows."

By the evening session the Board seemed saturated by criticism of their plan and offered few if any comments or questions for the speakers. The day session was much different. Darlene Ruiz, vice chairman of the Board, aggressively questioned speakers and challenged their criticism of the Board's revised *Draft Plan* and extended the process. In an exchange with Schwartz, Ruiz contended that because flow standards could infringe on the existing supply of contracted water — or, stated differently, the existing water rights — considerations of flows would be more appropriately dealt with in the "Water-Rights Phase" of the hearings, scheduled for sometime in 1992 or 1993. Schwartz challenged the legality of this new process, reiterating the opinion of other environmental groups that mixing flow standards in the Water-Rights Phase is contrary to the 1986 appellate court decision (the Racanelli decision).



*The State Water Resources Control Board at the August 20 Marin Hearing.* **Photo**: Frankie Frost, Marin Independent Journal

According to Ruiz, the Board's interpretation of Racanelli is exactly opposite. Ruiz stated that Racanelli precluded the Board from considering flows in anything but the Water-Rights Phase. She gave a similar explanation of Racanelli to Steve McAdams representative of Bay Conservation and Development Commission, whom she advised to reread the decision. McAdams told Ruiz that BCDC gets its legal interpretation from the Attorney General. When Ruiz later advised Schwartz to reread Racanelli, Schwartz responded that she knew the decision quite well and offered to give the Board a detailed interpretation of Racanelli that outlines the Board's authority and duty to set flow standards. This addendum to the Natural Heritage Institute's comments on the *Draft Plan* was submitted September 10 to the Board. The Schwartz analysis basically states that the Board's responsibility to set protective water-quality standards (consisting of flows or other characteristics) could not be limited by existing water rights. What the Board was now doing, according to Schwartz, was putting protections of water rights before protections of water quality.

The noise made at Marin was definitely heard, but its effect won't be known until release of the Board's Salinity Control Plan in late December. At the same time groups including the Sierra Club Legal Defense Fund, the Bay Institute, the Natural Heritage Institute, the Natural Resource Defense Council, and others are keeping the pressure up. They are backingup this public outcry for freshwater flows for the Bay by calling to the attention of the Environmental Protection Agency (EPA) its authority under the Clean Water Act. EPA must reject the Board's plan if it doesn't protect the estuary. The groups are also preparing to sue the Board under state law if its new plan doesn't contain flow standards to protect the estuary. The State Board seems concerned about the prospect of a suit and is rumored to have made numerous revisions of the plan. However, it is said that many of the changes resulted from direct consultations with the Metropolitan Water District of Southern California and the State Water Contractors. These are the same agencies that caused the *1988 Draft Plan* to be withdrawn, and then helped the Board develop the new process.

Nothing is certain and Chairman Don Maughan of the State Water Board has stated publicly that the State Board must at least give a detailed explanation of why flows are not in this Water Quality Control Plan. However, Vice-chairman Ruiz, whose appointment to the Board expires January 15, 1991, said, "It is clear there is not ample clean water to protect all the beneficial uses." She implied that because of the long term decline of fish habitat, its restoration with freshwater would be an unreasonable use of water. This could mean that the Board will simply ignore the calls to protect the Bay-Delta and continue on its present course of "Just-say-no-to-flows". **SDH**

# Aqueducts

**continued from page 1**

National Wildlife Refuge came to light in 1983. That event triggered the outburst of public and private attention that has been devoted to selenium contamination over the past seven years. But not to worry, officials have been telling us: Selenium in the aqueducts is only barely detectable. Our investigations have revealed that some of the agencies have detected selenium in the federal canal at levels as high as 60 or 70 ppb, peaks reached at times of seasonal low flows in the canal.

This information comes from two sources: (1) data that the Bureau of Reclamation has filed with the Central Valley Regional Water Quality Control Board to comply with the Board's program of developing Drainage Operation Plans (DOP), and (2) data obtained from the Bureau's office responsible for controlling discharge of "nonproject" waters into the Delta-Mendota Canal at 16 injection points on the canal between Tracy and the 80-mile post. The Institute's samples, collected near Santa Nella, were at the 71- mile post of the canal. All but one of the 16 injection points arebelieved to be located "upstream" of the Institute's original sampling locations. The information the Bureau filed with the Regional Board covers only the sumps located near the 100-mile post, from which drainage waters are pumped directly into the Delta-Mendota Canal.

The selenium levels we found do exceed the Maximum Allowable Level for safe drinking water (10 ppb) of the Environmental Protection Agency (EPA). Of more immediate concern, though, is that these high levels of selenium confirm that the aqueduct waters may be a direct threat to fish and wildlife in the San Joaquin Valley areas irrigated by the water these two big public projects deliver to contractors. Ever since Kesterson the lethal effects of selenium on aquatic life have been documented repeatedly. Scientists of the US Fish and Wildlife Service now believe that selenium can be lethal for fish and wildlife when concentrations as low as one-half of 1 part per billion is present in ambient waters. At that level, selenium, can through biomagnification, reach levels that can affect fish reproduction and poison the entire aquatic food chain. The present Maximum Contaminant Level (MCL) of the EPA to protect water quality for fish and wildlife for waste discharges into fresh water systems is 5 ppb. A different, higher MCL applies to discharges to saltwater.



*W.T. Davoren and George Pess taking water samples on the Aqueduct June 15.* **Photo**: Bay Institute

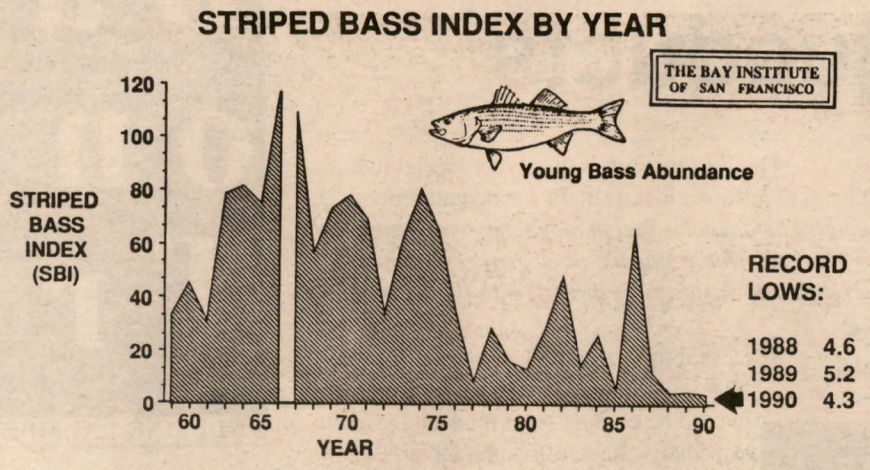
By demonstrating that the aqueducts can and do sometimes contain high levels of selenium as a result of being used for disposal of agricultural wastewaters or simply by transporting the San Joaquin River's waters, or both, the Bay Institute's sampling of the waters of the state and federal projects may :

- kill off any more projects to link the aqueducts (though both contribute flows to the San Luis Reservoir) until the selenium sources are cleaned up or the discharges are stopped;
- cancel out most of the San Joaquin Drainage Program's recommendations for "ponding" farm wastes with less than 2 ppb in the Tulare Lake Basin;
- reform the sampling and/or testing procedures of the five or six agencies involved in checking (monthly) the quality of aqueduct water; and
- build support for restoring the San Joaquin as a healthy river for fish and wildlife with better quality water for people and irrigation.

The responsible agencies in this scenario, in addition to the State Department of Water Resources and the US Bureau of Reclamation, are the California Central Valley Regional Water Quality Control Board, the State Water Resources Control Board, the Metropolitan Water District of Southern California (the major supplier of Delta waters to Southern

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# Pumping Delta water




Lee Miller, an associate fisheries biologist in DFG's Stockton office, told the Contra Costa Times when the lastest figure came out in early August, "The pumping plants are fishing the populations before they ever get a chance to spawn." He added, "It's not just striped bass, but all the fish out there are getting hammered because we have such tremendous exports in the Delta."

William T. Davoren, director of the Bay Institute, agreed with Miller, saying, "It is important to realize that it's not just striped bass disappearing. The Fish and Game Commission will soon decide whether or not to list the Delta smelt as an endangered species." [On August 30 the Commission chose not to list the Delta smelt, although a federal listing is still being considered.] "The winter-run chinook salmon on the Sacramento River is already listed, and other species are waiting in line," Davoren said.

The striped bass is the most extensively studied species in the Bay-Delta. State fish biologists have studied the species since the early 1950s. Because of the striped bass's life cycle, hardiness, and popularity, the health of the striped bass was considered a relatively good indicator of the overall health of species using the estuary. Striped bass use the Bay-Delta estuary, particularly the southern Delta, as a spawning and nursery ground, then migrate to ocean waters to return two or three years later to spawn. Their dependence on the estuary was another motivation for using them as an "indicator species". In the late 1950s DFG developed the Striped Bass Index to measure the success of young-of-the-year striped bass. Since 1959 the Index has been used by DFG, Department Water Resources, the federal Bureau of Reclamation, and the US Fish and Wildlife Service to gauge the effects of the state and federal project pumps on the Delta.

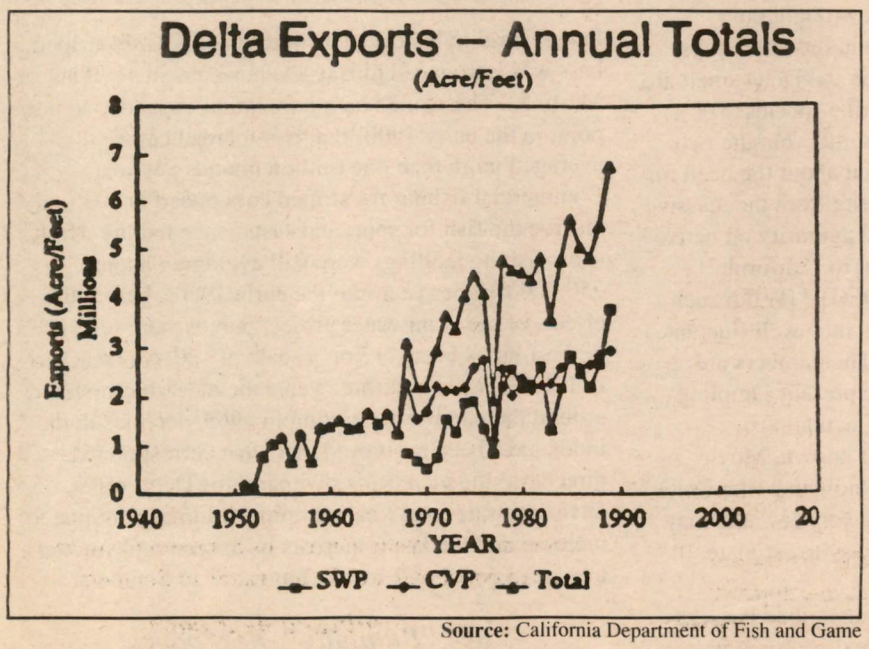
Starting in 1968, when the State Water Project pumps began pumping and the federal Central Valley Project pumps increased pumping, the Striped Bass Index started to plunge. In 1978, after a three-year process, the first controls of *both* the state and federal project pumps based on water rights and water quality were set by the State Water Resources Control Board. The so-called D1485 water-rights decision, or more accurately the *D1485/Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh*, based the success of the Plan's interim protection of the estuary on achieving a Striped Bass Index of 79, considered to be the "without project level". The average Index for the last twelve years has been about 22.

The failure of the D1485 pumping standards to protect the striped bass adequately has become the key issue in the present Bay-Delta Hearings, which began with pre-hearings in 1986. The Environmental Protection Agency since 1987 has repeatedly warned the state of the inadequacy of D1485, and reiterated the State's obligation under the Clean Water Act to set protective standards for the estuary. A legal notice filed by the Sierra Club Legal Defense Fund for the Bay Institute of San Francisco, Natural Resources Defense Council, Natural Heritage Institute, and the California Natural Resources Federation, informed the EPA of the intent of those organizations to sue EPA unless EPA acts, as required by law, to set standards that protect the estuary until the State develops standards that are acceptable.

Patrick Porgans — a private consultant, conservationist, and water-industry critic — makes another point altogether: "What's the point of making new standards if the current ones are not being enforced?" Porgans was referring to south Delta salinity standards, which, according to Porgans, the projects have stopped trying to meet, and have violated hundreds of times in the last four years. As water quality went down, pumping went up to record levels. Averaging 6981 cubic feet per second (cfs) from May through July in the last six years, the projects have consistently exceeded the D1485 standard pumping constraint of 6000 cfs for the months of April, May, and June.

Both Department of Water Resources and State Water Board spokesmen have played down the violations, pointing to cooperation by DWR and fish and wildlife agencies. Walt Pettit, chief of the State Board's water rights division charged with enforcing the standard, told the Sacramento Bee's Jim Mayer that "you have to look at the magnitude of the violations and the effects of them. The difference between the salinity they had and the standard is not going to save the striped bass."

Others not locked into the water establishment paint a different picture. Environmentalists and the EPA have said that the standards are inadequate already, so violating them is making a bad situation even worse. Dan Odenweller, a DFG biologist in their Delta studies office at Stockton, was quoted in the same Sacramento Bee story, saying "[T]he resources are in serious trouble and I think this is a conscious decision to see how far they can push the issue."




**Source:** California Department of Fish and Game

Attempts to set protective inflow and pumping standards, are continuously bombarded by what Davoren calls "forensic science", or studies developed solely to bolster a political slant, intending to undermine the setting of new standards. "The question remains whether a bloated agricultural industry and urban growth promoters locked into 1950s mentality will recognize the limits of California's water resources or suck the life out of the estuary before the legal means for protecting it can be brought to bear," Davoren concludes.

* An acre-foot of water would approximately cover the area of a football field to the depth of one foot; or an acre-foot of water could sustain the needs of two average families for one year; or if you look at agriculture, a little over three acre-feet of water will grow one acre of cotton or one acre of alfalfa. According to Marc Reisner, author of *Cadillac Desert*, the total demand of all urban water users in Los Angeles and the Bay Area could be met by the water used solely for growing alfalfa in California.

# Water Board's reality check

August 20, 1990, may not be a day to be remembered in history but it is a day the State Water Resources Control Board isn't likely to forget soon. The Board that day held one of a series of day and evening public hearings on the *Draft Water Quality Control Plan for the San Francisco Bay-Delta Estuary* at Marin Civic Center in San Rafael. The *Draft Plan*, and the process by which it was written, has had across-the-board criticism from conservation groups. Ever since the Board revoked the *1988 Draft Plan*, there has been a widely held perception that the State Board has been backpedaling for political reasons on that plan's recommendations for increased freshwater flows to the Bay in spring months to protect water quality, fish, and other wildlife.

The most recent plan, which comes out of a hearing process revised in 1989, does not contain any flow standards. At the August 20 meeting people unleashed their frustration and resentment with the Board's new plan and with the process, which won't consider flows until 1993 and then won't consider freshwater flows in the context of a "standard" to protect the Bay-Delta estuary.

About 300 people attended the evening meeting in Marin to voice their desire for "Flows for the Bay" — as displayed on stickers provided by the Committee for Water Policy Consensus and Save San Francisco Bay Association. Most of the attendees went unknowing that a day-long session with interested parties preceded the evening session. Throughout the day and evening most speakers criticized the Board for its actions. "I can't believe we've waited 12 years to see a report like this that merely continues the killing of fish and wildlife instead of helping them to survive," said the executive director of the Bay Institute, Bill Davoren, during the day session. Others joined the loud chorus of disapproval. Michelle Leighton-Schwartz, a attorney for the Natural Heritage Institute, asked, "How could the Board have spent four years compiling a hearing record comprising some 23 feet of documents stacked end to end and arrive at a plan that merely enshrines the existing spiral of deterioration?" And Zeke Grader of the Pacific Coast Federation of Fishermen's Associations said that evening before the approving crowd, "You have sent

***Contined next page***

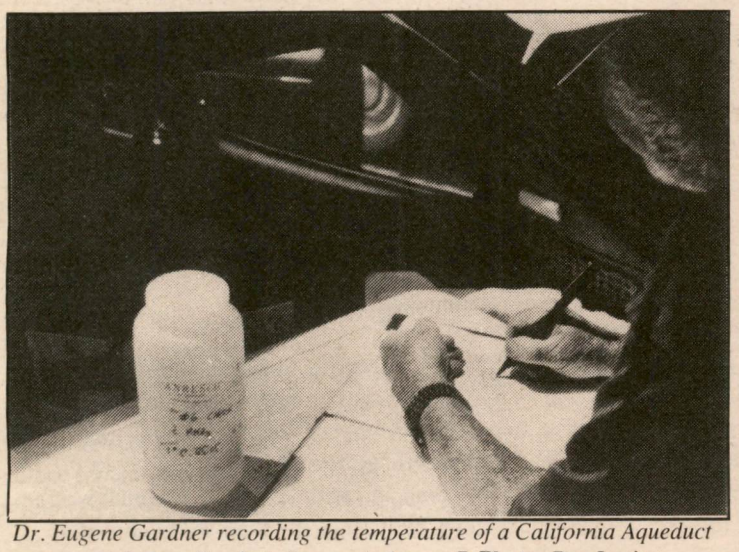
Bay on Trial

VOLUMNE 2 NUMBER 2 SUMMER / FALL 1990

# Agricultural wastewater dumped in aqueducts

**By William T. Davoren**

The Bay Institute took samples of California's two major north-south water arteries on June 15 of this year. We were surprised by the results. We found selenium in the U. S. Bureau of Reclamation's Delta-Mendota Canal at 24 parts per billion (ppb), and in the State Department of Water Resources' famous California Aqueduct at 12 ppb.



*Dr. Eugene Gardner recording the temperature of a California Aqueduct water sample near San Luis Reservoir August 7.* **Photo:** Bay Institute

The Bay Institute's discovery has let the state's 30 million citizens in on a state and federal secret: *The agencies that manage these vital lifelines of the California economy allow growers to pump agricultural wastewaters directly into the aqueducts.*

We tested the aqueducts on the assumption that any selenium we found in them would be coming from the Delta's waters, especially the San Joaquin River, which enters the Delta near the project pumps at Tracy and Byron. We found out we could be wrong about that assumption. The San Joaquin is an obvious source for selenium because this once useful river has been converted upstream of its confluence with the Merced to a wasteway for farm runoff most months of the year. Almost all of its flows almost all of the time are picked up by the pumps.

But through a series of investigations the Bay Institute has learned that some growers are allowed to dump their farm wastewaters at more than 20 sites into the federal Delta-Mendota Canal. The state and federal aqueducts mix their waters at O'Neill Forebay and San Luis Reservoir, about 70 miles south of the projects' pumps at Byron in Alameda County and Tracy in San Joaquin County. Also, at least two sites on the California Aqueduct are designed to receive excess surface-water runoff from the selenium-bearing marine shales of the valley's west side.

Before the Bay Institute's samples revealed otherwise, all the agencies involved with the aqueducts believed or assumed that levels of selenium in aqueduct waters were only 1 or 2 ppb. This has been the public stance of the two agencies managing the aqueducts ever since the disaster at Kesterson

***See "Aqueducts" page 3***

# Going down the tubes

***By Scott Hadly***

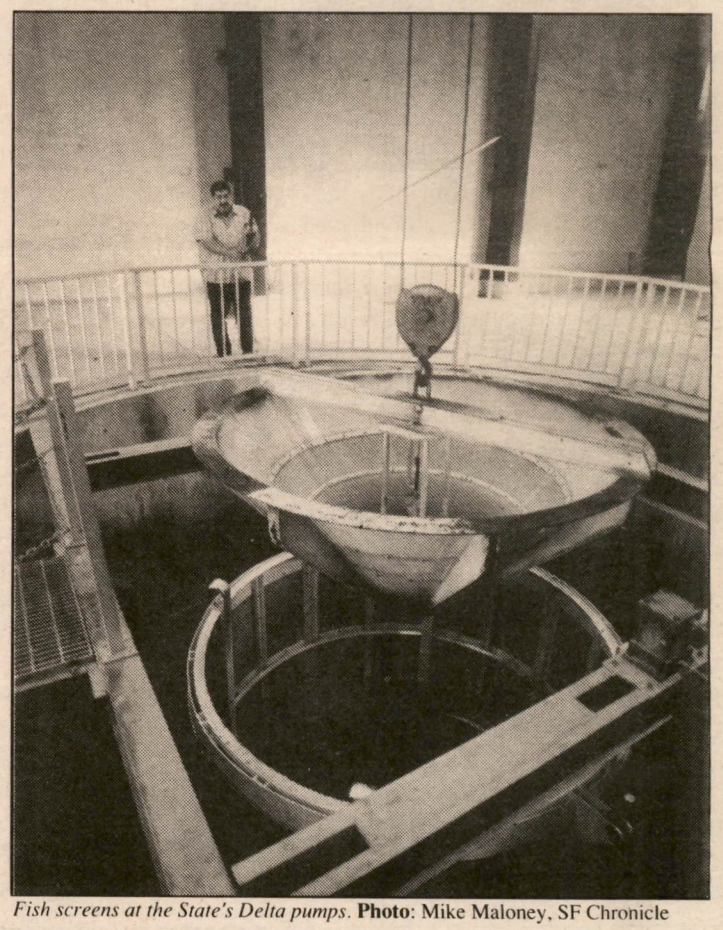
The Bay-Delta estuary is going down the tubes. The 'tubes' in this case are the state and federal aqueducts that take Delta water south primarily for San Joaquin Valley agriculture.

The state and federal pumps that divert water into the aqueducts suck millions of fish into their intakes every year. The pumps kill fish; physical changes in the hydrodynamics of the estuary caused by the amount of water being taken give another blow to the already devastated ecosystem. The pumps that suck water south are pumping more water than ever before out of the Delta. The volumes of water are simply staggering. In 1990 the annual projected export from the two projects will be seven million acre-feet of water, perhaps at most only one million of which is used for urban customers.

Pumping this ever-increasing volume of water out of the Delta has had devastating effects on the estuary. Pumping more than five billion galions of water on a daily average in spring months for the last ten years, the projects have succeeded in reorienting the whole estuarine ecosystem. Rivers run backwards, or take a sharp turn to the south. According to the Department of Water Resources DAYFLOW data, which give the flows into and out of the system, reverse river flows have occurred almost 300 days out of the year in the last three years. In the last five years, the percentage of water diverted has consistently been over 50, reaching 75 in 1987. Since 1984 the percentage of Delta inflow diverted has been higher and for longer than ever before, including the 1976-77 drought.

As a testament to the power of the pumps, fishermen miles away from the pumps in the Delta have told about experiencing their boats at anchor swinging around when the pumps are turned on and the current reversed. But for the creatures that rely on the ecosystem, the manipulated flows mean more than just a reorientation of a mooring, it is a life or death situation. Freshwater flows not only help move outmigrating anadromous fish and nutrients through the system but control the whole hydrodynamics that make estuaries such productive environments. The "zone of entrapment" traditionally located in Suisun Bay in spring months, (and San Pablo Bay during very high flow years,) is where fresh riverwater meets salty seawater to form a small area of equilibrium. It is there that rich blooms of plankton occur that form the base of the estuarine food web.

In 1989, according to Drs. Bruce Herbold and Peter B. Moyle, UC Davis fish biologists, the phytoplankton biomass in Suisun Bay was the lowest on record. That change, according to Herbold and Moyle, was unprecedented when compared to any other estuary or lake, having similar phytoplanton production. There has been an almost universal decline of estuarine and anadromous species in the Bay-Delta estuary. The alarming decline of one species, the Delta smelt, motivated Moyle and Herbold to petition the state to list the species as endangered. In that petition the two outline the dramatic changes wrought on the estuary by the massive state and federal pumps. The effects the pumps have had on the Delta smelt are analogous to those of other estuarine species. The petition failed to clear political hurdles, but the two professors, and others, are adamant about the need for some sort of protections in the Delta from the massive diversions. Moyle, who is a noted authority on native fish of California, wrote in a letter to California Department of Fish and Game (DFG), "[W]ith such low numbers the smelt population may well fluctuate into extinction in a single year." The numbers are so low, according to the petition, the present sampling techniques can't measure recent fluctuations. Although absolute numbers aren't known, Moyle stated in that same letter "we do know that [the Delta smelt's] relative numbers now are very low and may be approaching a number that is easy to estimate: 0!"



*Fish screens at the State's Delta pumps.* **Photo**: Mike Maloney, SF Chronicle

The reproduction of young striped bass, as measured by the Striped Bass Index, is also at its lowest level in history. The traditionally hardy striped bass was introduced to Bay-Delta waters in 1879 at Martinez. The striped bass population expanded to the point in the early 1900s that commercial catches averaged more than one million pounds per year. Commercial fishing for striped bass ended in 1935, to reserve the fish for sport and sustenance fishing. High sport-fishing landings were still averaging about 750,000 fish per year into the early 1960s, before the effects of the giant water project pumps were felt. The highest index ever, 117 on a scale of 120, was reached in 1965. For the past three years the index has hovered around the number 5. Starting in 1968, declines in the index have been registered that have corresponded directly to the increasing diversions of Delta water. Diversion rates and total pumping volumes continue to increase and the last four years have seen three record lows — 4.6, 5.2, 4.3 for the Index.

***See "Pumping" next page***

# Bay on Trial


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*Great Blue Heron on Suisun Slough in Suisun Marsh* **Photo: Mike Maloney, SF Chronicle**


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California water and the San Francisco Bay-Delta Estuary

# Bay on Trial



VOLUME 2 / NUMBER 2&3 / SUMMER & FALL 1990




**Cover Art:** Kathryn Gray, courtesy Carter House Science Museum, Redding


## Wastewaters dumped in aqueducts
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## Is water marketing a monster?
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## Deadlines and Datelines — Information Unclassified

**Shifting gears at SWRCB —** Is the staff of the State Water Resources Control Board getting ready to relate to a new governor who cares more about the Bay-Delta Hearing than the present one? Maybe so. For whatever reason, changes being made by Executive DirectorJim Baetge are bound to give theBoard's key Hearing process some new energy and reality. Baetge says he will be spending 80 percent of his own time on Bay-Delta. He has moved Walt Pettit, formerly chief of water rights, into a position to guide overall board policy covering the Bay-Delta Hearing, bays and estuaries, and inland waters classification. Jesse Diaz, chief of water quality, moves into handling remaining water rights functions and water quality regulation. Existing Bay-Delta authority figures, Jerry Johns, an assistant division chief, and Dave Beringer, manager of the Bay-Delta Program, remain in place under this new policy-oriented superstructure, according to Baetje.

**Bay on Trial Last Time**—Summer edition, sorry. Simply not enough funds or staff time available to get the job done.

**Bay on Trial This Time** — This bonus 24-page edition is to make up for lost time last time.

**Bay on Trial Next Time** — Joel W. Hedgpeth revisits a favorite theme no one else will touch: UC Berkeley's seventy years of failure to use the Bay-Delta estuary for classroom teaching of science. W. T. Davoren takes a look at the brief but relatively happy life of the San Francisco Estuary Project. Is there life after Status and Trends?

**Selenium Comes to Town**— One result of the federal-state program classifying conditions of the state's waters impacted by dischargres, required under Section 304(L) of the Clean Water Act, is that the petroleum refineries on the Bay's shoreline are getting a selenium checkup. Staffs of the Regional Water Quality Control Board and the Environmental Protection Agency met in late October to discuss reopening all of the NPDES (National Pollutant Discharge Elimination System) permits for the six majors — Exxon, Shell, Pacific Refining, Chevron, Tosco and Union — to put in limits on the selenium the refineries discharge to the Bay in their treated wastewaters. This results from the waters of San Pablo Bay, Carquinez Strait and Suisun Bay being classified as impaired, and put on the Section 304(L) "short list" because of the selenium coming from the refineries. Selenium, the toxic element that made Kesterson famous, or vice versa, is classified as a "priority pollutant" by EPA. One report on discharge loadings of the Bay, by the Aquatic Habitat Institute, stated that refineries supply 98 percent of the selenium entering Bay waters from point sources. (Earlier in 1990 the Bay Institute testified at the NPDES permit reissuance hearings for Exxon, Shell, and Pacific, asking the Board to put limits on selenium and also require the refineries to pay for monitoring regional effects of selenium. The Board staff responded by saying the Board's 1986 Basin Plan did not provide numerical limites for selenium. The Board is developing a baywide monitoring plan, now, for selenium and other toxics.

**CARE Package to Open** — On November 13 the Citizens Alliance to Restore the Estuary (CARE) presents the results of 10 months work at a press conference at Fort Mason. A score or more Bay-focused organizations, functioning under the lead of Save San Francisco Bay Association, have generated CARE's "Restoration Agenda" package. For information call Ruth Gravanis at Save-the-Bay, 415-452-9261.

**Water Summit** — The Committee of 200 working the past six months, north and south, to develop a statewide water policy action agenda for the "environmental community" meets in Oakland on Sunday, November 18. This bootstrap effort has produced impressive jawboning. The umbrella keeps getting bigger. Now they are looking for a real name. Immediate targets: appointments by the new governor, and 1991 policy positions on such hardy chestnuts as the Delta and the Peripheral Canal. Possible products: a 1992 referendum. Leadership for the peripatetic discussions has been provided by Kevin Wolf of Friends of the River, with FOR Foundation serving as the fiscal agent. The Oakland meeting runs from 10:30 am to 6:00 pm, at the Tower Lounge in Terminal 1 of the Oakland International Airport. Price to play, $15, includes lunch. Call FOR at 916-442-3155 for information.

**Math of the Aftermath** — The math of the Shell and Unocal "spills" settlements is $10.8 million Shell and $2.7 million Unocal. This is to be spent in the next few years restoring and acquiring Bay-Delta wetlands. The similarity in how the money is actually handled ends there. The Shell funds are being administered by a Trustee Committee comprised of State and Federal employes representing six agencies, assisted by a Technical Advisory Committee with 13 different agency representatives and three non-government types. The Unocal funds are to be spent by the Trust for Public Land, a national, public service land acquisition organization headquartered in San Francisco. Both programs are organizing now. The Shell trustees are off and running, with an impressive letterhead: Shell Oil Litigation Settlement Trustee Committee. The chairman is William Travis, deputy director of the Bay Conservation and Development Commission, a veteran of bay and coastal shoreline planning. The Trustees have contracted with the California Environmental Trust, a public service nonprofit organization, to provide administrative services for both the Trustees Committee and the Technical Advisory Committee. The man responsible for TPL handling of the Unocal spending is TPL's president, Martin Rosen. Nancy Schaefer is developing the program for TPL's funds. Efforts are being made to keep the two unprecedented efforts in touch with reality and with each other. **WTD**

# The Bay Institute
## OF SAN FRANCISCO

*The Bay Institute performs scientific, legal, engineering and economic investigations into the Bay's problems. We apply this expertise whenever and wherever public officials are making decisions that affect the Bay's waters, wetlands, wildlife, and public health.*

*The Bay Institute has been among the leaders of environmental and fishing organizations fighting for the Bay in the State's pivotal Bay Delta Hearings.*

*Since being founded in 1981, the Bay Institute has taken a system-wide approach to solving the environmental problems facing the San Francisco Bay-Delta Estuary. The position of the Bay Institute has been to encourage protection of aquatic ecosystems and their public trust values by:*

*•Obtaining a legally guaranteed share of adequate fresh water for the Bay, through the Bay-Delta Hearing process.*

*•Stopping toxic discharges coming into the Bay and estuary from urban and agricultural sources.*

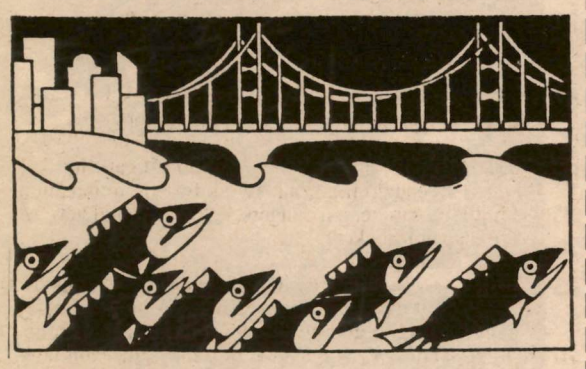
*•Saving the 51, 000 acres of unprotected diked wetlands around the Bay from unwise development.*

*•Protecting the unmanaged tidal-marsh in Suisun Marsh, and the endangered fish and fauna there.*

*•Heightening public interest and awareness in all these issues.*

For information please call 415-331-2303, or mail in one of the coupons.

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# Wilson stopped water-subsidy reform bill

Senator Pete Wilson's last act of the 101st Congress, that ended October 28, killed an important bill to reform existing laws ruling federal water projects. The legislation, H.R. 2567, the Reclamation Project Authorization and Adjustment Act, was first introduced in the House by Congressman George Miller. It had passed by an overwhelming majority in the House, because of widely accepted view of the need to limit water and surplus-crop subsidies. Amendments in the bill would only allow subsidized water to go to small farmers with a 960-acre limit, and not allow farmers to receive both subsidized water and federal payments for surplus crops. The bill also sought to remedy environmental problems caused by federal water projects, especially damage to fish and wildlife habitats.

The legislation was brought to the Senate floor by Senator Bill Bradley, Chairman of the Subcommittee on Energy and Natural Resources. But at the last minute Wilson blocked his move in order to make amendments, according to a National Wildlife Federation memo. Late on Friday night, also according to the memo, Bradley announced that, to satisfy Wilson and pass a Senate version of the bill, he would have to remove all provisions to enforce the 960-acre limit.

Congressman Miller said to the Los Angeles Times, on October 30, that he, Senator Bradley, and others offered Wilson several concessions on Saturday October 27, but Wilson refused to accept them. The session ended and the legislation died. "We came up with three different compromise proposals but Wilson refused to negotiate," said Miller.

Wilson was quoted in that same news story differing with Miller's claim of compromise, and defending his actions to amend the bill. Miller had refused to drop the acreage limitation provision. According to Wilson, "In many instances, [small farmers] could not farm economically if they were denied their entitlement of reclamation water."

Wilson's last minute action angered many who had worked for more than three years in an attempt to reform agricultural and water subsidy abuses. It also goes against a growing public resentment of subsidies for large corporate farms. Ed Osann of the National Wildlife Federation complained that subsidies to large corporate farms "not only short-change the taxpayer and undercut water conservation efforts" but also encourage over-irrigation that leaches selenium and other dangerous contaminants into California's rivers. Numerous conservationist and fishermens' organizations, such as National Audubon Society, Natural Resources Defense Council (NRDC), National Wildlife Federation, Pacific Coast Federation of Fishermen's Association, the Sierra Club, and Trout Unlimited, had helped to develop and support the legislation. Organizations such as Friends of the River and California Waterfowl Association, who supported Wilson in his bid for Governor, were caught off base by Wilson's move because they also supported the legislation.

Other organizations let it be known now they felt. "It just angers me," said Tom Haller to the Orange County Register October 31. Haller is executive secretary of the California Association of Family Farmers. "I think it's pretty clear that 960 acres is just a little bit above a mom-and-pop operation."

Hal Candee, a staff attorney for NRDC, said in the same article: "It's not surprising that the agribusiness lobby was opposed to the reforms. What is surprising is that Senator Wilson would be willing to hurt small farmers and the environment in order to save subsidies for the largest farms in the West." Subsidies to California's Central Valley total $135 million annually, according to information in the legislation. **SDH**

## Bay Pollution Policy Document gets final OK

The State Water Resources Control Board's Salinity Control Plan may draw the press coverage but its smaller companion, the Pollutant Policy Document (PPD), also enjoys a life of hearings, bombardment by lawyers and consultants, and attack by citizen word processors. However, the PPD is past all that now. The PPD was approved and released by the State Water Resources Control Board in June. (Report date: June 21.) It iterates state-of-the-art pollution control practices and standards that are necessary to protect the beneficial uses of the "San Francisco Bay/Sacramento-San Joaquin Delta Estuary." The PPD is designed to satisfy State law requirements and also to comply with objectives required by Section 303(c)(2)(B) of the federal Clean Water Act. When the draft was released in November 1988, the PPD contained specific numeric criteria for selected toxics. These have been eliminated but the document's general content and direction have been approved by most reviewers.

# We may sue EPA over Bay-Delta Plan

The Bay Institute of San Francisco and at least seven other organizations, under the leadership of the Sierra Club Legal Defense Fund, have decided to sue the Environmental Protection Agency. The papers have been served, as prepared by Stephan C. Volker of SCLDF, putting EPA's Regional Administrator Dan McGovern on notice that we want EPA to take over the failed "Water Quality Control Plan for the Sacramento San Joaquin Delta and Suisun Marsh" that both EPA and the State Water Resources Control Board approved more than ten years ago. The notice of suit maintains that the standards of that plan do not protect fish, wildlife and water quality, and, therefore, under the federal Clean Water Act the EPA should establish interim standards that do work. (The 1978 plan is based on achieving a Striped Bass Index of 79. The past three years the annual fish reproduction index has been 4.6, 5.2, and 4.3, on a scale of 120.) EPA has asked the potential litigants to give the agency more time to see what the State Board produces in the final version of the Salinity Control Plan, due to be released in December or January. **WTD**

## SYMPOSIUM ON BIODIVERSITY IN NORTHWESTERN CALIFORNIA

October 28-30, 1991 Santa Rosa, California

The symposium will be held October 28-30, 1991 in Santa Rosa, California. It will consist of plenary sessions with invited papers, concurrent sessions of research papers and a concluding panel discussion. There will be a poster session on the evening of October 29. Oral presentations and abstracts of poster presentations will be published in a proceedings by the Wildland Resource Center.

The purpose of this symposium is to address biodiversity for the Klamath Province (generally, northwestern California) in relation to specific issues for that region. Objectives include:

- Develop consensus definitions for biodiversity generally, and refine those for the region.
- Determine the status of scientific lnowledge on the major topics of concern in the region.
- Review current and emerging approaches to management for biodiversity in the region.
- Develop a broad research agenda to fill gaps in knowledge and initiate a network for communication among researchers, managers, environmental activists and decision-makers.

Researchers are invited to submit abstracts for oral presentation at the concurrent sessions. Completed papers are expected to be submitted at the symposium to facilitate rapid publication. Papers should present significant new research results, synthesis of past studies, fresh analysis from the perspective of biodiversity of descriptions of current management approaches. Abstracts for the four concurrent sessions should be 150 words or less and should include the title, author(s) affiliation, suggested keywords and text. They are due by January 1, 1991. The four session topics will be:

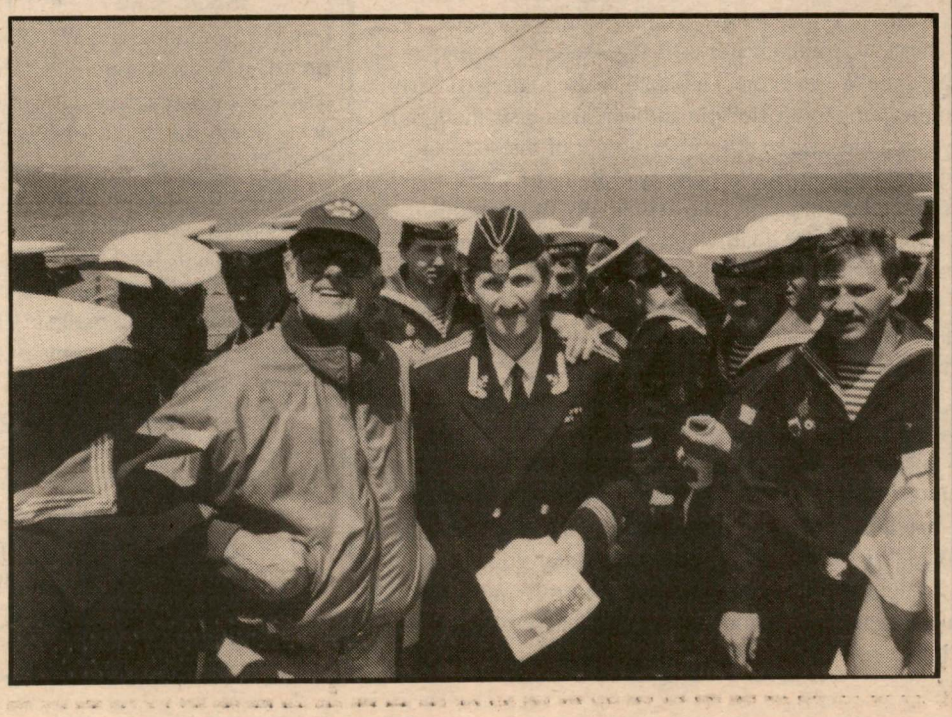
- Forest and woodland communities and landscapes.
- Nature preserve design and management.
- Riverine and estuarine populations and communities.
- The effects of local and global (e.g. global warming) environmental changes on biodiversity of the region.

Submit abstracts for oral presentations and posters to:

Richard Harris
Biodiversity Symposium
163 Mulford Hall
University of California
Berkeley, CA 94720

## Thanks Tom!

**Beardsley does it again.** Tom Beardsley, a US Coast Guard Auxiliary Officer from Sausalito, delivered three bundles of our Russian-English/ Earth Day Edition Bay on Trial to the First Mate of the Soviet icebreaker Volga. The Volga and crew stopped by San Francisco, and were surprised to read the Sausalito-born cyrillic.



# Both Feinstein and Wilson promised new water policy

By William T. Davoren

One thing is for sure with the new governor: California water policy gets a long overdue checkup starting in January.

This has been predictable ever since the 1982 election that killed the Peripheral Canal and then the failure of the incumbent to float the Duke's Ditch version of it past the Legislature. The only serious mark the incumbent — what was his name?— made on water policy was derailing the State Water Resources Control Board's carefully scheduled Bay-Delta Hearing at the end of Phase I. The resulting mess lands in the lap of his successor.

In the past eight years the state's water policy thrust has shifted from quantity to quality, from storage to sanitation. The shift results from acts of both man and nature. The four-year dry cycle — going to five? — opens minds as it closes down car washes. The 1983 Audubon/Mono Lake court decision and the 1986 Racanelli decision both speak to public trust, and



to preserving or restoring natural values lost or damaged by traditional water storage projects or outmoded concepts of water rights.

So how did candidates Feinstein and Wilson match up on water issues during the election campaign? Both wrapped water in with their "environmental" platforms. Both can claim legitimate environmental accomplishments during their careers as mayors, though Wilson gets one bad mark for his effort to get San Diego a "301[h]" exception to Clean Water Act requirements, to allow San Diego to discharge poorly treated sewage to the Pacific Ocean in the Seventies. (Scientists at Scripps Institute apparently helped him on that.)

A few headline-catching differences in style and content emerged, however.There were early moves by both candidates to line up environmental support around water issues. Wilson used his river-running and -saving record, and the energy of his environmental advisor John Amodio, to get endorsements from Friends of the River, Western River Guides Association, and Cal Trout. Feinstein developed broader based support from the California League of Conservation Voters, the Sierra Club of California, and major conservation groups. Early on Feinstein accepted, endorsed, and campaigned for "Big Green", Proposition 128. Wilson opposed Prop 128, worrying especially about its effects on small farmers. Feinstein, after one false start on the issue, came down firmly against the Peripheral Canal. She earned the wrath of the Association of California Water Agencies by telling them this at their very own annual meeting. At election time Wilson still opposed Prop 128, but in mid-October shifted his earlier support for the Peripheral Canal to opposition.

Both candidates campaigned on water quality and toxics, being for the former and against the latter. However, a statement in Wilson's official response to "How I'd Help the Environment", printed in the Los Angeles Times on October 16, is somewhat disturbing: "Clean water: California's problem is less a shortage of clean water than a shortage of water." This sounds a bit too traditional. But he soon saves himself manfully with this: "The most important problem in terms of quality of drinking water is ensuring adequate freshwater flows into California's great 'well,' the Sacramento River Delta, to prevent saltwater intrusion and to ensure sufficient quality in the Delta and San Francisco Bay."

(This takes us back to the Twenties and Thirties, when the California Water Plan — not "Project" — was designed by the Legislature and the executive branch to use river flows to provide the functional aquatic barrier needed to control the Bay's saltwater pressing on the Delta. Originally a very conservative policy, it has been reborn today as a practical necessity after 55 years of overdevelopment of the Sacramento and the San Joaquin Rivers by the Bureau of Reclmation and the Department of Water Resources.)

Some clues are available from the campaign as to how Feinstein and Wilson regard the "big brother" federal water utility in our midst: the Bureau of Reclamation's Central Valley Project. (That's where the water is that's needed to complete the State Water Project's bloated expectations.) Early in the campaign Feinstein and her strategists thought it was a good idea to propose a merger of the state and federal projects for "efficiency." Later this was watered down, pardon the expression, in favor of promoting water quality and conservation, water banking, reclamation with a small "r", and proposing a California Growth Management Commission for balancing demands on our natural and manmade resources.

Wilson's view of what to do with the Central Valley Project — its operators, its contract customers, and its water — surfaced the last week in October when he killed any chance of the U. S. Senate passing long-sought reforms of the CVP's water pricing subsidies and acreage limitation controls. Wilson's move benefited agribusiness, in all that term implies.* However, Feinstein has ties to agribusiness that bear



watching due to her close relationship with Assembly Speaker Willie ("Farmer") Brown.

Governor Feinstein or Governor Wilson faces an immediate litmus test when one of them takes office in January. There's one appointment up on January 15, to the powerful attorney's position on the State Water Resources Control Board, that's now held by Darlene Ruiz, vice chair. Governor Feinstein or Governor Wilson would do well to consult their favorite environmentalists about this vacancy — and especially about reappointing Ruiz to this $91,500 per year post if she decides to seek reappointment.

There are several more seats on the five-member Board that need emptying and refilling. Governor Feinstein or Governor Wilson may be able to restructure and redirect this once-important agency in a very short time.

* We prefer Joel W. Hedgpeth's definition: "Agribusiness is agriculture with the culture removed."

## State Board Helps South Bay

South San Francisco Bay got a break in October from the State Water Resources Control Board. The campaign of "Clean South Bay" the past several years, to get the municipal dischargers using South Bay to do a better job of removing toxics, has met success — despite the San Francisco Bay Regional Board's acceptance of the dischargers' plans for more studies. Under the lead of Citizens for a Better Environment (CBE), the Clean South Bay coalition appealed to the State Board. Result: reversal. Now the dischargers, including some of Silicon Valley's best, will start moving on removing the cadmium, copper, lead, mercury, nickel and silver that pass through the publicly-owned treatment plants into South San Francisco Bay. Point man for all of the above has been Greg Karras of CBE. Trish Mulvey of Audubon has been the point lady. Harbor seals of South Bay arise. You have nothing to lose but your toxics. **WTD**

# California sturgeon culture*

**By Robert Abbott, Ph.D.**

Striped bass and salmon have received most of the attention from fishermen and conservationists concerned about the effect of decreasing stream flows and degradation of the Bay environment, but the native sturgeon are also greatly reduced compared to their numbers 100 years ago. Recent estimates of the size of the California sturgeon population have raised new concerns and prompted California Department of Fish and Game to impose new sport-catch restrictions.

Sturgeon are a primitive stock of fish that has changed little in 250 million years. There are two species of sturgeon taken by sport fishermen: the small green sturgeon, *Acipenser medirostris*, and the great "white" sturgeon, *Acipenser transmontanus*. Because of its size, the white sturgeon is the species that has received most of the scientific, fish-culture, and fishing interest. White sturgeon are found all along the Pacific Coast. The largest white sturgeon caught weighed more than 1,800 lbs. Such monsters have rarely been encountered in this century but a large one weighing over 1,000 lbs recently floated to the surface of Lake Washington in Washington State, dead of unknown causes. The average sturgeon caught by sport fishermen in the Bay-Delta estuary weighs approximately 30 lbs. CDFG officials estimate the annual sport catch is on the order of 300,000 lbs or 136 metric tons. (A metric ton is approximately equal to 2,200 lbs.) This is more than an order of magnitude less than the tremendous landings that took place in the late 1800s, when annual sturgeon landings averaged 2,270 metric tons. (In 1886 the total landings were over 7,500 metric tons.) The fishery soon collapsed and all commercial fishing has been prohibited since 1917. Today there is a limited sport fishery that lands approximately 10,000 legal size sturgeon each year. Fish smaller than 40 inches and more than 72 inches long must be released. In order to protect the resource the regulations are going to be progressively tightened by increasing the minimum catchable length to 48 inches.



Photo: Courtesy Keith Frazer of Loch Lomond Bait Shop

Concerns about the sturgeon resource prompted funding of a research effort at the University of California, Davis, led by sturgeon-specialist Serge Doroshov. Dr. Doroshov brought to the program his experience with the USSR's attempts to culture sturgeon. His work to define requirements for successful spawning and rearing larvae at Davis led to a local sturgeon-culture industry. Today there are approximately two dozen licensed sturgeon culture farms in California though fewer than half of these actually raise sturgeon to any significant extent. There were eight sturgeon hatcheries licensed in the 1990 spawning season to spawn large, sexually mature sturgeon taken from the wild, though only six actually spawned wild fish this year. The CDFG issues a limited number of permits to experienced anglers to take large, sexually mature sturgeon. The licensed hatcheries must buy the spawnable sturgeon from authorized anglers only. In California most of the large, spawnable sturgeon are taken by "snagging". [Snagging is not a legal method of catching sturgeon, but it is allowed for catching fish for scientific purposes. Snagging involves moving a hook through the water until it "snags" and the hook is "set" into the fish. ED.]

Once the fish is alongside the boat it is immobilized by turning it upside down and putting a hood over its head. The basic spawning procedure starts by making a small slit near the anal vent so that experts can insert a tiny tube into the ovary. A sample of eggs is then withdrawn and examined under the microscope. If the eggs show signs of advanced development, the fish is transferred to a holding tank and taken to one of the licensed sturgeon hatcheries. After a series of injections the female discharges eggs and male milt is mixed with them. After spawning the female is sewn up and returned to the river. Some of the females die in the process of trying to spawn them but most are returned to the river to continue their life in the wild. There is every expectation that most of the females that are returned to the river will produce another batch of eggs in two or three years.

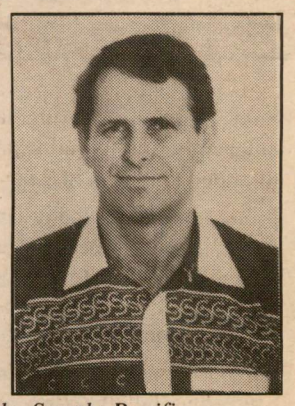
The eggs are washed to remove the sticky material that attaches the eggs to the bottom of the river in nature. In the hatchery the eggs are incubated in jars, and kept suspended near the bottom of the jar. The tiny sac fry that hatch out look very much like small tadpoles instead of fish. After a few weeks the sac fry metamorphose and settle to the bottom, where they start to feed. In a few months the fry are large enough to be stocked in ponds.

Until two years ago CDFG required that each hatchery it licensed for commercial production release a prescribed number of young sturgeon back into the river. A large female may have over 500,000 eggs, so requiring a few thousand fry to be put back in the estuary does not seem like a hardship on the sturgeon farms. But the mitigation effort was stopped two years ago because of concerns about a virus in the farm-cultured sturgeon. The origin and nature of the sturgeon virus disease is not clearly understood. Several years ago it hit some farms and wiped out almost the entire year class. On other farms it appears to be endemic, killing a few young fish all the time. The effect of the disease is first noticed on the gills. It has yet to be isolated in the wild. Because of uncertainties associated with the sturgeon virus, the CDFG did not want farm-cultured sturgeon to be put back into the river system.

Sturgeon are anadromous fish that normally spawn in riffle areas of large rivers. In the Bay-Delta system yearlings migrate downstream and into the Delta, eventually moving into the Bay and out to the ocean. They return irregularly but do not start upstream migrations to spawn until they are nearly a decade or more old. Males apparently reach spawning size eleven years. Females reach sexual maturity by the age of thirty-four. Cultured sturgeon have been observed to be ready to spawn at much younger ages. This may be caused by the temperature of fish culture operations, which are in the range of 60-80 degrees F. Sturgeon living on the bottom of the Pacific Ocean off the coast of California experience much lower temperatures and mature much more slowly.

Shasta Dam on the upper Sacramento River has obstructed normal sturgeon migration. Yet the Sacramento River population has been able to find some suitable spawning areas below the dam. There also appear to be small spawning populations behind Shasta Dam and the Red Bluff Diversion Dam. The sturgeon stocks all along the Pacific coast are under severe pressure if not in real danger. It is estimated that 30 to 35 percent of all the sturgeon in the Columbia River are caught each year. The commercial gill-net fishery for salmon on the Columbia takes many sturgeon. The young ones are often discarded dead. On the Sacramento River only 10 percent of the population is taken by sport fishermen each year.

The future role of commercial sturgeon hatcheries in enhancing stock is not clearly defined. Should the state be buying fingerlings from private hatcheries for restocking? Should the catchable size be decreased from 72 to 60 inches? Should there be a moratorium on the sport catch until the stocks rebuild? These and other questions are being thrashed out by University scientists, CDFG, the US Fish and Wildlife Service, commercial hatchery operators, and others. There is hope for the sturgeon. But without strong public interest and concern about the present status and future of the this magnificent archaic fish, its populations will likely continue to decline.

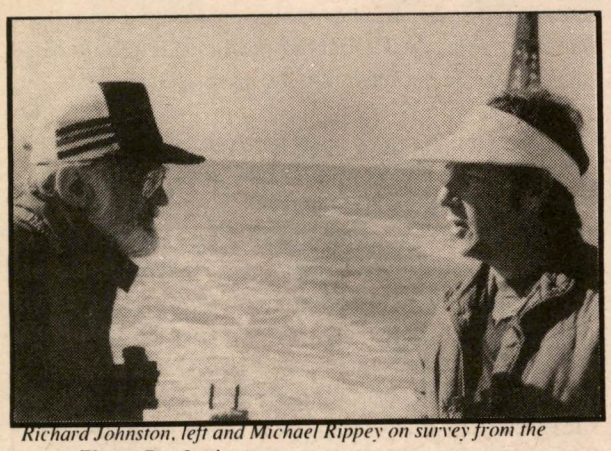


*Robert "Bud" Abbott has been involved in international aquaculture since 1967. He spent two years in Nigeria with the Peace Corps. He attended the University of Washington, receiving his Ph.D. in 1973. He has taught aquaculture at the University of Valpariso, Chile, Seattle-Pacific University, and San Francisco State University, and has worked in Asia, Africa, South America, and the Middle East. He is the president of* ***Aquaseed California, Inc****., which has an office in Sausalito, California.* ***Aquaseed*** *provides aquatic seed stock, marketing assistance, and consulting services to the aquaculture industry.*

* Editor's note: The Bay Institute neither endorses nor disapproves of sturgeon hatchery programs. The basis of our recommendations for fish management policy remains one of maintaining a healthy wild stock, supported by a healthy estuarine system.

## "Taking aim" continued

complicated than anticipated. There were many surprises. Some birds were found in areas not predicted, and in some areas in densities much smaller than thought. Stacked onto this were logistical problems of relying on volunteer work, the lack of a budget, and an inexperienced organizer. At the height



*Richard Johnston, left and Michael Rippey on survey from the water*. **Photo:** Bay Institute

of these problems Joe expressed his own seldom-voiced frustrations. He had spent seven years as a private citizen doing what state or federal wildlife staffers should have been doing — trying to achieve some sort of protection for a significant subspecies and its threatened habitat. He went from writing letters mainly to wildlife agencies, to calling UC Berkeley, to compiling all previous research on the species, to coming out to California to do the field work. "We shouldn't have to be doing this," Joe said one day, almost as if he were angrily shocked at the realization. "They even have the chance to get the experts on this species, and they don't want to know. They couldn't care less what we're doing."

*Despite the frustrations*, our project was able to add significantly to knowledge about the bird and its habitat. Now the project organizers hope the soon-to-be-completed population estimates will revive the stalled endangered petitions, and spur the agencies to give the Suisun Song Sparrow and its habitat some special protection. Richard Johnston, who is a curator at the University of Kansas's Museum of Natural History, has stated that the Suisun Song Sparrow would "become extinct a few decades after brackish tidal marshes disappear east of the Carquinez Straits region. I have no doubt," he said, " that will occur in the absence of conservation and restoration of those marshlands."

As the project wound down, I — the inexperienced organizer — tallied up what we learned, what I learned. We learned a lot about the marsh and about the bird, but we were also frustrated by the reality of private citizens' having to do the work of the agencies. The fact is that without Joe it is likely that nothing would have been done to study or protect this bird. The prospects for protecting the tidal brackish marsh habitat would have been bleaker, and no one would likely have been the wiser.

Something must be fundamentally wrong if we must constantly rely on private citizens to protect our resources. The agencies' legitimate excuses for missing the boat on this work are that they're swamped with other endangered species, a disturbing fact in itself. And what of the Universities? (As W.T. Davoren, executive director of the Bay Institute said recently, "What good is it for UCB to save the world and lose California?") Joe warns, "California is going down the tubes"— he draws out that last word — "and it's sad [chop]."

Joe is a sometimes weary David taking aim at a Goliath of ignorance and inaction. Whether he hits his mark or not, at least he's stood his ground.

# Two Bay Area scientists who will be sorely missed

Two respected Bay Area scientists, Dr. H. Thomas Harvey and Dr. L. Richard Mewaldt, died in August. The two friends were both renowned for a variety of accomplishments and had each done work that has provided underpinnings for numerous types of biological research in the San Francisco Bay Area.

Their work was, for example, applied in research conducted on the Suisun Song Sparrow this summer. Dick Mewaldt had filed the state petition to list the Suisun sparrow as endangered, reworking Dr. Joe T. Marshall's federal petition. Dick and Joe had done some field work together on the South Bay Song Sparrow, one of three distinct subspecies of Song Sparrows that make their home in the tidal marsh along the Bay. It was Dick's intimate understanding of the South Bay subspecies that gave more understanding to the habits of the other subspecies.

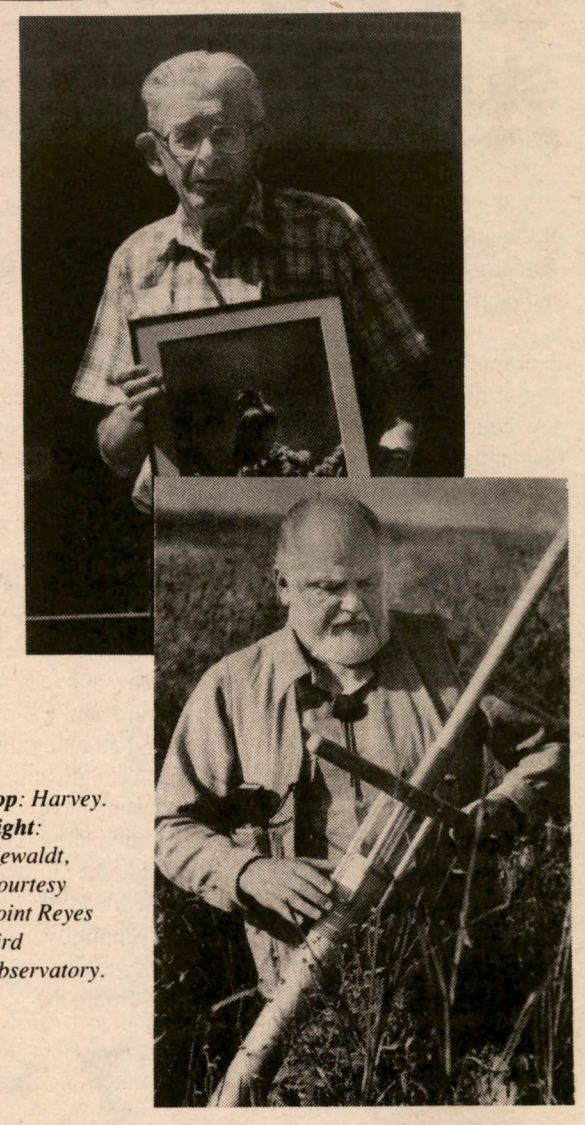
Tom Harvey's work on the area's wetlands, especially the tidal wetlands, rounded out the information needed about the Suisun Song Sparrow's habitat. Tom was referred to by a colleague as a "biologist's biologist". Having degrees in plant ecology, zoology, and plant pathology, and years of experience as a field biologist, natural historian, and wetlands consultant, he was uniquely qualified in tidal-marsh and wetlands ecology. Both Tom and Dick, with their diverse knowledge and experience, were invaluable wellsprings of knowledge on which many relied. Fortunately their accomplishments did not perish with them.

**L. Richard Mewaldt**

Mewaldt's best known achievement was the founding of Point Reyes Bird Observatory (PRBO) with one of his then graduate students C.J. Ralph, 25 years ago. It was the first permanent bird-banding station in the United States and has become world renowned among bird observatories. At San Jose State University, whose faculty Dick joined in 1953, he established the Avian Biology Laboratory; he is credited with launching a new generation of western ornithologists from SJSU. Dick also investigated the little studied birds of South San Francisco Bay, and in 1983 helped set up the San Francisco Bay Bird Observatory at the San Francisco Bay National Wildlife Refuge. An offshoot of SFBBO was the Coyote Creek Riparian Station (CCRS), which became independent in 1986. His real passion was the White-crowned Song Sparrow, which he studied through-out most of his career. Mike Rigney, the manager of CCRS, wrote, "Dick did not just care about creating organizations; rather, he prided himself in being able to motivate people to stretch beyond their limits. At a party for Dick held just a week before his death, former graduate students told how, time and again, Dick would push them to achieve their full potential in academic and research fields. He never let up on himself or others. At times it could be extremely trying but all who attended that party knew that if it were not for Dick's unrelenting drive and dedication, most of us would not have realized our full capabilities. The world of ornithology owes a great deal to Leonard Richard Mewaldt, but those of us who were fortunate enough to be his students, colleagues, and friends owe him so much more." Dick, who was born in South Dakota in 1917, ironically died of a progressive loss of lung capacity due to an immunological response from close contact with birds.

**H. Thomas Harvey**

Harvey's concern for the Bay motivated him in his work as a professor of biology, a research ecologist, consultant to Bay Conservation and Development Commission, and as the principal in his



***Top**: Harvey. **Right**: Mewaldt, Courtesy Point Reyes Bird Observatory.*

wetlands consulting firm. Tom was one of the prime movers in establishing the 22,000-acre San Francisco Bay National Wildlife Refuge. Fellow SJSU professor Dr. Howard Shellhammer considered Tom to be the "Dean of wetlands ecologists in the San Francisco Bay Area". Alan Pendleton, the executive director of BCDC, noted that it was Tom's work on wetlands that became the cornerstone in forming the section on wetlands in the *San Francisco Bay Plan* of 1966, and his work was also included in amendments to the *McAteer-Petris Act* in 1969 that made BCDC a permanent planning and regulatory agency for the Bay. He conducted the first marsh restoration project on the West Coast in 1969, and supervised a series of marsh restorations since then. Kent Dedrick, a wetlands specialist for the State Lands Commission and a friend of both Dick and Tom, said that Tom, who was president of the consulting firm H.T. Harvey and Associates, was "incapable of selling-out. His consulting work got the truth, and he fought hard for environmental protections. In addition he trained countless people." Florence LaRiviere, Bay fighter for 25 years, said, "[Tom] turned common garden-variety people into well-informed environmental activists."

On September 10, 1990, Congressman Don Edwards honored Tom in the House of Representatives stating, "[L]ong before the environmental movement began, Tom was educating local citizens about the importance of preserving the Bay's wetlands. Tom was a driving force in the movement to save the endangered species of the San Francisco Bay. [His] work has left a lasting legacy of life. This dear friend of the San Francisco Bay will be sorely missed." Like Dick, Tom was born in South Dakota in 1923 and died of heart disease.

H. Thomas Harvey, biologist, L. Richard Mewaldt, ornithologist, will both be sorely missed. Tom is survived by two sons, James and David; a daughter, Linda; two sisters, and three grandchildren. Dick is survived by his wife Fran and two sons, William and John. **SDH**

# A David takes aim

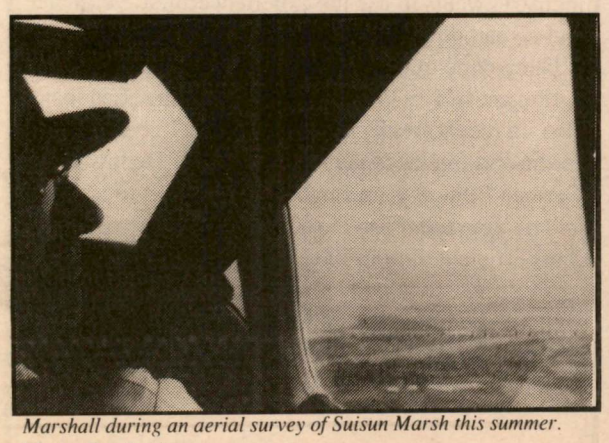
**By Scott D. Hadly**

At 74 Dr. Joe T. Marshall is spry and youthful in attitude. One day he was speaking about an article titled "Timewarp in the Bay-Delta Hearing" and asking me if the author was quoting Frankenberger. Getting just a quizzical look from me, he began to sing "Let's do the Timewarp". I was still looking unsure; he said to me, "You know, the 'Rocky Horror Picture Show.'"

Joe's been working with the Bay Institute studying the Suisun Song Sparrow, which he first studied in the 1940s. On a hot, windless May morning Joe dips one end of a paddle into the green, bug-covered water. He's guiding a tiny kayak on First Mallard Slough in Suisun Marsh — part of the San Francisco Bay-Delta estuary. The tiny slough is lined with tall bulrush in which the unique subspecies of song sparrow nests at this time of the year. Marshall and a loosely knit group of specialists are trying to determine just how many Suisun Song Sparrows remain. In his work Joe moves along with the momentum of a slow moving locomotive. Nothing stops his steady progress, and in two weeks of the census project he's mapped and counted birds on eighty acres by himself. Not a small task when you consider that, as he says, he's "got a bum leg 'cause of *polio*." He trudges barefoot through the marsh mud with his staff in hand. He seems to get a lot of joy from the work as he mimics the male bird's call, and a male pops up in front of him. "Hey, look at that guy; he's saying, 'Count me too.'" He's constantly breaking in on your conversation, or breaking off his own, to call attention to something: "See that Savanna Sparrow? Look at him go."

On the phone his straightforward language — its emphasis and energy, and the occasional expletive — makes one imagine a much younger man. He doesn't look close to 74. He also doesn't mince words, which reinforces his vigor. But he tends, he says, to "get emotional, and go off half-cocked."

Even when he's just making a point, his arms are thrown out from his slim frame as if he's karate-chopping each point with the tips of his fingers. Under the shadow of his hat his face grimaces behind his glasses, and his voice cracks on its high pitch. "There is no -[crack] - truly natural tidal - [chop] - marsh left." His emotion isn't misplaced; when you realize what he's saying, you feel as if you've seen the light and you get converted real fast. "This bird is the most territorial bird known. It's a spectacular evolutionary case. It didn't evolve on an island, or on the top of a mountain, but just a few miles from its San Pablo Bay cousin," Joe says of the Suisun Song Sparrow.



*Marshall during an aerial survey of Suisun Marsh this summer.*
**Photo**: Bay Institute

The hot May morning when Joe was paddling along First Mallard Slough might have been reminiscent of other mornings he spent fifty years ago studying the bird for his doctoral dissertation at the University of California at Berkeley. A lot has changed in California since then, and indeed the marsh itself isn't what it used to be. There were changes before Joe started his work in 1939, including dikes cutting up the tidal marsh. The tidal brackish marsh, the most productive habitat type on earth, has succumbed to attacks from both land and water. The diking, mostly by duck clubs intent on managing their marshes for freshwater vegetation beneficial for ducks and other waterfowl, while preventing changes in salinity in the managed duck club marshes also block off important regenerative tidal action. The important unmanaged tidal marsh has been reduced to just 9.6% of its original size. The Suisun Song Sparrow lives almost exclusively in this remnant of unmanaged tidal brackish marsh, and this remaining habitat is stressed by changes in salinity due to diversions of fresh water from the Delta. Straight-line ditches within the unmanaged tidal marshes meant to control mosquitoes by draining "standing water" from marshlands, and occasional cattle grazing contribute to the final result: a visibly degraded marsh, in all its reaches. One easily sees remnant or skeleton channels which once support vast stands of vegetation now either lying under water behind dikes, or lying dry and drained by mosquito abatement programs.





***Top**: Marshall at Pinole Marsh in 1942; **Bottom** : Marshall recording Suisun Song Sparrows on Grizzly Island, 1990.*

I assumed there must be some sort of satisfaction for Joe in returning after 50 years to his first work. Not everyone's life is blessed with that sort of continuity. We forget the youthful dreams that fueled our curiosity. It didn't occur to me that perhaps frustration or disappointment, was helping fuel Joe's interest.

What intrigued him as a young graduate student back in 1939 were subspecies, something he feels is now considered "passe" by life scientists who favor "labcoats and numbers over field work". Yet he still is very interested in the subject.

Today one is easily taken in by Joe's early fascination: that there are three distinct subspecies within the relatively small area of the San Francisco Bay, is the greatest ornithological example of morphological distinctiveness between subspecies of any mainland area. Or as he says, "It's the biggest deal in ornithology."

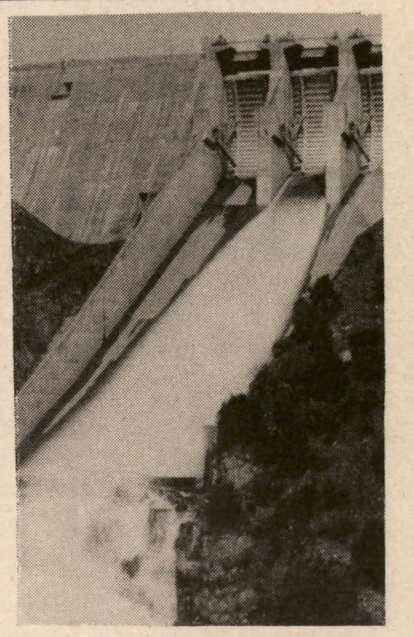
Over the years — throughout his work in Southeast Asia, South America, at the Smithsonian, and at the University of Arizona — Joe has maintained his interest in subspecies. However, he's been frustrated not only by the lack of interest of others in subspecies, but by attacks on designations of subspecies. Joe points out that if it weren't for the 1973 Endangered Species Act, interest in subspecies would probably have vanished altogether. His frustration culminated in 1983 when he tried to ascertain the status of the Song Sparrow subspecies in the Bay area from local "experts" at U.C. Berkeley. The irony, that experts at America's foremost public university didn't know anything about a bird that literally was in its own backyard didn't go unnoticed, and upon learning of the bird's status, Joe immediately attempted to promote protection for it. In 1986 Joe and local Audubon Society member Mike Rippey netted and released five Suisun Song Sparrows recording information on their size weight and plumage to prove they were still in Suisun Marsh.

By late 1987, Marshall had submitted a petition on his own to have the Suisun Song Sparrow federally listed as endangered and a "critical habitat" designation for the tidal brackish marsh. (See Bay on Trial, Vol. 2 #1, Spring 1990.) Both the federal listing and listing for a state endangered status were deemed appropriate by the US Fish and Wildlife Service and the California Department of Fish and Game respectively. But for various reasons no listing ensued. That spurred Joe's most recent effort. The Bay Institute sponsored the censusing with the help of Napa-Solano Audubon's Mike Rippey, Dr. Josh Collins, an expert on local tidal marshes, and Dr. Richard Johnston, who did work on the San Pablo Bay subspecies for his own doctoral dissertation in 1954. Joe has been the cornerstone of the project.

The project seemed at first to be an uncomplicated approach to estimating population densities. Previous estimates were based on a formula using densities per acre of the San Pablo Bay subspecies arrived at by Richard Johnston and proved in the field by Josh Collins. It was believed that a similar technique applying a density specific to the Suisun Song Sparrow, would be the most cost-effective way to give a round population figure. Once the density was learned an estimate could be made by simply multiplying that figure by the total number of acres of habitat. The project proved to be a bit more

***Continued next page***

# Water marketing: Have environmentalists created a monster?



*New Bullards Dam in water-rich Yuba County.* **Photo:** San Francisco Chronicle

**By Scott Hadly**

In the last decade, while water marketing has become a panacea for some environmentalists, others, including the Bay Institute, have remained skeptical that it is a cure-all forCalifornia's water-supply needs. The original idea was to open up markets whereby water could be exchanged freely as a commodity thus moving naturally from agriculture to higher uses. Water markets, so the thinking went, would encourage wise and efficient use of water because water would achieve a modern market value. Wasted water would equate to wasted money. The ideal would be that the water-intensive agricultural industry would be encouraged to conserve water and then sell its surplus to cities faced with growing demand. An increase in supply could thus be achieved without building additional expensive, environmentally-damaging dams. And all this would happen with less governmental involvement. Water marketing would be the ultimate "win-win" situation.

***"'Area of origin' (up-river) counties with water projects of their own have learned in these drought years, that if they corral their water, negotiate its sale, and then send it down through the chute to be transferred to drought stricken cities or farmers, they could make millions."***

Environmentalists, however, may have been deceived by this ideal, and now seem unwilling to recognize that an altogether different dramais occurring that kills fish, reroutes rivers, encourages wasteful agricultural use of water, compounds agricultural drainage problems, and provides profits that will guarantee that this destructive spiral will continue.

The Imperial Irrigation District (IID) sale of water to the Metropolitan Water District (MWD), heavily publicized by MWD and the Environmental Defense Fund, is the most widely discussed water-marketing success. Indeed, it is an almost perfect water-marketing transfer. This transfer of money-from-cities for water-from-agriculture was brought about by MWD's paying for improvements in IID's water delivery system. This more efficient system will conserve 100,000 acre-feet of "surplus" water to be transferred to MWD with few reported consequences for the environment. The ideal.

But there is a darker side to water marketing (some have termed it "water ranching") that few seem to understand. "Area of origin" (up-river) counties with water projects of their own have learned, in these drought years, that if they corral their water, negotiate its sale, and send it down through the chute to be transferred to drought-stricken cities or farmers, they could make millions. Yuba County Water Agency has made a cool $15 million selling its "surplus water" during the last four dry years. There may or may not be more Mercedes on the streets of Marysville. What's sure is that Yuba County knows a good thing when it sees it and is putting the $15 million into a sinking fund for two more dams on the Yuba. "We are on our way to realizing the full potential of the Yuba River," said J.E. McGill, one of five county supervisors who double as directors of the water agency. "Yuba County could be one of the kings of the world as far as water and [hydroelectric] power." He later was quoted in an article appearing in the Sacramento Bee in June 1990 report, "I don't mind being called a water rancher. Hell, I take pride in it."

Finally, picking-up on the folks just to the north of Yuba, Placer County this October made a $1.8 million sale using some of its "surplus water" in its two reservoirs on the middle fork of the American River. Westlands Water District will get 40,000 acre-feet in the transaction. Placer County is less sure about what to do with the money. One camp wants to subsidize irrigation facilities, and the other wants a luxurious office building for the water agency.

The profits from these sales, considered obscene by some, aren't the story. The story is that these sales don't even come close to the water marketing ideal. The rivers that these agencies "ranch" now literally rise and fall with the market for their water, and not because of the season. This leaves salmon high and dry. Some of this water goes to cities but the bulk of the sales go to subsidized cotton growers in places like the Tulare Lake Basin and Westlands. Those two regions are notorious for water-intensive crops, and severe agricultural drainage problems that have dotted the valley with drainage ponds that are death traps for waterfowl.

What's going on here? Why would any intelligent person be a party to such destruction? Of course no thinking person would condone this, but ignoring this other side of the water-marketing coin has aggravated the abuse.

There are other issues that need to be looked at. Marketing has made water a commodity, but that notion implies private ownership. Water rights, as the courts have noted, are not property rights. Yuba County and Placer County don't own that water. They own the right to its temporary use. That right is revokable if they impair the water for other users downstream, or if they use it "unreasonably".

In the case of these two water agencies, they were each given a limited water right for certain purposes. The justification for building their dams was the expectation of future demand for water within their jurisdictions, their sacrosanct "areas of origin". The projects were financed by a mix of sources. New Bullards Bar Dam on the Yuba was built in 1960 with the proceeds of local bonds, plus grants and loans from both state and federal government. The reservoir has a capacity of 800,000 acre-feet of water. Yuba County, as it turns out, was given a water right eight times the size of its need.

You would think that Californians would be a little miffed that Yuba and Placer County have used public money and public water to become water ranchers, but there is no indication that they are. Not only is the Department of Fish and Game recommending few if any protections for the river and Delta during these transfers, but the Department of Water Resources is the principal broker of these deals.

Is there more than local greed that drives these water sales? Bill Kier of the Salmon and Steelhead Advisory Committee, has observed that these transfers represent the Department of Water Resource's scramble to file the "hole" in State Water Project supplies. He calls this the "High Dos Rios on the Yuba" theory. (See Harrison Dunning's article with details on Dos Rios.)

There is a great desire to find painless, win-win solutions to our water-supply problems. But there aren't any.

## Valleykeeper looking to lift-off



*Larry Landis, far left, with German film crew at Marysville airport.*

In the vein of the "Hudson Riverkeeper" and the year-old "Baykeeper", Larry Landis of Yuba City, is forming the "Valleykeeper" with the help of Earth Island Institute's Brower Fund. Landis, who spent 18 years as a crop duster and knows about abuses in the industry, wants to use his experiencefor surveillance and air sampling. He wants to expose the damage that is being done to California's Central Valley by agribusiness's reckless chemical spraying. Landis also. In recent weeks he provides a unique service for media and freelance surveillance work. He has taken a German filmcrew, an English journalist, and a writer and photographer for Time, on what is perhaps the most efficient air tour of the Central Valley available.

For more information on the Valleykeeper, contact Larry Landis at 916-671-2528, or write to the Valleykeeper, PO Box 1, Yuba City, CA 95992.

## "Dam fights continued

necessary to meet public trust requirements, but also is required to satisfy constitutional imperatives. Perhaps the most important water policy contribution of the American River litigation, therefore, will be once and for all to sever "reasonable beneficial use" from notions of water development. Just as the meaning of "equal protection" in the federal constitution changed, as social conditions changed, from sanctioning "separate but equal" racially segregated public schools to mandating integrated public education, so the meaning of "conservation", "waste", and "reasonableness" are terms whose meaning is changing with new perceptions of what is in society's best interests.

**Dam Fighting and Water Marketing**

My objective thus far has been to explore the relationship between particular dam fights in California and evolution in the state's water policy: Dos Rios and the initiation of a state wild and scenic rivers system; Mono Basin and application of the public-trust doctrine to water rights; New Melones and greater state control over Bureau of Reclamation projects; the American River and, it seems, a new understanding of the constitutional reasonable beneficial use mandate. A final important policy development, however, has been stimulated by dam fighting in general, rather that any particular dam fight. "Water marketing" is the name that in the 1980s became popular for this phenomenon. Although that term is sometimes used for initial allocations by a wholesaler such as the Bureau of Reclamation, the current policy debate is over reallocation of established water rights by market mechanisms (e.g., water for money or water for water).

Water marketing is not, in fact, brand new in California or in Western water law in general. Most states with prior-appropriation water rights have for a long time held that changes may be made in the place of use, type of use, and point of diversion of the water, provided that a third-party water-right holders, including juniors, are not injured by the change. Water Boards and courts have concerned themselves with "change applications," and scholars have examined what used to be known as the "transferability" of water rights. Studies have shown considerable transfer activity in places like the Sevier River area in Utah and the Colorado-Big Thompson Project in northern Colorado. In California, transfers have been common in the adjudicated ground-water basins on the southern coastal plain. An earlier example of surface water marketing was the acquisition by Los Angeles of water rights in the Owens Valley.

Despite these precedents for water marketing, in many cases problems exist. Market transactions are facilitated by precision in the definitition of the right being sold — precision that often is not provided where rights are measured by actual past beneficial use rather than by a decreed amount. "Beneficial use" in principle does not include wasted water, yet whether waste has occurred is generally not examined until a transaction is proposed. Hydrological complexity may make the calculation of effect on third-party right holders exceedingly difficult — transaction costs can be greatly increased by an expensive "depletion analysis." Third parties who are not water-right holders — equipment suppliers in the agriculturally-oriented town where nearby farmers want to sell water rights to a distant city, for example — may object, and the fact that most water rights are administered by an agency may mean a forum for their objections is readily available. Entities created to acquire a water supply for their area may display considerable institutional inertia when faced with the suggestion they sell some of their water rights to an entity somewhere else. For these and doubtless other reasons, historically those who seek an augmented water supply have looked much more frequently to new water development than to a water marketplace.

Dam fighting changes that. In the time since the Dos Rios proposal in California, the noncontroversial large-water project has vanished from the scene. Environmentalists, fiscal conservatives, local activists, and others are certain to organize against any proposed new major water development and vociferously to put forward their objections. Water obtained by development may be considerably more expensive than water obtained by the purchase of water rights. Hence in California, as elsewhere in the West, there is greatly increased interest in water marketing.

In at least a crude sense, this phenomenon in California in the last 15 years is related to continued dismal prospects for new water projects. Leaders of the water-development community, for example, were convinced that the drought of 1976-1977 would lead to construction of the Peripheral Canal. Instead, legislation authorizing the canal and a number of other water projects was placed by referendum on the ballot and resoundingly defeated in 1982. Legislation in 1980 adopting water marketing as a policy objective for California went forward, however, with little objection. Indeed, it was supplemented by a legislative directive to state agencies to work to facilitate market transactions in water rights.

The most publicized water "marketing" transaction in California in recent times involves the MWD and the Imperial Irrigation District (IID). In the 1950s the MWD's chairman had been interested in acquisition of some of the massive amounts of water from the lower Colorado River that service farming areas in the Imperial and Coachella Valleys. That idea died, however, with the birth of the SWP. But the defeat of the Peripheral Canal revived interest in the concept, one that was strongly supported by the Environmental Defense Fund. Defeat in the legislature of an alternative to the Peripheral Canal presumably increased the MWD's interest in an Imperial deal even more. Years of negotiation between the MWD and the IID finally produced an agreement. Whether that agreement technically constitutes "water marketing" is disputed, but the essence is water from the IID in return for money from the MWD. The latter will provide the financing for physical improvements in the IID system and will receive the salvaged water for a term of 35 years.

The MWD-IID transaction now serves as an inspiration for more large-scale reallocations of water in California. The MWD is working with the Arvin-Edison Water Diostrict in the southern San Joaquin Valley on a possible reallocation. Water marketing is slowly gaining credibility as an important part of California's water scene, despite continuing ambivalence or hostility from many in the state's farming and environmental communities. There is some tension between water marketing and the instream-protection policy spawned by the Dos Rios, Mono Basin, New Melones, and American River controversies, but nonetheless it seems the growth in water marketing, like the increase in instream flow-protection, has been provoked in large part by opposition of water development.

**Conclusion**

Dam backers and dam fighters typically display very different preferences for use of our limited Western water resources. Dam backers want to "put the water to work" — to maximize beneficial uses such as irrigation, municipal water supply, and power production. To them a big dam is a thing of beauty, a manifestation of success in the conquest and manipulation of a hostile environment. Dam fighters, on the other hand, mix an interest in instream recreational amenities with a larger concern for preservation of parts of our natural heritage as places for repose, for spiritual satisfaction, and for observation of nature at work in its own way. Dam fighters want some rivers to run free, to sustain riparian vegetation and wildlife, to nourish estuaries. For them it is anathema to speak of water "wasting to the sea." Neither of the two camps, of course, presents an absolutist position. Dam backers often love to go trout fishing on a free-flowing stream, and most dam fighters surely enjoy the benefits of a reliable municipal water supply, an irrigated agricultural economy, and inexpensive hydropower production. But the differences are pronounced, and they are important. Both groups may support "balance" in our water policy, but with radically different notions of what an appropriate balance entails.

California's experience of the past 20 years suggests that dam fights highlight the underlying clash in values and often lead directly to significant changes in water policy. On balance, the California dam fighters seem to have gained strength in this period, even though they have lost some major battles. They have given new prominence to stream protection and water marketing. Wise management is replacing unrestrained development as California's dominant water policy.



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**Continued from previous page**

still another series of dam fights. In effect, although those who fought to protect the whitewater of the Stanislaus Canyon lost what was precious to them, they set in motion a process that has made the U.S. Bureau of Reclamation much more a partner in achieving California environmental objectives than it ever was before.

**The American River**

Dos Rios brought California its Wild and Scenic Rivers Act. Mono Basin — "Mono Lake" to most people — brought the public-trust doctrine to California's water-rights law. New Melones brought the Bureau of Reclamation at least partway into compliance with California environmental standards for water projects. The last "dam fight" for consideration here involves disputes over the flows of the American River. These disputes are on-going, and the principal policy outcome is difficult to discern. Wild-and-Scenic-River considerations, the public-trust doctrine, and federal compliance with the state standards are all implicated.

The American River arises in the central Sierra Nevada, flows through California's capital city, and joins the Sacramento River just north of the Sacramento-San Joaquin Delta. Although it is home to some local water supply projects, surprisingly until after World War II the American River had no CVP project. That changed with the construction of Folsom Dam in the 1950s and the Folsom-South Canal a few years later.

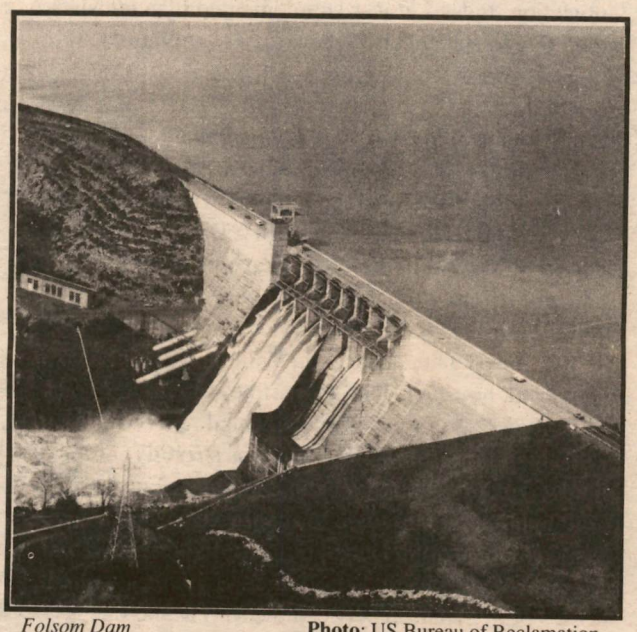
Folsom Dam, with its downstream regulating dam, was designed to be complemented by the much later Auburn Dam, which was to have a storage capacity of two and a half million acre-feet. But after the Auburn Dam site was cleared and foundation begun, the work was stopped for further review of seismicity problems. In the face of mounting costs at a time of enormous federal budget deficits, difficulties in working out the financing when greater contributions are being sought from state and local beneficiaries, and continued vehement oppostion from environmental groups, however, it is currently uncertain if the dam will be built. Flooding in the lower American River basin in 1986 increased the pressure for construction, but also produced suggestions for a "dry" dam that would serve only flood-control purposes. Presumably that outcome would be much like having had a version of New Melones Dam designed to have a mostly empty reservoir that would not interfere with upstream recreation.

Folsom-South Canal originally was to be the first leg of the ill fated east-side CVP aqueduct mentioned above. Twenty-five miles had been completed when an injunction on NEPA grounds brought construction to a halt. Some contracts have been entered into by the Bureau of Reclamation for Folsom-South water deliveries, however, including one for up to 150,000 acre-feet annually with the East Bay Municipal Utility District (EBMUD). That contract, like the canal itself, has been the object of litigation. Thus the American River dam fight is both about whether and how to construct water-project facilities and about how to operate those that are or may be built. It is imilar to both phases of the New Melones fight, or to Dos Rios and Mono Basin rolled into one.

The Dos Rios and New Melones water-project controversies are both over — one down for the preservationist, one down for the water developers. The water-policy outcomes of each can be studied and discussed. The Mono Basin battle is not over, but its initial contribution to California water rights law is specific, well known, and important. Much more difficulty, however, attends any attempt to pin down the long-term water-policy significance of the American River wars. In effect we have both half-built projects and half-completed policy developments, and the latter have emerged in the context of some most peculiar litigation.

The Environmental Defense Fund (EDF) has been a major opponent of both the Auburn Dam and the Bureau of Reclamation-EBMUD contract. The EDF first challenged the contract with two arguments, both rooted in California's constitutional requirement that all water rights be limited to reasonable beneficial use. One argument was that the EBMUD should reclaim — recycle — its water supply from the Mokelumne River before seeking additional water from the American River. The second was that any new water should come from below Sacramento, i.e., preserve flows in the American River below the Folsom-South point diversion.

The EDF's lawsuit survived an initial objection from the EBMUD that the constitutional restrictions do not apply to rights to water held by contract, but then the Supreme Court of California tossed both parts of the suit out on two different theories. The waste-water reclamation argument, it was decided, could not be entertained by the courts until the EDF had taken it to the SWRCB — a theory



*Folsom Dam* **Photo**: US Bureau of Reclamation

of "primary" agency jurisdiction. And the point-of-diversion argument could not be considered because the EBMUD's contract was with a federal entity, and consequently it could not be subjected to norms derived from state law.

Just when the EDF's EBMUD suit appeared finished, however, along came the New Melones decision from the U.S. Supreme Court — the one that breathed new life into Section 8 of the Reclamation Act and opened the door to state law norms binding federal projects absent a "clear" Congressional directive to the contrary. The implication for the American River litigation was obvious: the U.S. Supreme Court vacated the decision of the California Supreme Court, and the EDF was able to resume its American River lawsuit.

Timing is important in war, love-making, and certainly in litigation. The EDF's timing, by skill or by luck, was perfect in having the American River case go to Washington just after the New Melones decision. On return to the state courts, its timing again proved to be faultless in waiting several years to pursue the case. Apparently the delay occurred as the EDF lacked the resources to enter the expensive and time-consumptive trial phase of the case, but by the time matters got moving again with a heavy resource commitment from an intervenor, the County of Sacramento, the California Supreme Court had announced its public-trust ruling in the National Audubon Society's Mono Basin lawsuit. Suddenly, the complexion of the American River case was greatly changed. No longer was it a matter simply of applying the "reasonableness" mandate of the state constitution. Rather, that was to be done while at the same time complying with the new mandate to "integrate" conventional development norms of water-rights law with the protectionist norms of the public-trust doctrine.

How to do all this with any kind of methodological coherence is a massive problem. For environmentalists, it is largely a matter of ensuring that the public-trust values newly made applicable to the exercise of water rights go beyond merely ensuring *consideration* of matters such as effects on fish and wildlife. Environmentalists seek different *outcomes* in resource-allocation decisions, outcomes substantively more favorable to the preservation of the public values of water in place. For the water developers, it is conversely a matter of diluting the public-trust doctrine, of finding ways to make the values of water development continue to prevail over those of nondevelopment, to resist any suggestion of a "priority" for instream uses.

The next step in litigation over validity of the EBMUD's contract for American River water was reference by the trial court to the SWRCB. As in standard practice is such instances, the board was asked to advise the court on the facts and legal issues. The SWRCB in effect advised the court that as the EBMUD's diversions would have minimal adverse effects on American River public-trust resources, there was no basis for modifying the diversions. The board emphasized the importance for water quality of diversion for municipal use from the American River rather than the Delta, and the futility of trying to modify the EBMUD's planned diversions when the Bureau of Reclamation was not involved in the lawsuit.

Once again, things looked grim for opponents of the EBMUD Folsom-South point of diversion. An agency designed to use its specialized expertise to resolve water questions had in effect said to the court there is no problem to concern you on the lower American River — no need to try to integrate water-rights norms and public-trust resources because there is no significant threat to public-trust resources.

Exceptions to the SWRCB's report as referee are now before the trial court, and at the moment this is written only a "preliminary tentative decision" has been issued. That decision, however, is one of great interest. While it agrees with the board that the Folsom-South point of diversion should not be modified, it also concludes that any EBMUD diversions should be subject to respect for a rather stringent flow regime in the lower American River. In other words, the court does not agree there is no significant threat to public-trust resources as requiring feasible resource-based levels of protection to be implemented.

Even more interesting as a policy outcome of this litigation, however, is what is said about reasonableness. Recall that the constitutional reasonable-beneficial-use limitation originated as a way to implement a policy of maximum water development. "Conservation" meant to put water behind dams and to avoid the dreaded "waste to the sea." Over time, however, that policy objective has been complemented by the contrary objective of letting water flow unimpeded in its natural channel — witness the unchallenged policy foundation of the California Wild and Scenic Rivers Act. Now a court seems to be saying some unimpeded flow is not only

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## "Dam fights" continued

moves in excess of six million acre-feet of water from one place to another in California. CVP water, in fact, represents about a third of all the water developed by the Bureau of Reclamation in the West.

For decades after the federal takeover of the CVP in 1935, construction of various elements of the project went forward with the wholehearted support of California state officials. Section 8 of the Reclamation Act of 1902, pursuant to which the CVP has been built and operated, provided for the Bureau of Reclamation to acquire its water rights in accordance with California water law, but this seems to have been regarded as strictly a *pro froma* exercise. The occasional judicial decisions on Section 8 seemed to indicate that at most state law would serve to define private rights in waters for which the Bureau might have to pay compensation. Indeed, it was common practice for CVP projects to build the dam first and get the water rights later, when the dam was ready to be closed. That practice, technically in compliance with the requirements of California water-rights law, reflected the comfortable assumption among both federal and state water officials that whatever permits were necessary for the project would be forthcoming with conditions acceptable to the Bureau of Reclamation. The New Melones Dam fight changed all that, and it brought us some sharply different expectations about state control of federal water projects.

Although a dam at the New Melones site on the Stanislaus River, less than a mile below "old" Melones Dam built by local water districts, had been mentioned in state water studies as early as the 1920s, it was first authorized as a federal Corps of Engineers project in 1944. At that time, the project was to be relatively small, with reservoir capacity of only 450,000 acre-feet. Its principal purpose was to be flood control.

New Melones I, as the project authorized in World War II may be called, became a victim of several sorts of bureaucratic difficulties. Ever since 1936, federal flood-control projects had been subject to benefit-cost analysis, with a mandate that they be constructed only if benefits exceeded costs. This was difficult to show for New Melones, if flood control were to be the major project purpose, yet to broaden the purposes to include water supply for irrigation and other uses ran the risk that Congress might conclude that the dam should be built by the Corps' archrival, the Bureau of Reclamation. The Bureau, in fact, was actively proposing a New Melones Dam to supply irrigation water to a new CVP aqueduct proposed for the east side of the San Joaquin Valley. To complicate matters even further, normally supportive state water officials this time were saying additional storage for irrigation water supply was not needed in that part of the state, and local water districts preferred further local water development to any Bureau project.

Thus New Melones I never got underway, and in 1954 the Corps of Engineers had put it on the back burner. Both the Corps and the Bureau maintained their interest in the site, however. The Corps continued to massage the benefit-cost numbers and the Bureau to push for more and more storage capacity to support ever-grander plans for expanded surface water supplies for San Joaquin Valley farms. By 1962, the interagency dispute was resolved by a decision to have New Melones — or "New Melones II" — built by the Corps but operated by the Bureau. By now, it was to be a massive dam, some 625 feet in height, with a 2,400,000 acre-foot reservoir. The latter would inundate Melones Dam, as well as the Stanislaus Canyon farther upstream. Political opposition in the region largely vanished after serious flooding in the Stanislaus River basin at the end of 1964. By 1965 initial construction funds for New Melones Dam were approved by Congress, and by 1966 construction was underway. The first phase of the dam fight, in which no environmental objections were heard, was over.

The agency skirmishing prior to the approval and initial funding of New Melones Dam was conventional and largely outside the view of the general public in California. Not so the dam fight that erupted in the 1970s — an unconventional, emotional, and highly publicized battle that some regard as California's most important environmental controversy of the decade. The effort was twofold: first, to try to stop construction of a partially built project — an outcome, for example, that had occurred for the Cross-Florida Barge Canal, but that was certainly a rare event. Second, once construction of the massive dam had been completed, to delay or possibly prevent forever filling of the reservoir beyond the point of inundation of the Stanislaus Canyon. The point of limiting the reservoir to "moderate" storage, about one-third of what Congress had authorized, would have been to preserve recreational uses and environmental values in areas which otherwise would be inundated by the reservoir.

Central to the concerns of opponents of New Melones Dam was whitewater boating in the Stanislaus Canyon. Although commercial whitewater trips did not begin on the Stanislaus River until 1962, by the mid 1970s the river was one of the most rafted in the United States. It offered water of moderate difficulty, which provided recreation for many thousands of people. A particular feature was its use by groups of disabled persons. In effect a major recreational asset had been developed upstream concomitantly with the planning and initial construction phases of a major water project downstream, and the collision between the two was dramatic.

Many tactics were tried by those who sought to protect the Stanislaus Canyon from inundation. The Environmental Defense Fund was enlisted to bring a National Environmental Policy Act (NEPA) lawsuit in 1972 over the adequacy of the New Melones Environmental Impact Statement. An initiative was qualified, Proposition 17 on the November 1974 California ballot, which called for a halt to construction of the dam. State scenic river status was sought for the Stanislus Canyon. Civil disobedience took place. A bill to provide national wild river status for the canyon was introduced in Congress. A second initiative, Proposition 13 on the November 1982 California ballot, included limits on filling the reservoir. Some of these efforts produced delay, but none prevented the eventual filling of New Melones Reservoir. Proponents of a protected Stanislaus Canyon lost the dam fight, but not without making an important contribution to water policy in California.

The vehicle for the most lasting policy effect of the New Melones Dam controversy was the SWRCB, formed in 1967 by a merger of state water-quality entities. The SWRCB in the early 1970s began to show a greatly increased interest in the recreational and environmental amenities of rivers and in the detrimental — often, devastating, particularly regarding fish and wildlife — effect on those amenities of water projects. One manifestation of that interest was SWRCB action in 1973, by which time the New Melones Dam was already a political hot potato. The Board had before it the Bureau of Reclamation's application for water rights to store water behind the partly built dam and to divert water for various uses throughout the vast CVP service area.

Ordinarily an application for water rights for still-another CVP unit would have been processed in a routine manner, with little fanfare. But New Melones was different, and the SWRCB was different from the former State Water Rights Board. New Melones had widespread opposition, and the SWRCB was newly concerned with the "instream" question — the value of water flowing in place in a river, including water like that in the Stanislaus Canyon, even though its recreational advantages were greatly augmented by impoundments and releases at upstream power facilities. The SWRCB in 1971 had set state water-quality objectives for the Sacramento-San Joaquin Delta more stringent than the relevant federal water-quality standards, in a decision that purported to bind the CVP. In 1972 the board demanded augmented flows in the lower American River as a condition of the permits for Auburn Dam, another CVP facility. And in 1973, on New Melones, the SWRCB made filling of the reservoir for irrigation water supply other than the satisfaction of prior rights contingent upon later board approval of a specific plan of use of the water.

The stage was thus set for a showdown on the legal authority of a state to limit a federal water project. Section 8 of the Reclamation Act, which as noted above in the 1960s had been read as providing minimal state control of reclamation projects, had been brought to center stage by the New Melones Dam battle. Lawsuits were filed on the Delta and American River permit conditions as well, but it was that on the New Melones permit conditions that was to come before the United States Supreme Court. And in 1978 the bitterly divided court revived section 8 by holding that California's permit conditions would stand, unless particular ones could be shown to be contrary to a "clear Congressional directive." On remand to the lower court, the conditions would have to be examined one by one.

***"[A]lthough those who fought to protect the whitewater of the Stanislaus Canyon lost what was precious to them, they set in motion a process that has made the U.S. Bureau of Reclamation much more a partner in achieving California environmental objectives than it ever was before."***

Unfortunately, the doctrinal victory of 1978 by the SWRCB was not enough to save the Stanislaus Canyon. Ultimately the Ninth Circuit upheld all 25 of the board's permit conditions, but severe flooding largely filled the reservoir, and the SWRCB's plan to force release of the impounded flood waters brought threats from the legislature to strip the board of its permit-conditioning authority. The board backed down, the permits were amended, and the reservoir stayed full.

The policy consequence of greatest importance from the fight over New Melones Dam is being felt not on the Stanislaus River but on other important waterways in the state. Federal recalcitrance at meeting state water-quality standards for the Delta, for example, has greatly diminished. A Coordinated Operations Agreement has been signed by the DWR and the Bureau of Reclamation with regard to the SWP and the CVP, and federal legislation has directed the Bureau to meet state water-quality standards, at least up to a certain point. And the Bureau has indicated a possible willingness to comply with state law requirements for the American River, scene of

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## "Dam fights" continued

consideration for a water facility. It signaled a radical change in the fundamental water-policy of the state, from one of wholehearted commitment to water project development to a policy that treats a free-flowing natural condition as the best goal for many of the state's important stretches of river. The defeat of Dos Rios led directly to the enactment in 1972 of a tough state Wild and Scenic Rivers Act, which bars development of many portions of rivers, particularly on the North Coast. More than a fifth of the state's runoff was thus put "out of bounds" for state water development, a startling occurrence in a state known previously for its aggressive pursuit of water projects.

The significance of the change in water policy wrought by the California Wild and Scenic Rivers Act is best understood in the context of state constitutional norms developed in the 1920s. The perennial tension in California water law between norms of riparianism, favoring the claims of landowners adjacent to water regardless of prior use, and prior appropriation, rewarding those beneficial users who were "first in time," had led to a judicial decision in 1909 that a paramount riparian [user] was not limited to "reasonable" use in a dispute with an appropriator. In 1926, in the famous *Herminghaus* case, the Supreme Court of California reaffirmed that ruling, despite the enactment in 1913 of the Water Commission Act, which attempted greatly to constrain riparian prerogatives. Reaction to *Herminghaus* was strong, and in 1928 the state constitution was amended in order to overturn it. The amendment stated a policy of maximizing welfare by requiring: that the "water resources of the state be put to beneficial use to the fullest extent of which they are capable;" that water waste should be prevented; and that water should be conserved for reasonable and beneficial use. "Conservation" then meant to impound fresh water behind dams so it would not, in the phrase popular then and still unfortunately occasionally heard today, "waste to the sea." The amendment thus was a dam builder's dream come true.

The contrast between the water policy of the 1928 constitutional amendment and that of the 1972 Wild and Scenic Rivers Act could not be more stark. The former eschewed "waste" of fresh water to the sea; the latter declared, as the act's fundamental policy, that "certain rivers which possess extraordinary scenic, recreational, fishery or wildlife values . . . shall be preserved in their free-flowing state . . . such use of the rivers is the highest and most beneficial use and is a reasonable and beneficial use of water within the meaning of . . . the Constitution." By 1972, it was the prayers of the preservationists that were answered. The fight over Dos Rios Dam had precipitated a major change in the state's water policy.

**The Mono Basin: Emergence of the "Public Trust Doctrine"**

Many of California's dam fights have presented the question whether or not to build a proposed water project. But some dam fights have posed the question whether the operation of an *existing* water project should be significantly modified. The Mono Basin controversy is one of those, and like the Dos Rios fight it has brought a substantial change in water policy. This has happened even before the "dam fight" itself has been completed.

The Mono Basin was targeted for water supply purposes over 60 years ago by the Los Angeles Department of Water and Power (DWP). Later, a series of dams and aqueducts was built to form a northern extension of the DWP's Owens Valley project. They impound and convey an average of about 100,000 acre-feet of water a year from several of the streams that empty into Mono Lake, a highly salty water body that provides habitat for significant numbers of birds. The project provides over 15 percent of the Los Angeles water supply, and it also generates power for municipal use.

Research on the environmental consequences of the DWP's Mono Basin project indicates continued diversions will likely cause serious disruption of bird nesting sites, destruction of the food chain of various species of birds, and significant air pollution related to the alkaline dust left behind as the level of Mono Lake falls. The National Audubon Society and other environmental groups as a consequence brought suit in 1979 to force a drastic curtailment in the export of water from the basin. The principal legal theory advanced was that the "public trust doctrine", an ancient concept of public-access rights heretofore largely confined to disputes over various types of shorelands, requires that result. Subsequently, California Trout, an organization devoted to the advancement of trout fishing, also sued on the basis of certain Fish and Game Code provisions to obtain augmented flows of water in the stream stretches below the DWP dams and above the lake.



*Protection for Suisun Marsh, with its abundance of fish and wildlife threatened by water diversions, is considered by many to be the next test for the Public Trust Doctrine.* **Photo:** Mike Maloney, SF Chronicle

Although in no case is the final outcome certain, it appears the legal and political attacks on the DWP's Mono Basin projects will ultimately succeed in forcing more water to be released downstream by the DWP, both to meet the long-dormant Fish and Game Code provisions successfully invoked by California Trout and to meet the public trust requirements raised by the National Audubon Society. Last year the California Court of Appeal concluded that the State Water Resources Control Board (SWRCB) should attach fish-protective flow requirements to the licenses held by DWP for operation of its Mono Basin projects, and the California Supreme Court has denied a hearing in the matter. In 1983 the latter court unanimously approved Audubon's theory that the exercise of appropriative water rights is subject to limitation in order to protect public trust values, including that of preservation of wildlife habitat. Furthermore, in 1989 the trial court in the Audubon case issued a preliminary injunction requiring that the level of Mono Lake be maintained at approximately its current level, which means for the near future the DWP will likely have to curtail water exports from the basin. Finally, in September 1989, legislation was enacted that provides up to $65,000,000 in state funds to help to protect Mono Lake, in part by assisting the DWP to find replacements for some of the water and power foregone to raise the lake.

Thus, although the final chapters have not been written, the current situation is promising for those who initiated the Mono Basin dam fight. But as with Dos Rios, the ensuing changes in state water policy may be even more significant.

To understand the policy consequences of Mono Basin developments, one must again recall the heavy emphasis in earlier years on promoting water projects. The constitutional language on maximum use and the need to avoid "waste to the sea" has been mentioned, as has the way the Wild and Scenic Rivers Act effectively abolished that policy for certain river segments. But that act left intact the earlier policy for most of the state's waters. One significant legislative move toward instream flow protection of those waters was the amendment of the Water Code to specify that fish and wildlife enhancement and recreation are beneficial uses of water, but that change was insufficient to persuade the courts to order the SWRCB to consider applications to appropriate water where no water project was contemplated. Furthermore, although recommendations for systematic instream flow protection were made by a blue-ribbon commission, they were rebuffed by the legislature. A complicated water-resources initiative which included similar measures was soundly defeated in November 1982.

Thus, as of 1982, for water not covered by the Wild and Scenic Rivers Act, the best instream flow protections that could be anticipated was from conditions placed in the water right permits of conventional appropriators. Some such permit conditions existed, but generally only for recent projects. Older projects, such as that in the Mono Basin, seemed untouchable.

All that has changed in the policy aftermath of the Mono Basin controversy. The public-trust doctrine now permits challenges to all water projects that are operated in a way that seriously affects fish, wildlife, recreation, and other public values related to navigable water. Even where a measure of instream flow protection had been achieved through permit conditions, as in the Sacramento-San Joaquin Delta, that protection may be strengthened and/or broadened as a result of application of the public-trust doctrine. And in many other cases where such permit conditions are nonexistent or inadequate, integration of public-trust doctrine limitations may be required. Even federal facilities like Trinity Dam, a CVP dam that has seriously damaged the fisheries of the Trinity River, are not immune to challenge.

**New Melones: Subjecting Federal Projects to State Controls**

Those who challenged construction plans for the Dos Rios project in the late 1960s and the way the DWR operates its Mono Basin project in the 1980s took on some of the most powerful water interests in California. Their successes have done much to change water policy and water politics within the state. Both the SWP and the Mono Basin project are dwarfed in significance by the CVP, the giant federal project that

***Continued next page***

**In the face of a five-year drought,** Californians want to know where their next drink of water is going to come from. Continued efforts to secure new water supplies to support urban and agricultural expansion have reached an impasse. The viability of the Big Water Project, long the symbol of western water development, now seems increasingly uncertain.

In *Thirst for Growth*, Robert Gottlieb and Margaret FitzSimmons provide an overview of the key issues of public accountability and water policy innovation that confront urban and agricultural water agencies throughout the country—notably in California where the prospects for future water development have become especially problematic. Focusing on six agencies in the Southern California region, they offer a series of case studies analyzing the issues of water quality, including groundwater contamination and disinfection by-products; reallocation and transfer of existing supplies; and management programs based on pricing changes, the conjunctive use of surface and groundwater supplies, and increased storage capacity aimed at greater efficiencies in stretching those existing supplies.

*Thirst for Growth* also provides a crucial review of the methods of governance and public input that are central features of today's water agencies. The extensive and incisive analysis provided by the authors is a reflection of their experience and insight and of years of observation and participation in a changing and sometimes tumultuous water industry in transition from earlier goals and policy objectives.

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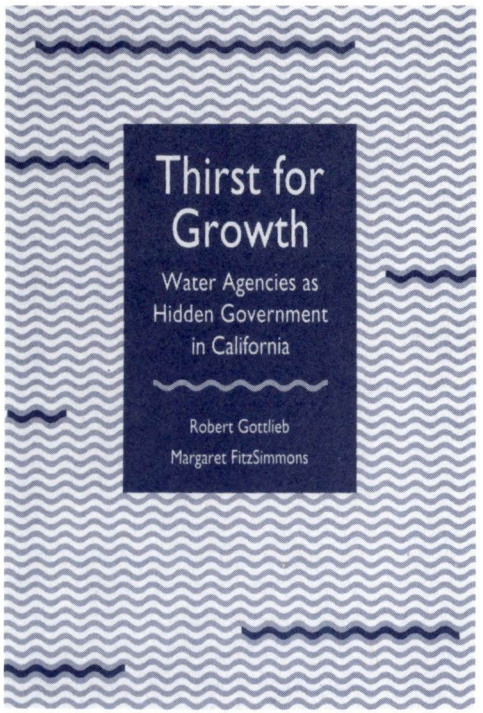
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# *A:* Thirst for Growth

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# *Q:* What explains California's unquenchable thirst for water?

