

March 22, 2011

Regional Water Quality Control Board,  
Central Valley Region  
**ATT: Adam Laputz.**  
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Dear Mr. Laputz:

Subject: Irrigated Lands Regulatory Program Framework hearings

The existing regulatory waiver covering discharges from irrigated lands expires in June 2011. At that time the Central Valley Regional Water Quality Control Board will consider a new long-term program at a hearings commencing on April 7. An effective program will ensure that pollutant discharges from irrigated agriculture are reduced and minimized equal to that required of industrial and urban dischargers and that the receiving waters will support beneficial uses, viable renewable fish and wildlife resources and environmental values.

Runoff from irrigated agriculture is identified as the largest source of pollution to Central Valley and Delta waterways. Monitoring downstream of agricultural areas reveals that virtually all sites exceed water quality standards and almost two thirds are toxic to aquatic life. Pollution is identified as one of the principle causes of the collapse of Central Valley fisheries. Agricultural pollution also threatens drinking water supplies, public health and is a major source of groundwater impairment. Yet, irrigated agriculture remains exempt from routine requirements to protect water quality that have long been applicable to virtually every other segment of today's society.

A water quality problem exists when there is failure to provide water of sufficient quality or quantity to protect or enhance an ecosystem, its resources, beneficial uses and ecological values. There is ample evidence in reports, some conducted under State Board and Regional Water Quality control Board contracts, that the goals of the Clean Water Act are not being met because fish and wildlife as well as their habitats, public use, and the swimable and fishable waters are impacted by poor water quality. Aquatic ecosystems are being degraded resulting in reduced or failed reproduction of selected fish and wildlife species. That death and deformities to fish and wildlife continues and ecosystem diversity is being reduced. Public health advisories have been issued warning people about eating fish or waterfowl that may contain high levels of selenium and other public trust interests and beneficial uses are and have been degraded or destroyed. Today the San Joaquin River and aquatic life are contaminated with selenium. This contamination extends from the Mendota pool, down the San Joaquin River to the Delta and Suisun Marsh and Bay. There are several varieties pesticides, plus selenium, boron and other trace elements and a variety of salts resulting in something called "unknown toxicity" in this reach of the San Joaquin River

and tributary waters. One only has to look at selected State Board reports to verify such information. See 2000 California 305 (b) Report on Water Quality – State Board –2000.

Selenium is a bad actor. A selenium concentration of 5 to 30 ppb could see a 500 to 800 times the waterborne concentration in plankton; in sediment 200 to 400 times; in benthic invertebrates 800 to 2000 time and in fish tissue (depending species) 1000 to 35,000 time the water borne concentration. Because of its many forms, selenium is able to bond with many substances, in water, sediment and biota. Selenium is being magnified in animal tissues as it goes up the food chain. The high selenium concentration in fish is a result of selenium accumulation via dietary intake. Therefore fish eating other fish and invertebrates, and the birds and mammals that feed on such animals can receive toxic quantities of selenium through their diet even though the selenium concentration in water is low (Lemly -1985 and 1993). In one study selenomethionine at water borne concentration of less than 1 ppb has been shown to be bioconcentrated by a factor of 50,000 in algae and 350,000 in daphnids (Presser – 1994). Fish and wildlife literature indicated that a range of 2-3 ug/l of water borne selenium to be fully protective of fish and wildlife resources (Skuropa –1993, Ohlendorf –1993, DOI -1998). Selected Water Board reports and other references verify this information. See Presser and Luoma –2006. In Dubrovsky, et al –1998, 49 pesticides were detected with several exceeding criteria (acutely toxic levels) for the protection of aquatic life including native fishes. The nitrate load in the San Joaquin River can be attributed to subsurface drainage discharge to Mud and Salt sloughs.

Another concern is the water quality of the Colusa Drain. Water quality is impacted by sediment and a broad array of agricultural chemicals such as Furadan, Malathion, Methyl Parathion and others are designed to kill organisms. The Colusa Drain has some “unknown toxicity” and impacts about 70 miles of water before it is discharged to the Sacramento River near the town of Knights Landing.

Setting water quality standards via Total Maximum Daily Loading (TMDL) has been the Regional Board’s method of identifying and controlling pollutants, i.e. one substance at a time. The various synergistic effects of the “one chemical impacts” are hard to analyze except in a laboratory setting. So are the accumulative impacts of those chemicals, trace elements that accumulate via the food chain. Selenium, because of its characteristics, toxicity, persistence in the environment, bioaccumulation and mobility, a little bit of it goes a long way. Therefore a TMDL for selenium is not a good indicator of water quality because organisms bioaccumulate selenium to many times the concentration level in the surrounding water. A slight increase of selenium in the surrounding environment can cause a disproportional increase of selenium in organisms, rapidly crossing the safe threshold from benign nutrient to a deadly toxin.

Studies have revealed that the organochlorine, synthetic organic pesticides and volatile organic compounds can be harmful to the endocrine (hormone) and immune systems of fish, wildlife and humans at much lower concentrations than was previously thought. Man-made chemicals (pesticides and other chemicals) plus some metals (mercury and selenium) that are persistent and that bioaccumulate are of particular

concern. Pesticides and trace elements already affect many wildlife populations. Impacts include thyroid dysfunction in birds, and fish, decreased fertility in birds, fish, shellfish and mammals; decreased hatching success in birds, fish and turtles: gross birth deformities in birds, fish and turtles; metabolic abnormalities in birds, fish and mammals: behavioral abnormalities in birds; demasculinization and feminization of male fish, birds, and mammals; and compromised immune systems in fish, birds and mammals (Colborn and Clement –1992). Fish and wildlife populations exposed to such chemicals compounds that disrupt development of the reproductive, immune, nervous and endocrine systems can lead to population instability. The pollutants of greatest concerns are those that regulate developmental, endocrine and immunological functions. Contamination of fish and wildlife has reached levels in some areas to issue health advisory and there are known sub-lethal effects sufficient to impair populations (Colborn 1993).

One of the duties of the State Board and Regional Boards is to protect the sustainability of aquatic ecosystems so people can continue to benefit from associated resources, uses and ecological values. This is an obligation supported by case law. Protecting aquatic ecosystems is a principle of the Public Trust Doctrine discussed in *Audubon (National Audubon Society v. Department of Water and Power, City of Los Angeles*, - 33 Cal 3d419, 658 P 2d 709, 189 Cal. Rpt. 346, cert. Denied 464 U.S. 977 – 1983, also called Mono Lake). This is also an obligation of all levels of government including local water and drainage districts. The State Board's regulatory powers along with the common law of nuisance can be used to cease the activity, alter the activity so it can be brought up to acceptable water quality standards.

The “continuing supervisory control” of *Audubon* requires a monitoring program by trustee agencies. Real time monitoring / information is critical for protecting public trust resources, beneficial uses and ecological values. The Racanelli decision in *US v State Water Resources Control Board*, (227 Cal Rpt 161 – 1986) clarified the need to know what uses of water and discharges were occurring in the Central Valley watershed. Judge Racanelli understood that to preserve and protect water quality stretches the water supply and protects beneficial uses. The term “beneficial uses” means beneficial to the appropriator and water contractor and not harmful to public trust resources, beneficial uses, and values (Johnson –1989). For example from Racanelli the people learned that:

No one has a vested right to use water in a manner harmful to the State's water, associated resources, beneficial use and values (pg. 171).

The State Board should implement the necessary water quality standards against all factors that affect water quality i.e. against all other diverters, users and dischargers of water (pgs. 179 -180).

The State Board can impose water quality standards to protect all beneficial uses on all upstream projects under its reserved jurisdiction (pg. 195).

The State Board has a mandate under California's Porter - Cologne Act and the Federal Water Pollution Control Acts to set standards to protect fish, shellfish, and wildlife and recreational uses of those waters (pg. 200).

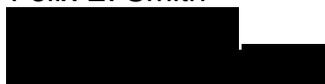
Therefore it is in the public interest to restore degraded surface and ground water to an acceptable and sustainable beneficial use standard. In order to fully protect the public trust and all beneficial uses of water, the Regional Board should exercise its public trust duties and responsibilities and make changes to existing program. Some suggested changes are:

- Individual dischargers should be required to submit their reports to the Regional Board identifying the location, time of discharge (periodic or continuous), volume and the concentrations of various constituents proposed for or being discharged to surface water and ground water bodies.
- The facts are that water quality cannot be protected if you don't measure actual discharges to quantify pollution and evaluate the effectiveness of implemented management / and conservation measures. Monitor discharges to surface water and groundwater and the effectiveness of measures implemented to reduce pollution. Monitoring of ecosystem components including the food chain is necessary to the top feeder / predator.
- Just like urban and industrial dischargers, all farm dischargers should be required to prepare individual on farm water quality management plans identifying measures being implemented to reduce drainage and runoff pollution. These plans must be made available to the Regional Board and the public.
- After years and in some places decades of no, little regulation or voluntary compliance, its time for an effective program. Require compliance with water quality standards in the near-term, not some uncertain distant future. Require reporting progress every 2 years with a full compliance in 6 years.
- Each discharger must demonstrate consistency with the state's non-point source and anti-degradation policies. Failure to do so or a 6th year full compliance point could result in a finding of waste and unreasonable use of water.

Please include these comments in to the hearing record of the Irrigated Lands Regulatory Program Framework hearing.

Sincerely,

Felix E. Smith



Cc: interested parties

## Selected References

- Colborn, T and C. Clement – 1992. Chemically Induced Alterations in Sexual and Functional Development: The Wildlife / Human Connection. Ed by T. Colborn and C. Clement. Princeton Scientific Publishing, Princeton, NJ. 1992.
- Colborn, Theo, 1994. Pesticides – How Research has Succeed and Failed to Translate Science into Policy: Endocrinological Effects on Wildlife. Paper presented at the Symposium on preventing Child Exposure to Environmental Hazards: Research and Policy Issues. March 1994. National Wildlife Fund, Washington D.C.
- Department of the Interior, 1998. Guidelines for the Interpretation of the Biological Effects of Selected Constituents in Biota, Water and Sediment. National Irrigation Water Quality Program, Information Report No. 3. November 1998.
- Dubrovsky, N.M., Charles R. Kratzer, Larry R. Brown, JoAnn M. Gronberg and Karen R. Burow. 998. Water Quality in the San Joaquin –Tulare Basins, California, 1992 - 95. U.S. Geological Survey Circular 1159.
- Johnson, Ralph W. 1989 - Water Pollution and the Public Trust Doctrine. Environmental Law Vol. 19, No. 3. Northwest School of Law. Pg. 485-514
- Lemly, Dennis A., 1985. Toxicology of Selenium in a Freshwater Reservoir: Implications for Environmental Hazard Evaluation and Safety. In Ecotoxicology and Environmental Safety 10, 314-338. 1985.
- Lemly, A. Dennis. 1993. Guidelines for evaluating selenium data from aquatic monitoring and assessment studies. Environmental Monitoring and Assessment, Vol. 28:83-100 at pg.88.
- National Audubon Society v. Department of Water and Power, City of Los Angeles. (Also called Audubon and Mono Lake) 33 Cal. 3d 419 (1983), 658 P 2d 709, 189 Cal. Rpt. 346, cert. Denied 464 U.S. 977 - 1983).
- Ohlendorf, H.M., J.P Skorupa, M.K. Saiki, and D.A. Barum – 1993. Food-chain transfer of trace elements to wildlife. Pp 596-603, In: R.G. Allen and C.M.U. Neale (eds), Management of Irrigation and Drainage Systems: Integrated Perspective. Am Soc. Civil Eng. New York, NY.
- Presser, Theresa S. and Samuel N. Luoma. 2006. Forecasting Selenium Discharges to the San Francisco Bay – Delta Estuary: Ecological Effects of a Proposed San Luis Drain Extension. U.S. Geological Survey, Professional Paper 1646. 2006.
- State Water Resources Control Board. 2000 California 305(b) Report on Water Quality. Prepared as Required by Federal Clean Water Act Section 305 (b). November 2000.
- Skorupa, Joseph P. 1993. Presentation Before the New Mexico Water Quality Standards Public Hearing, October 13, 1993, Santa Fe, New Mexico
- Skorupa, Joseph P., Sarah P. Morman and Judy S. Sefchick-Edwards. 1996. Guidelines For

Interpreting Selenium Exposures of Biota Associated with Non-Marine Aquatic Habitats.  
Prepared for The National Irrigation Water Quality Program by Sacramento Field Office,  
U.S. Fish and Wildlife Service, March 1996.

Smith, Felix E. 1996. The Kesterson Effect: Reasonable use of Water and the Public Trust.  
San Joaquin Agricultural Law Review. Vol. 6, No. 1, pg. 45 –67- 1996. San Joaquin  
College of Law.

U.S. v. State Water Resources Control Board. 227 Cal. Rpt. at 161 –1986 (called Racanelli)

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