State Water Resources Control Board

Division of Water Quality

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Terry Tamminen
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

TO: Craig J. Wilson, Chief
Monitoring and TMDL Listing Unit
Division of Water Quality

Gerald W. Bowes

FROM: Gerald W. Bowes, Ph.D.
Chief, Standards Development Section
DIVISION OF WATER QUALITY

DATE: DEC 9 2003

SUBJECT: **REVISION**: PEER REVIEWERS FOR DRAFT WATER QUALITY CONTROL POLICY FOR GUIDANCE ON DEVELOPING CALIFORNIA'S CLEAN WATER ACT SECTION 303(d) LIST (IMPAIRED WATERS)

In response to your request for peer reviewers for the draft policy identified above, I am pleased to send you the names of three people who have agreed to perform this review. They have been approved by the University of California, Office of the President (UCOP), for this assignment based on its review of a Conflict of Interest Disclosure form each candidate was required to complete. The approval letter from Mr. Scott MacDonald, UCOP, to me is attached. **I hope to send you the names of one or two additional reviewers within one to two weeks.**

The reviewers' names, affiliations, and means of contacting them are given below.

1. Professor Robert C. Spear
   140 Warren Hall
   School of Public Health, University of California
   Berkeley CA 94720-7360
   510-642-0761
   spear@uclink.berkeley.edu

2. Professor Donald Weston
   University of California
   3060 Valley Life Sciences Bldg.
   Berkeley CA 94720-3140
   510-231-5626
   dweston@uclink4.berkeley.edu

3. Professor David Jenkins
   11 Yale Circle
   Kennsington, CA 94708
   510-527-0672
   flocdoc@pacbell.net

I am also providing you with biographical information for each person.

Before you send any material to the reviewers, please contact them to receive assurance that they would not have a conflict of interest in reviewing the proposed Board action, with respect to two issues which I believe are not be explicitly addressed by the UCOP review. To assist the reviewers in making this determination, provide them with a brief description of the proposed Board action and the scientific issues that will be addressed through the review. The nature of potential conflict of interest is described in the paragraph immediately below. An email transmittal of this and the descriptive material, and an email response, would be acceptable. These communications will become part of the administrative record for the Board's proposed action.

> ***Peer reviewers cannot have participated in the development of the scientific basis or scientific portion of the [PLACE TITLE OF PROPOSED BOARD ACTION HERE]. Further, peer reviewers must not have any economic conflict of interest with regard to the outcome of their comments or recommendations on the proposed Board action.***

After you have received a confirmation from each reviewer that there is no conflict of interest in performing the review with respect to the two issues identified, I recommend that you send them the material which you sent me in your initial request for reviewers. This provides an informative overview and a highlighting of the scientific basis of the proposal. This information should be provided to reviewers with your letter of request to them.

I also recommend including in the request letter, if not already provided in the staff direction, the following language, or something similar. This will ensure that the reviewers see the big picture in addition to the details, and are therefore held accountable for the scientific basis of the document as a whole:

"In addition to focusing on issues or questions of particular concern that are identified in request letters, peer reviewers are not limited to addressing these. For example, if not already covered, the reviewers should be asked the following overarching questions: (1) Are data used in the report reliable and appropriate, and is the treatment of the data defensible? and (2) Does the report as a whole support its scientific conclusions and recommendations?"

At this point, I withdraw from the picture. You should now initiate the review by communicating directly with the peer reviewers. When all interactions with these people have been completed, please let me know as I am responsible for updating a peer review tracking report that is provided to our Executive Office each month.

If I can provide additional help, feel free to contact me at any time during the review process.

Attachments (4)

cc: Stan Martinson, Chief (w/o biographical information)
Division of Water Quality

John Ladd, Assistant Division Chief (w/o biographical information)
Division of Water Quality

Ken Harris, Chief (w/o biographical information)
TMDL Section
Division of Water Quality

Fred LaCaro
TMDL Section
Division of Water Quality

From: Scott MacDonald <scott.macdonald@ucop.edu>
To: "Gerald Bowes" <BOWEG@dwq.swrcb.ca.gov>
Date: 12/5/03 12:27:18 PM
Subject: Peer Review Request: Adoption Of Water Quality Control Policy

Dr. Bowes:

In response to a request for scientific peer review of draft documents for Adoption Of Water Quality Control Policy For Guidance On Developeing California's Clean Water Act, Section 303(d) List, the University of California is prepared to recommend the following reviewers:

Dr. Robert C. Spear
140 Warren Hall
School of Public Health, University of California
Berkeley CA 94720-7360
510-642-0761
spear@uclink.berkeley.edu

Dr. Donald Weston
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3060 Valley Life Sciences Bldg.
Berkeley CA 94720-3140
510-231-5626
dweston@uclink4.berkeley.edu

Dr. David Jenkins
11 Yale Circle
Kennsington, CA 94708
510-527-0672
flocdoc@pacbell.net

If you have information you wish to discuss prior to accepting the University's recommendation, please feel free to contact me.

Sincerely,

Scott MacDonald

Scott MacDonald | Senior Analyst | Office of Research
University of California | Office of the President
voice: 510/987-0672 | fax: 510/987-9456
scott.macdonald@ucop.edu | www.ucop.edu/research

CC: <flocdoc@pacbell.net>, <dweston@uclink4.berkeley.edu>, <spear@uclink.berkeley.edu>

Robert C. Spear

Ph. D. Cambridge University, 1968

Mailing Address:
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Not available

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Website:
Schistosomiasis in China

Mike Wilson
MPH '98, PhD '03

"Most importantly, the knowledge acquired in this program is needed. I highly recommend this program to anyone committed to understanding the science of health and the environment.

Teaching

PH 150B Introduction to Environmental Health (Sp)
General Catalog Description

PH 268A Physical Agents: Health Assessment and Control (Sp)
General Catalog Description

PH 270A Exposure Assessment and Control (F)
General Catalog Description

Research

Dr. Spear's research interests focus on the assessment and quantification of human exposures to toxic and hazardous agents in the environment, principally the occupational environment including:

- Mathematical modeling of toxicological and infectious processes
- Statistical issues in exposure assessment

Ongoing research projects:

- Schistosomiasis in China

Dr. Robert Spear is an engineer by training, having

Science and Mechanical Engineering, respectively, from the University of California at Berkeley and the Ph.D. degree in Control Engineering from Cambridge University in 1968. After several years in the aerospace industry his interests turned to environmental issues and he returned to Berkeley in 1970 to take up a post-doctoral position in this field in the School of Public Health. He was appointed to a faculty position in 1971 and is now Professor of Environmental Health Sciences.

His research interests focus on the assessment and quantification of human exposures to toxic and hazardous agents in the environment, principally the occupational environment. His early work concerned the exposure of agricultural workers to pesticides. In more recent years his work has concerned applications of mathematical and statistical techniques in the assessment and control of exposures to both chemical and biological agents. His current work in this area is in collaboration with colleagues both at Berkeley and at the Sichuan Institute of Parasitic Disease focused on determinants of the incidence and control of schistosomiasis in the mountainous regions of Sichuan Province in southwestern China. In addition to dynamic systems analysis, this work involves applications of geographic information systems and remote sensing technology.

Dr. Spear is the founding Director of the University's Center for Occupational and Environmental Health and has served as Associate Dean of the School of Public Health and of the College of Engineering at Berkeley. He has served on a variety of committees advisory to the government and to industry as well as within the University. \He has authored or co-authored over 100 papers in the scientific literature.

Selected Publications

Grieb TM, Shang N, Spear RC, Gherini SA, Goldstein RA. "Examination of Model Uncertainty and Parameter Interaction in the Global Carbon Cycling Model", Environment International, 25, 787-803, 1999.

Seto E, Liang S, Qiu D, Gu X, Spear RC. "A protocol for Geographically Randomized Snail Surveys in Schistosomiasis Fieldwork Using the Global Positioning System", American Journal of Tropical Medicine, 64, 98-99, 2001.

Spear RC, Gong P, Seto E, Zhou Y, Xu B, Liang S, Davis D and Gu X. "Remote Sensing and GIS for Schistosomiasis Control in Mountainous Areas in Sichuan, China", Geographic Information Sciences, 4,14-22, 1998.

Wu JD, Milton DK, Hammond SK, and Spear RC. "Hierarchical Cluster Analysis Applied to Workers' Exposures in Fiberglass Insulation Manufacturing", Ann. of Occup. Hyg. 43, 43-55, 1999

Yost MG, Hashmonay RA, Zhou Y, Xu B, Spear R, Park D, Levine S. "Estimating Maximum Concentrations for Open Path Monitoring Along a Fixed Beam Path", Air and Waste Management Association Journal, 49, 424-433, 1999.

Eisenberg J, Seto E, Olivieri A and Spear RC. "Quantifying Water Pathogen Risk in an Epidemiological Framework." Risk Analysis, 16(4):549-563, 1996.

Zhou Y, Maszle D, Gong P, Spear RC, and Gu X. "GIS Based Spatial Network Models of Schistosomiasis Infection." Geographic Info. Science, 2, 51-57, 1996.

Maszle DR, Whitehead PG, Johnson RC and Spear RC. "Hydrological Studies of Schistosomiasis Transport in Sichuan Province, China," Sci. Total Environ. 216, 193-203, 1998.

Other Activities

Director, NIOSH Educational Resource Center

To update this page, please email the EHS Coordinator
ehs_div@uclink.berkeley.edu

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School of Public Health | UC Berkeley

Donald P. Weston

Associate Adjunct Professor

E-mail: dweston@uclink.berkeley.edu
Phone: (510) 231-5626

Full Directory Information

Research Interests

I am an ecologist and ecotoxicologist with interests in the impact of human activities, particularly the release of toxic substances, on organisms at the individual, population, and community levels. I am most interested in applying basic ecological insights (e.g., feeding strategy, natural history) to toxicology in order to provide greater environmental realism to questions of pollutant exposure and bioaccumulation. Most of my research falls within the general area of pollutant bioavailability and bioaccumulation and the extension of these principles to assessment of ecological risk posed by contaminated aquatic sediments. Most of the current research in my laboratory is focused in either of two areas. First, we are developing a procedure to better quantify the bioavailable contaminant in sediment by extraction of the sediment using the digestive fluid of deposit-feeding invertebrates. Solubilization by this fluid, rather than an exotic chemical as would be used in a conventional extraction, has greater ecological relevance and provides a better basis for environmental management decisions. With funding from EPA, U.S. Navy, U.S. Army Corps of Engineers, U.S. Geological Survey and others, we are refining this technique for management of contaminated sediments. Secondly, we are examining the effects of agricultural pesticide use in the San Francisco Bay watershed on aquatic organisms, and particularly those species which are important prey for chinook salmon. Of particular interest is the bioavailability of particle-associated pesticides and the interactions of exposure duration, frequency and magnitude in determining toxic effect. Other recently completed projects in my laboratory include the rate and manner in which DDT residues move out of a contaminated food web after dredging and removal of DDT-contaminated sediments; and the environmental effects of antibiotics from aquaculture operations on natural microbial communities.

Selected Publications

Amweg, E.L., D.L. Stuart and D.P. Weston. 2003. Comparative bioavailability of selenium to aquatic organisms after biological treatment of agricultural drainage water. Aquatic Toxicology 63:13-25.

Weston, D.P., W.M. Jarman, G. Cabana, C.E. Bacon and L.A. Jacobson. 2002. An evaluation of the success of

Francisco Bay, California, USA. Environmental Toxicology and Chemistry 21:2216-2224.

Weston, D.P. and K.A. Maruya. 2002. Predicting bioavailability and bioaccumulation using in vitro digestive fluid extraction. Environmental Toxicology and Chemistry 21:962-971.

Mayer, L.M., Weston, D.P. and Bock, M.J. 2001. Benzo(a) pyrene and zinc solubilization by digestive fluids of benthic invertebrates - a cross-phyletic study. Environ. Toxicol. and Chem. 20(9):1890-1900.

Weston, D. P., M. J. Phillips, and L. A. Kelly. 1996. Environmental impacts of salmonid culture. In *Principles in salmonid culture,* ed. W. Pennell and B. Barton. Amsterdam: Elsevier Science Publishers.

Capone, D., D. Weston, V. Miller, and C. Shoemaker. 1996. Antibacterial residues in marine sediments and invertebrates following chemotherapy in aquaculture. *Aquaculture* 145:55-75.

Weston, D. P. 1990. Hydrocarbon bioaccumulation from contaminated sediment by *Abarenicola pacifica,* a deposit-feeding polychaete. *Mar. Biol.* 107:159-69.

Weston, D. P. 1990. Quantitative examination of macrobenthic community changes along an organic enrichment gradient. *Mar. Ecol. Prog. Ser.* 61:233-44.

[Return to Faculty Research Interest Index]

Other Campus Resources

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Updated on Sep 29, 2003
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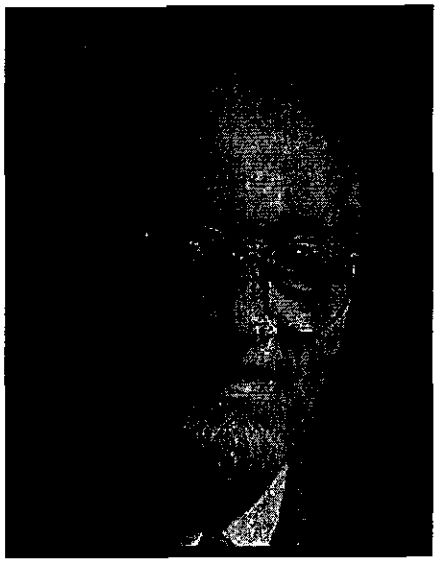
DAVID JENKINS, Professor in the Graduate School, Department of Civil and Environmental Engineering



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Education and Experience

B.Sc. Applied Biochemistry, Birmingham University, England, 1957.
Ph.D. Public Health Engineering, University of Durham, Kings College, England, 1960.
Forty years of research and international professional practice in water and wastewater chemistry and wastewater treatment for government, municipalities, and industry.

Research

Professor Jenkins' research is in the general areas of biological wastewater treatment and water and wastewater chemistry. Within these general areas he has specialized in the chemical precipitation of phosphate from wastewater and sludges, the causes and control of activated sludge bulking and foaming, and in biological nutrient removal.

Causes and control of nocardioform NoBF growth and foaming in activated sludge
Nocardioforms NoBF are actinomycetes that can grow in activated sludge in a form that causes flotation of the activated sludge culture through air bubble attachment. Research has been conducted to determine the conditions favoring the growth of these organisms in activated sludge and to develop process modifications that select against their proliferation. We have established a relationship between the growth rate of nocardioforms and the growth rate of activated sludge and the temperature of operation. The use of aerobic, anoxic and anaerobic selectors in preventing nocardioform growth has been studied and applied in full-scale plants. The effect of pH on the growth kinetics of the nocardioform *Gordona amarae* has been studied in pure culture. The interaction of surfactants and nocardioform-containing activated sludge in producing stable foam has been investigated. Findings suggest that low pH values favor nocardioforms and that partially degraded branched chain non-ionic detergents may enhance nocardioform foaming in activated sludge. The foaming ability has been incorporated into a classifying selector for selective foam wasting from activated sludge, which has been tested in the laboratory and at full-scale. The fate of nocardioforms in anaerobic digestion has been investigated utilizing immunofluorescent antibody techniques to detect the nocardioforms in the digesting sludge. While nocardioforms are slowly inactivated by anaerobic digestion their ability to produce foam survives through long periods of anaerobic digestion. The use of 2-stage digestion (acid then methanogenic) enhances nocardioforms degradation by anaerobic digestion. Nocardioform growth and foaming topics currently under investigation are the effects of thermophilic anaerobic digestion, aeration basin configuration, surfactants, polymers and sludge age control methods.

Enhanced biological phosphorus removal Enhanced biological phosphorus removal (EBPR) is an activated sludge process modification which allows a high degree of phosphate removal from wastewater. The process is comprised of an initial anaerobic reactor followed by an aerated (aerobic) basin. Research in our laboratories has determined the limiting activated sludge growth rate for EBPR for a range of temperatures. A rapid chemical method has been developed for determining the readily biodegradable fraction of wastewaters - a parameter that is important in determining the efficacy of EBPR for a particular wastewater. The stoichiometry of important EBPR metabolisms has been established for highly enriched EBPR cultures. The effect of the products of EBPR on activated sludge settling characteristics has ben determined. An important

content of the activated sludge. Current work is on the use of EBPR to treat phosphorus-deficient wastewater and non the identification of the metabolic control mechanisms of EBPR.

Novel Wastewater and Sludge Treatment Processes Current investigations include projects on the use of membrane bioreactors in a wastewater reclamation treatment train and for secondary wastewater treatment; the use of thermophilic anaerobic sludge digestion processes for pathogen removal and the use of metal salts to prevent the leaching of phosphate from wastewater sludges applied to land.

Recent Publications

Jenkins, D., Richard, M. G., and Daigger, G. T. (1993) *Manual on the causes and control of activated sludge bulking and foaming*. 2nd Ed., Lewis Publ., Boca Raton, FL.

Hernandez, M., and Jenkins, D., (1995) The fate of *Nocardia* in anaerobic digestion. *Water Env. Res.*, 66, 828.

Shav, Y-J., Staw, M., Kaperis, K., Kim, H.S. and Jenkins, D. (1997) Polymer addtion as a solution to *Nocardia* foaming problems. *Water Env. Res.*, 69, 25.

Ekster, A. and Jenkins, D. (1996) Nickel and copper removal at the San Jose/Santa Clara Water Pollution Control Plant. *Water Env. Res.*, 68, 1172.