Mercury Pollution of Putah Creek Fish at the City of Davis South Fork Preserve Area

G. Fred Lee, PhD, PE, BCEE, F.ASCE and Anne Jones-Lee, PhD
Technical Advisors to
DSCSOC for the UCD/DOE LEHR Superfund Site
G. Fred Lee & Associates
El Macero. California
gfredlee@aol.com www.gfredlee.com
February 9, 2010

On October 9, 2009 the City of Davis Parks & General Services Department held a "Public Opening" of its new South Fork Preserve (also called the South Fork Putah Creek Habitat Area) located adjacent to Putah Creek at Mace Boulevard, about 1.5 miles south of Davis. The City was promoting the preserve, in part, for its enhancement of public access to the area near Putah Creek. This preserve could lead to increased fishing from the area. Because the location of the Preserve is downstream of the University of California Davis (UCD) Department of Energy (DOE) LEHR Superfund site (situated on the UCD campus at Old Davis Road along Putah Creek), Dr. G. Fred Lee attended that meeting to determine if the City was aware of the elevated levels of mercury found in some of the fish in that area of Putah Creek and health risks associated with the consumption of mercury-contaminated fish.

Dr. Lee serves as the US EPA Technical Assistance Grant (TAG) Advisor to the South Davis Campus Superfund Oversight Committee (DSCSOC), the group representing the public's interest in reviewing the adequacy of LEHR site investigation and remediation for protection of the public health and the environment from releases of hazardous chemicals from the site. (Julie Roth is the executive director of the DSCSOC.) As the US EPA-funded TAG recipient for that site, DSCSOC has a goal of informing the public of hazards associated with releases from the site. DSCSOC's involvement in reviewing the adequacy the LEHR site investigation and remediation has included the investigation of the elevated mercury content found in some Putah Creek fish, as well as the sources of the mercury and potential implications of that accumulation for public health and the cleanup of the LEHR Superfund site. It has become clear that this issue has not been adequately brought to the attention of the public who may consume fish from the creek.

In the mid-1990's the federal agency responsible for assessing the public health hazards of Superfund sites, the Agency for Toxic Substances and Disease Registry (ATSDR), recommended that Putah Creek be posted with signs along the creek to inform the public of the public health hazards associated with consuming some of the fish from that Creek because of elevated mercury. That action was supported by the Yolo County Department of Health. Based on information supplied to the Central Valley Regional Water Quality Control Board (CVRWQCB) by DSCSOC, Putah Creek was listed as a Clean Water Act 303(d) "impaired" stream because of elevated levels of mercury in some of the Putah Creek fish. More recently the California Office of Environmental Health Hazard Assessment (OEHHA) reaffirmed the human health hazards of consuming some of the fish in Putah Creek in its report:

> Gassel, M., Klasing, S., Brodberg, R., Roberts, R., (2006). "Health Advisory, Safe Eating Guidelines for Fish and Shellfish from Lake Berryessa and Putah Creek Including Lake

Solano (Napa, Yolo, and Solano Counties)," Pesticide and Environmental Toxicology Branch, OEHHA, California Environmental Protection Agency.
[http://www.oehha.org/fish/so_cal/pdf_zip/062206LBPC.pdf]

Information on the DSCSOC activities at the LEHR site beginning in the summer of 1995 is available on the DSCSOC website [http://www.gfredlee.com/DSCSOC/DSCSOC.htm]; reports made on its LEHR site activities are also posted on its website,
[http://www.gfredlee.com/dscsoc/doc.htm].

Despite the information available and the clear public health concerns, UCD has been able to block the posting of notices along the creek to warn of health hazards associated with consuming some fish from Putah Creek.

While the primary source of elevated mercury in Putah Creek fish is waste discharges from former mercury mines in the Putah Creek watershed, the LEHR Superfund site stormwater runoff contains mercury that contributes to the elevated levels of mercury in some Putah Creek fish downstream of the LEHR site. DSCSOC is working to try to get UCD and DOE to adequately control the mercury in stormwater runoff from the LEHR Superfund site to comply with regulatory limits for mercury discharge to the creek. These issues are discussed in our review paper and LEHR mercury runoff reports:

Lee, G. F., and Jones-Lee, A., "Runoff of Mercury from UCD/DOE LEHR Superfund Site – Putah Creek Mercury Issues," Presented to UCD/DOE LEHR Superfund Site Group, November 18 (2008).
http://www.gfredlee.com/DSCSOC/2008/PutahCrHgLEHRsli.pdf

Lee, G. F., and Jones-Lee, A., "Runoff of Mercury from UCD/DOE LEHR Superfund Site – Putah Creek Mercury Issues," PowerPoint Slides for Presentation to Delta Mercury Tributaries Council, Sacramento River Watershed Program
[http://www.sacriver.org/issues/mercury/dtmc/], December 2 (2008).
http://www.gfredlee.com/SJR-Delta/PutahHgMinesli.pdf

Lee, G. F., and Jones-Lee, A., "Summary of Slides – Putah Creek Mercury Water Quality Issues," Report of G. Fred Lee & Associates, El Macero, CA, Presented to Delta Tributaries Mercury Council, December 2 (2008).
http://www.gfredlee.com/SJR-Delta/PutahHgMineSummary.pdf

Lee, G. F., and Jones-Lee, A, "LEHR Superfund Stormwater Runoff and Putah Creek Mercury Issues," Journal Remediation, 19(2):123-134, Spring (2009).
http://www.gfredlee.com/SJR-Delta/LEHRrunoffHgRemediation.pdf

Lee, G. F., and Jones-Lee, A., "Summary Putah Creek Mercury Water Quality Issues," Report of G. Fred Lee & Associates, El Macero, CA, December (2008).
http://www.gfredlee.com/DSCSOC/2008/Putah_Creek_Mercury_summary.pdf

The DSCSOC TAG website [http://www.gfredlee.com/DSCSOC/dscsoc.htm and
http://www.gfredlee.com/dscsoc/doc.htm] provides additional information on this matter.

The city of Davis' development and promotion of additional areas where the public can be exposed to the health hazards of the elevated mercury in Putah Creek fish is of concern to DSCSOC. Therefore, on behalf of DSCSOC, Dr. Lee attended City of Davis public opening of the South Fork Preserve to see if the city was aware that some of the fish in the creek in the region of the Preserve contained mercury above the human health consumption advisory level, and to inform its representatives of the findings that consumption of such fish represents a public health hazard.

At the city of Davis opening of the new South Fork Preserve on Putah Creek, Dr. Lee found that the city's Park Department staff was not aware of the problem with elevated mercury in Putah Creek fish in the region. Therefore, following that meeting, and in accord with DSCSOC's goal of informing the public of potential human health impacts of the LEHR site runoff/discharges, Dr. Lee sent the City of Davis Parks Department staff a copy of the DSCSOC reports on the elevated mercury in Putah Creek fish and the role of the LEHR site in contributing to that problem.

The pollution of waterbodies with mercury that bioaccumulation in waterbody fish is a common situation in Central Valley of California. Some of the waterbodies that contain fish with hazardous concentrations of mercury in fish are posted with signs to warn the public about the hazards of consuming large amounts of some types of fish taken from the creek or lake. Putah Creek is one of the waterbodies that has no signs along the waterbody to inform those who consume large amounts of fish from the waterbody of the potential health hazards, especially for pregnant women, fetuses, and children. In the name of public health protection and in accord with health agencies' recommendations, Putah Creek should be posted with signs to warn about the health hazards of consuming some of the fish from the creek. The California Department of Health may be of assistance in developing signs that could be used for this purpose. Alyce Ujihara, Research Scientist, Environmental Health Investigation Branch, California Department of Public Health may be contacted at (510) 620-3663, Alyce.Ujihara@cdph.ca.gov for information on CDPH help on this matter.

The City of Davis should post such signs at each of its park/recreation areas on Putah Creek. All other areas along Putah Creek where contact with the creek is made available and therefore could be used for fishing should also be posted by the agency responsible for the area.

Attached are the current OEHHA Safe Eating Guidelines for Fish and Shellfish from Putah Creek (06/22/06, Updated 03/18/09) for the categories "Women 18 – 45 and Children 1 – 17 Years" and "Men over 17 Years and Women over 45 Years."

OEHHA Safe Eating Guidelines
for Fish and Shellfish from Putah Creek including Lake Solano
[06/22/06, Updated 03/18/09]
[http://www.oehha.ca.gov/fish/so_cal/putahcreek.html]

Women 18 – 45 and Children 1 – 17 Years

2 Servings a week	1 Serving a week	Do not eat
 BlackFish	 Carp	 Bass
 Bluegill & other sunfish	 Crappie	 Pikeminnow
 Catfish	 Crayfish	
 Hitch	 Sucker	
 Trout		

OEHHA Safe Eating Guidelines
for Fish and Shellfish from Putah Creek including Lake Solano
[06/22/06, Updated 03/18/09]
[http://www.oehha.ca.gov/fish/so_cal/putahcreek.html]

Men over 17 Years and Women over 45 years

 BlackFish	 Carp	 Bass
 Bluegill & other sunfish	 Crappie	 Pikeminnow
 Catfish	 Crayfish	
 Hitch	 Sucker	
 Trout		
5 Servings a week	3 Servings a week	1 Serving a week