Investigative Report of Scientific Misconduct and Conflict of Interest, U.S. Geological Survey

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This is a version of the report prepared for public release.

SYNOPSIS

This office received allegations of scientific misconduct and conflict of interest associated with U.S. Geological Survey (USGS) Open File Report 2010-1325A, titled "The Effects of Sediment and Mercury Mobilization in the South Yuba River and Humbug Creek Confluence Area, Nevada County, California: Concentrations, Speciation, and Environmental Fate—Part 1: Field Characterization."

Our investigation did not disclose any evidence of scientific misconduct or conflict of interest by the scientist in the USGS study.

This investigation is closed with no further action by this office. The allegations have been reviewed by this office, including consultations with the USGS ethics officer and the USGS scientific integrity officer, and determined to be unsubstantiated.

DETAILS OF INVESTIGATION

The U.S. Department of the Interior, Office of Inspector General, received allegations that a USGS research chemist deliberately omitted data while conducting a study and concluding that suction dredge mining could contribute to the increase of methylmercury levels in biota in California waterways. According to the complaint, the research chemist withheld available scientific data from his study, which the complainant alleged would have resulted in a different scientific conclusion. The complainant obtained this additional data via USGS Freedom of Information Act (FOIA) Request 2013-00085.

The complaint also alleged that the research chemist's membership in and support of the Sierra Fund's (TSF) activities presented a conflict of interest and created the appearance that the research chemist used his professional capacity to support a private organization. TSF is a nonprofit organization whose mission is to protect and restore the natural resources and communities of the Sierra Nevada region; one of TSF's primary goals is to stop suction dredging. According to documents in the complaint, the research chemist spoke at several conferences hosted by TSF and was a private donor to the organization.

Coordination with the USGS deputy ethics officer and deputy ethics counselor revealed that the research chemist's membership in TSF was authorized and complemented USGS interests. Private donations to such organizations by USGS employees are not regulated because they do not create a conflict of interest; an ethical question would only arise if an employee were receiving compensation from the organization. The deputy ethics officer's review of the research chemist's file showed that he is in compliance with ethical rules and responsibilities and there were no other complaints against him.

According to the USGS scientific integrity officer (SIO), the research chemist's work on Open File Report 2010-1325A (South Yuba River Study) presented no scientific integrity issues. The SIO explained that there is a growing trend for people to file scientific integrity complaints in an effort to change legislative decisions they do not like; the object is to undermine the scientific

basis for the decision in an effort to have the decision reversed or overturned by the courts. The SIO and the deputy ethics officer discussed the research chemist's activities during his tenure at USGS and concluded that the research chemist's record is "above the board" regarding ethics issues.

An interview of the complainant revealed two primary concerns: whether the research chemist purposefully omitted data from the study and whether his association with TSF biased his scientific work product. The complainant questioned the research chemist's choice to analyze only 1 year of mercury data when many years' worth of mercury data was available. An associate of the complainant consolidated the mercury data received via the USGS FOIA request and the data from the research chemist's study into one graph. According to the complainant, the graph portrays the variation and natural fluctuation in mercury levels in the South Yuba River watershed, which would have led to a different scientific conclusion had the research chemist incorporated the data into his analysis. In addition, the complainant believes the research chemist's association with TSF is inappropriate; the research chemist's attendance at TSF functions created the appearance of a conflict of interest.

The research chemist confirmed that USGS Open File Reports are fully peer reviewed, just like any USGS report would be. Each report is reviewed for quality control purposes by two colleagues, a supervisor, a water specialist, and a data specialist; projects are also reviewed at the proposal level before the study begins. The Bureau of Land Management (BLM) and the California Water Board (CWB) funded the South Yuba River Study to determine mercury characterization and speciation, to characterize mercury levels in biota, and to evaluate the viability of suction dredging as a means to remove mercury from the watershed. In the study, the research chemist conducted a dry run with a 3-inch-diameter suction dredge in a low-mercury-level area, and he found little mercury (as expected). He planned to run another test in 2008 with a larger diameter dredge at a hotspot (a location known to have high levels of mercury), but CWB objected because of concern the test would cause more damage to the environment. According to the research chemist, CWB did not want dredging to be the solution to the mercury problem; instead, CWB wanted to ban suction dredging, which it did in 2008.

The research chemist emphasized that USGS is strictly a science agency with no regulatory function. USGS is concerned only with collecting and providing data while other agencies decide policy. Because the research chemist was precluded from determining whether dredging mobilizes mercury through direct testing (i.e., testing with the large diameter dredge), the second part of the study instead focused on characterizing the sedimentation process in the laboratory. The team also conducted some biological monitoring of mercury levels found in invertebrates within the study sites. The research chemist claimed he did not expect to find conclusive results in the 1 or 2-day invertebrate testing because the methylmercury integration process takes weeks to months, but the team collected what little data it could anyway. Additionally, lab simulations of mercury mobilization using the collected sediment samples were designed to show how mercury would transform (i.e., become methylated and/or reactive) if it was transported and deposited downstream as it would as a result of suction dredging.

The research chemist received the FOIA response containing biological mercury data; BLM paid

for a biological mercury study from 1999 to 2004 with samples taken from over 220 sites. He stated that he did not hide the additional data, but simply did not incorporate it into the South Yuba River Study because the older samples originated from different locations under unknown conditions. He did not know whether the additional data would have changed the conclusions of the report. He admitted to speculating that dredging may impact mercury levels in biota based on the results of his study; however, he also emphasized in the conclusion section of the South Yuba River Study that more study is required to verify the relationship between suction dredging and mercury level increases in biota. He believed the state may have selectively used the data from the South Yuba River Study for its Environmental Impact Report (EIR), but claimed he cannot control how his report is used by other entities (this EIR contributed to the legislative ban on suction dredge mining in California waters).

The research chemist confirmed that he sits on an advisory board for TSF, as do members of many other Federal and State agencies. He described TSF as a non-profit advocacy group in Nevada City, CA, which has completed several projects in the Sierra Nevada region related to mining and the environment. He classified his relationship with TSF as purely professional, and stated he keeps his distance because the chief executive officer of TSF has become a "target" due to her strong anti-mining stance. The research chemist donated his time to TSF by reviewing reports to ensure TSF was citing USGS reports accurately. He also attended TSF meetings, with many other agencies in attendance, to discuss environmental issues associated with mining. He claimed that TSF is trying to change laws and raise money for anti-mining lobbying, but that USGS is not involved in regulation or advocacy and has no bias regarding mining.

SUBJECT

Research chemist, USGS.

DISPOSITION

This investigation is closed with no further action by this office. The allegations have been reviewed by this office, including consultations with the USGS ethics officer and the USGS SIO, and determined to be unsubstantiated.