Committee on Resources
Subcommittee on Energy & Mineral Resources

Statement

WRITTEN TESTIMONY OF GRANT DAVIS,
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before the
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON RESOURCES,
SUBCOMMITTEE ON ENERGY & MINERAL RESOURCES
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Regarding
H.R.2753, THE ABANDONED MINE RESTORATION ACT OF 1999

Good morning Madame Chair and members of the Subcommittee on Energy and Mineral Resources of the U.S. House of Representatives Committee on Resources. Thank you very much for providing me with the opportunity to appear before you today in support of H.R. 2753, The Abandoned Mine Restoration Act Of 1999. This bill will authorize the Secretary of the Army to carry out a program for the restoration of abandoned mine sites.

My name is Grant Davis. I am Executive Director of The Bay Institute of San Francisco (TBI), a non profit organization founded in 1981 and located in San Rafael, California, just north of the Golden Gate Bridge. TBI is dedicated to the protection and restoration of the ecosystems of the San Francisco Bay, the Sacramento-San Joaquin Delta and the rivers, streams and watersheds tributary to the estuary. This ecosystem is one of the largest and most important estuaries of the Western United States. TBI is also devoted to the principal that sound science should inform the decision making process as much as possible.

TBI was one of the three environmental groups that signed the historic Bay-Delta Accord in 1994, which formed a multi-agency and stakeholder cooperative process known as the CALFED Bay-Delta Program to address the water management and environmental problems associated with the Bay-Delta system. The mission of the CALFED Program is to develop a long-term, comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

CALFED's ecosystem restoration program is considered to be the most comprehensive and most inclusive environmental restoration program in the United States. It provides a new perspective to restoration science by focusing on the rehabilitation, protection or restoration of ecological processes that create and maintain habitats needed by fish, wildlife and plant species dependent on the Delta and its tributary systems. By restoring the natural processes that create and maintain diverse and vital habitats, CALFED aims to meet the needs of multiple plant and animal species while reducing the amount of human intervention required to maintain habitats.

On behalf of the Board of Directors of TBI, I truly appreciate the opportunity to be here to provide testimony in support of H.R. 2753. This legislation will help us to better coordinate and respond to the environmental and water quality problems associated with abandoned and inactive non-coal mines. This bill is significant for several reasons. First, it will enable us better define and determine the extent of the abandoned mine problem. Second, it will make additional tools and technical resources available to states and local communities so that they may address the many significant impacts abandoned mines have had on streams, wetlands and other important water resources. Third, and perhaps most important, it provides support and authority for an ecosystem restoration approach that will greatly assist us in the actual restoration of priority abandoned and inactive hardrock mine sites throughout the west.

H.R. 2753 will help fill a tremendous void that exists in engineering expertise and help non-federal entities address the problems presented by abandoned mines. Since the disbanding of the Bureau of Mines, there is no entity in the federal government that non-federal sponsors can approach for help to inventory problems associated with non-coal abandoned mines. This program will also very likely help us to develop more cost-effective cleanup approaches to the very challenging water quality issues raised by abandoned mines.

My observations regarding the need for The Abandoned Mine Restoration Act of 1999 and the coordination among federal, state, regional, and local levels required to implement the program, reflect our organization's nineteen-year history working to protect and restore the San Francisco Bay-Delta ecosystem. Because of TBI's specific focus, my experience and comments in support of H.R. 2753 have an emphasis on the state of California and the San Francisco Bay-Delta ecosystem.

THE SAN FRANCISCO BAY-DELTA ECOSYSTEM:

The Bay-Delta ecosystem is an intricate web of waterways created at the junction of the San Francisco Bay and the Sacramento and San Joaquin Rivers and the watershed that feeds them. The estuary, where fresh water from the Sacramento and San Joaquin Rivers flowing down toward the San Francisco Bay mixes with salt water from the Pacific Ocean, touches the lives of millions of Californians. Nearly two-thirds of all Californian's depend on this estuary for their water supply. Fresh water flows through the Delta - a network of natural and man-made waterways - helps to supply two thirds of the state's population with drinking water, and irrigate 200 different types of crops on the Central Valley, including 45 percent of the nation's fruits and vegetables.

The Bay-Delta is a distinctive estuary ecosystem that supports more than 750 species of fish, animals, and birds, including waterfowl migrating on the Pacific Flyway. It supplies and sustains fisheries, wildlife refuges, and 40,000 of critical wetlands. The biological health and biodiversity of the ecosystem depends upon the freshwater flows through the estuary.

Pollution in the Delta is a serious concern today, because it is the source of drinking water and occasionally toxic to aquatic organisms. Delta waters contain elevated concentrations of pathogens, pesticides, trace metals, salinity, and organic carbon.

MINING'S LEGACY:

Large-scale mining operations were initiated by the discovery of gold at Sutter's Mill in January of 1848. Early gold mining practices were particularly destructive, as miners quickly discovered that displacing rivers from their channels provided the easiest way of gaining access to the richest alluvial gold deposits. During the 1850's, gold-bearing rivers were blocked by temporary dams and channeled out of their beds as soon as

spring flows receded. In 1853, the introduction of of hydraulic mining techniques allowed mining on a much greater scale.

Enormous amounts of sediment called "hydraulic mining debris" were washed into local rivers and streams. About 1.5 billion cubic yards, about eight times the amount of material excavated in the building of the Panama Canal, was washed from the hills by these mines. The disposal of these sediments in Central Valley streams proved highly disruptive to navigation, flood control, agriculture, and the ecology of many native species. In the Sacramento Valley, mining debris deposits covered over 39,000 acres of newly established farmland, and huge amounts of debris were deposited in natural floodplains.

Abandoned mines discharged, and in many cases continue to discharge, large amounts of sediment-laden acidic, metal-laced drainage, which has adversely impacted streams immediately below their discharge points. Acid mine drainage, by far the greatest water quality problem, form primarily when water and oxygen come in contact with mine tailings, waste rock piles, and underground tunnels and workings of mines that process pyretic ores. This reaction produces sulfuric acid that dissolves metals in the surrounding rock. This drainage continues to discharge into surface waters. Although primarily associated with sulfide ores that were processed for iron, copper, cadmium, and zinc, acid mine drainage can also form in wastes from gold and mercury mines. Several studies have found that discharges from these mines have completely eliminated aquatic life from about 54 miles of streams, caused numerous fish kills, and violations of state water quality standards.

Abandoned mines pose a serious and difficult pollution control dilemma for the Bay-Delta and effectively addressing this issue is going to require ever more sophisticated approaches, like H.R. 2753 advances.

For more detailed information about the ecological impacts on the Bay-Delta estuary caused by mining over the years, I have made available to the Subcommittee a copy of one of TBI's reports entitled, *From Sierra to the Sea, The Ecological History of the San Francisco Bay-Delta Watershed*.

SCOPE OF THE ABANDONED MINE PROBLEM IN CALIFORNIA:

California has an estimated 30,000 abandoned and inactive mine sites. However, new research by the California Department of Conservation's Office of Mine Reclamation indicates that the actual number may be as high as150,000 sites. Recent figures reveal that only about twenty percent of these abandoned mine sites have been included in the older databases, and of those, less than ten percent are located accurately. This means, in the case of California, about eighty percent of the problem is still unknown. While California is currently working diligently to identify and inventory these sites under the Department of Conservation, and an Abandoned Mine Task Force has been established, they are under-funded and under-staffed to accomplish this monumental task.

Mines that ceased operations before reclamation was required and before various environmental regulations were enacted are causing serious safety and environmental problems throughout the State. In faster-growing areas of the California and high-use recreational areas, these old mines can cause real safety threats to the population. The low level of knowledge about the location and effects of abandoned mines is becoming more evident in the face of new disclosure requirements for land-use planning and development.

Clearly, contamination from abandoned mine sites is degrading some of California's most precious public and private lands, from the Sierra and coastal river watersheds to the Bay-Delta ecosystem, as well as water quality of the state.

IRON MOUNTAIN MINE:

On example of the size, scale, and complexity of the abandoned mine problem in California is a recent front-page article about Iron Mountain mine that appeared in the San Francisco Chronicle on March 23rd. The headline read "World's Worst Water Found Near Redding - Acidity at Iron Mountain Mine Stuns Scientists". Scientists found that water found deep inside this abandoned mine was so contaminated with runoff from sulfur mines and other extractive industries that conventional chemical measures no longer worked. In fact, the article claims the most acidic water sample ever taken for acid found outside a laboratory in a natural setting, was taken at Iron Mountain.

Mining of sulfide ore was conducted at Iron Mountain from the 1860's until the 1960's. The ore was used to make sulfur for Bay Area oil refineries and to make fertilizer. Cooper and other precious metals were also mined intermittently. Iron Mountain is a Superfund site, and H.R. 2753 specifically does not provide the Corps authority for involvement in such sites. However, I think the article, coupled with the fact that we have little or no knowledge about eighty percent of the problem, illustrates the urgency of the situation. I have also included a copy of the Chronicle article with my testimony.

THE PROBLEM OF MERCURYAND ARSENIC:

Mercury and arsenic are of particular concern with regard to San Francisco Bay. They were widely used in the amalgamation process employed to extract metal from ores. Runoff from abandoned mines contains high concentrations of both, and today, water quality standards are locally exceeded in the Sacramento River Basin and Delta.

Mercury is found throughout the estuary in concentrations above EPA acceptable levels in water, sediment, and organisms and has been conveyed to this region by the waters of the Sacramento and San Joaquin rivers.

Located on the central coast of California, the Bay-Delta system functions as the only drainage outlet for waters of the Central Valley. It also marks a natural topographic separation between the northern and southern coastal mountain ranges. The coastal mountain range contains one of the world's great geologic deposits of mercury. This mercury was mined intensively during the late 1800s and early 1900s primarily in support of gold mining in the Sierra Nevada where the mercury was used in the gold extraction process.

About 7.6 million pounds of mercury from cinnabar mines in the Coast Range were transported to the Sierra Nevada gold mines for use in gold amalgamation. Much of that mercury remains in the proximity of inactive gold mines or in downstream sediments, especially in the Feather, Bear, and Yuba River watersheds. The Sierra Nevada has the highest concentration of abandoned mine sites and is a source of a majority of the poor water quality in the Delta. The combination of the abandoned Coast Range mercury mines and the mercury used for extractive purposes in the Sierra Nevada, continues to make the San Francisco Bay-Delta estuary and it's inhabitants, the mercury depository for California.

This mercury and arsenic situation poses a serious ecological threat to the entire ecosystem, because it is known to bioaccumulate in aquatic organisms. Bioaccumulation also occurs with other heavy metals, such as chromium, lead, zinc, copper, and selenium, which have also contributed to limits on fish consumption in the Bay. The agricultural community is also threatened by a continued dependence on irrigation waters that contain high concentrations of heavy metals. As a result, increasing levels of mercury and selenium in wildlife refuges and San Francisco Bay pose significant threats to humans and to these critically important

wetlands along the Pacific Flyway.

ECOSYSTEM RESTORATION MANDATE OF THE CORPS:

Historically, two main objectives of the Army Corps of Engineers have been the maintenance our navigational waterways and flood protection. Increasingly, under the National Environmental policy Act of 1969 and Federal Water Pollution Control Act of 1972, known as the Clean Water Act the Corps has been given more authority to regulate the discharge of dredged or fill material into our Nation's wetlands. More recently, Congress provided additional environmental protection authority to the Corps under the Water Resources Development Act (WRD A) of 1986 and subsequent WRDAs.

Clearly, one of the more notable features of this legislation is that it provides additional "ecosystem restoration" authority to the Corps and further links environmental quality and economic development.

Last year, Congress recognized the need for additional resources to address abandoned mine problems in the west by approving Section 560 of the Water Resources Development Act of 1999 (WRDA). Specifically, this provision authorizes the Corps of Engineers to provide technical assistance beyond the reconnaissance phase to other federal agencies and non-federal interests to address abandoned and inactive mine restoration problems.

Previous experience and current involvement with three related ecosystem restoration projects of the Corps of Engineers give me reason to believe that they are well prepared to help address the very serious environmental and water quality needs caused by past activities at these abandoned mine sites.

SONOMA BAYLANDS:

One good example of the expanded role of ecosystem restoration for the Corps is a 400-acre wetland restoration known as the Sonoma Baylands in Sonoma, California. This pilot wetland restoration project put to beneficial reuse material that had been dredged from the Port of Oakland's harbor -- material that would otherwise have been disposed of as waste inside San Francisco Bay or the Pacific Ocean beyond the Golden Gate Bridge. This pioneering project was only made possible by a comprehensive and coordinated approach; much like H.R. 2753 will help to make possible.

The Sonoma Baylands has proven to be a win-win solution for the Bay Area. The long-term monitoring program, like those that will be required by this Act, has already provided useful information regarding the science behind wetland restoration using dredge material. In fact, that monitoring information obtained as part of the Sonoma Baylands project has already been used to better inform and improve upon another related ecosystem restoration project of the Corps of Engineers authorized by Congress last year, the Hamilton Army Airfield Wetland Restoration Project.

HAMILTON WETLAND RESTORATION PROJECT:

This wetland restoration project being constructed on an old 700-acre cement runway in Novato, California is building upon the success of the Sonoma Baylands project. It is another good example of a Corps ecosystem restoration project, using clean dredge material that will add a significant amount of wetland habitat back to San Francisco Bay. This particular project, when combined with an adjacent property known as Bel Marin Keys Unit V could ultimately provide an additional 2,300 acres of wetland restoration.

However, it will also require the type of comprehensive vision, technical sophistication and planning that the ecosystem restoration authority of the Corps can provide.

SAN PABLO BAY WATERSHED RESTORATION STUDY:

The Bay Institute has been very involved in another Corps ecosystem restoration effort called the San Pablo Bay Watershed Restoration Study. This is a broad regional effort involving multiple jurisdictions that is designed to help non-federal project sponsors access design, planning and technical expertise from the Corps. This process will identify and provide a wonderful vehicle to implement numerous ecosystem restoration projects.

FEDERAL SUPPORT FOR INCREASED WATER USE EFFICIENCY:

While I have the opportunity, I feel compelled to mention one other related area in need of greater federal involvement and attention. This legislation may very well not be the appropriate vehicle, but I will raise the issue just the same. We need to be investing additional federal resources into developing new pollution prevention mechanisms and strategies that will promote greater efficiency with our natural resources, particularly ones that help remove heavy metals at their source, prior to entering our nation's estuaries and waterways.

The Bay Institute believes the most reliable new source of water in California lies with efficiency improvements among our existing users. There are wonderful examples that demonstrate that public investment in resource efficiency provide highly cost-effective local economic development. The combination of pollution prevention with water conservation, particularly as it addresses water quality, will be especially beneficial for our nation's estuaries. The concept of approaching these goals within the context of local economic development creates additional opportunities.

In other states around the country, identification of historic and inactive mines has been the first step in obtaining state and federal monies to cleanup some of the more serious problem sites and to close dangerous adits and shafts. Recognizing the potential for economic, environmental and social benefits to downstream users of impaired streams, state and federal agencies, municipalities, and citizen groups need to be working together more than ever to address abandoned mine issues throughout the United States. By leveraging federal resources with those of the state and local project sponsors, The Abandoned Mine Restoration Act of 1999 will help encourage greater communication and cooperation around this challenging and critically important issue.

Madame Chair, this concludes my prepared remarks. Again, I want to thank the Committee for holding this hearing and drawing attention to this important piece of legislation. I will be happy to try to answer any questions that you might have at the appropriate time.

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