

**Michelle I. Hornberger**

U.S. Geological Survey, Water Resource Division  
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**Position:** Research Physical Scientist, National Research Program

**Academic qualifications:**

Master of Science in Marine Science. Moss Landing Marine Laboratories, San Jose State University, May 1991.

Bachelor of Arts in Environmental Studies (Major) and Geology (Minor). University of California, Santa Barbara, August 1985.

**Years as practicing researcher:** 12

**Research specialty/interest:** Bioaccumulation of trace elements in aquatic environments.

**Professional Societies:**

- Society of Toxicology and Chemistry
- North American Benthological Society
- Ecological Society of America
- American Institute of Biological Sciences

**Professional Experience:**

Physical Scientist, NRP, U.S. Geological Survey, WRD 1991-Present

- Project lead in studying processes determining the spatial and temporal trends of trace metals in San Francisco Bay. Sediment cores, surface sediments and bioindicators are studied to determine metal loads, bioavailability and effects to resident organisms.
- Physical and environmental factors are studied to understand their control on natural variability in metal bioavailability studies.
- Tissue contaminant studies on benthic invertebrates are conducted to understand processes that control metal bioavailability of metals downstream from a mine-impacted site.

Post-Graduate Researcher, Sea Grant Marine Advisory Program, University of California Cooperative Extension, 1990-1991.

- Provided technical information on marine environmental issues to commercial fisherman, public interest groups, educators and the general public.

Research Assistant, Drs. M. Ledbetter and J. Oliver, Moss Landing Marine Lab, 1989-1990.

- Described the depositional and ecological history of Elkhorn Slough using sediment cores.

Physical Science Technician, U.S. Geological Survey, Geologic Division, 1985-1989.

- Performed mineral separations and prepared samples for isotopic analysis.
- Mapped geologic features in proposed Wilderness Study Area sites.

## **Publications:**

- Dodge, K.A., **Hornberger, M.I.**, and David, C.P.C., 2001. Water- quality, bed sediment, and biological data (October 1999 through September 2000) and statistical summaries of data for streams in the Upper Clark Fork Basin, Montana. *U. S. Geological Survey Open File Report 01-379*. Helena, Montana. 95p.
- Giddings, E.M., **Hornberger, M.I.**, and Hadley, H.K. 2001. Trace-metal concentrations in sediment and water and health of aquatic macroinvertebrate communities of streams near Park City, Summit County, Utah. *U.S. Geological Survey Water-Resources Investigations Report 01-4213*. Salt Lake City, Utah. 22 pp.
- Hornberger, M.I.**, Luoma, S.N., Cain, D.J., Parchaso, F., Brown, C.L, Bouse, R.M., Wellise, C. and Thompson, J.K. 2000. Linkage of bioaccumulation and biological effects to changes in pollutant loads in South San Francisco Bay. *Envrion. Sci. Technol.*, v. 34, 2401-2409.
- Hornberger, M.I.**, Luoma, S.N., van Geen, A., Fuller, C., and Anima, R. 1999. Historical trends of metals in the sediments of San Francisco Bay, California. *Marine Chemistry*, v. 64, issue 1 / 2, pp. 39-55.
- Hornberger, M.I.**, Luoma, S.N., Cain, D.J., Parchaso, F., Brown, C.L., Bouse, R.M., Wellise, C., and Thompson, J. 1999. Bioaccumulation of metals by the bivalve *Macoma balthica* at a site in South San Francisco Bay between 1977 and 1997: Long-term trends and associated biological effects with changing pollutant loadings. *U. S. Geological Survey Open File Report 99-55*. Menlo Park, California. 44 pp.
- Lapenis, A.G., Torn, M.S., Harden, J.W., Hollocker, K., Babikov, B.V., Timofeev, A.I., **Hornberger, M.I.** and Nattis, R. 2000. Contamination of Russian soils from 1893 to present. *EOS Transactions*, v. 81, no. 6, pp. 53, 59-60.
- Emmett, R. L., Llansó, R., Newton, J., Thom, R., **Hornberger, M.**, Morgan, C., Levings, C., Copping, A., and Fishman, P. 2000. Geographic signatures of North American west coast estuaries. *Estuaries*, 23:765-792.
- Dodge, K.A., **Hornberger, M.I.**, and Bouse, R.M. 1999, Water-quality, bed-sediment, and biological data (October 1997 through September 1998) and statistical summaries of data for streams in the upper Clark Fork River Basin, Montana: U.S. Geological Survey Open-File Report 99-251, 102 p.
- Dodge, K.A., **Hornberger, M.I.**, and Axtmann, E.V., 1998. Water-quality, bed-sediment, and biological data (October 1996 through September 1997) and statistical summaries of data for streams in the upper Clark Fork River Basin, Montana: U.S. Geological Survey Open-File Report 98-407, 102 p.
- Luoma, S.N., Wellise, C., Cain, D.J., Brown, C.L., **Hornberger, M.I.** and Bouse, R.M., 1998. Near field receiving water monitoring of trace metals in Clams (*Macoma balthica*) and sediments near the Palo Alto and San Jose/Sunnyvale water quality control plants in

South San Francisco Bay: 1997. *U. S. Geological Survey Open File Report 98-563*.

**Hornberger, M.I.**, Lambing, J.H., Luoma, S.N., and Axtmann, E.V., 1997. Spatial and temporal trends of trace metals in surface water, bed sediment, and biota of the Upper Clark Fork Basin, Montana, 1985-95. *U. S. Geological Survey Open File Report 97-669*. Menlo Park, California. 127 p.

Dodge, K.A., **Hornberger, M.I.**, and Axtmann, E.V., 1997. Water- quality, bed sediment, and biological data (October 1995 through September 1996) and statistical summaries of data for streams in the Upper Clark Fork Basin, Montana. *U. S. Geological Survey Open File Report 97-552*. Helena, Montana. 91p.

Dodge, K.A., **Hornberger, M.I.**, and Axtmann, E.V., 1996, Water-quality, bed-sediment, and biological data (October 1994 through September 1995) and statistical summaries of data for streams in the upper Clark Fork River Basin, Montana: U.S. Geological Survey Open-File Report 96-432, 109 p.

Luoma, S.N., Cain, D.J., Brown, C.L., **Hornberger, M.I.**, Bouse, R.M., 1996. Near field receiving water monitoring of trace metals in Clams (*Macoma balthica*) and sediments near the Palo Alto and San Jose/Sunnyvale water quality control plants in South San Francisco Bay: December 1994-December 1995. *U. S. Geological Survey Open File Report 96-203*. Menlo Park, California. 90p.

Lambing, J.H., **Hornberger, M.I.**, Axtmann, E.V., and Dodge, K.A., 1995, Water-quality, bed-sediment, and biological data (October 1993 through September 1994) and statistical summaries of data for streams in the upper Clark Fork River Basin, Montana. U.S. Geological Survey Open-File Report 95-429, 104 p.

Luoma, S.N., Cain, D.J., Brown, C.L., **Hornberger, M.I.**, 1995. Near field receiving water monitoring of trace metals in Clams (*Macoma balthica*) and sediments near the Palo Alto and San Jose/Sunnyvale water quality control plants in South San Francisco Bay: June 1993-October 1994. *U. S. Geological Survey Open File Report 95-299*. Menlo Park, California. 83p.

Lambing, J.H., **Hornberger, M.I.**, Axtmann, E.V., and Pope, D.A., 1994. Water-quality, bed-sediment, and biological data (October 1992 through September 1993) and statistical summaries of data (March 1985 through September 1993) for streams in the upper Clark Fork River Basin, Montana. U.S. Geological Survey Open-File Report 94-375, 85 p.

Luoma, S.N., Cain, D.J., Brown, C.L., **Hornberger, M.I.**, 1993. Trace Metals in clams (*Macoma balthica*) and sediments at the Palo Alto Mudflat in South San Francisco Bay: June 1992-June 1993. *U. S. Geological Survey Open File Report 93-500*. Menlo Park, California. 52p.

Luoma, S.N., Cain, D.J., Brown, C.L., **Hornberger, M.I.**, 1992. Trace Metals in Clams (*Macoma balthica*) and sediments at the Palo Alto Mudflat in South San Francisco

Bay: May 1991-May 1992. U. S. Geological Survey Open File Report 92-456. Menlo Park, California. 51p.

**Hornberger, M.I.**, 1991. Paleoenvironment of Elkhorn Slough and Surrounding Wetland Habitats: A Geological Study using an Ecological Approach: Master's Thesis, Moss Landing Marine Laboratories, San Jose State University.

Miller, R.F., Gray, F., Hassemer, J.R., Hanna, W.F., Pitkin, J.A., **Hornberger, M.I.**, and Jones, S.L., 1988. Mineral Resources of the Eagletail Mountains Wilderness Study Area, La Paz, Maricopa, and Yuma Counties, Arizona: U.S. Geological Survey Bulletin 1702-G.

Peterson, J.A., Tosdal, R.M., and **Hornberger, M.I.**, 1987. Geologic Map of the Table Top Mountain Wilderness Study Area, Pinal and Maricopa Counties, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map, MF-1951.