

James Meador

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Education

- 1988 **Ph.D. Aquatic Toxicology**, University of Washington, Seattle, WA.
1981 **M.S. Biology/Physiology**, San Diego State University, San Diego, CA.
1975 **B.A. Zoology**, Humboldt State University, Arcata, CA.

Work Experience

- 1997- present **Team Leader**, Hazard Assessment and Risk Modeling Team.
1992 – 1994 **Team Leader**, Toxic Metals Research Group and Analysis Laboratory.
1990 – present **Fisheries Research Biologist**, National Marine Fisheries, NOAA.
1989 – 1990 **Research Associate**, National Research Council. Research Associateship at the National Marine Fisheries Laboratory in Seattle (Dr. U. Varanasi).

1988 – 1989 **Senior Associate Scientist**, Envirosphere Company.
1983 – 1988 **Predoctoral Research and Teaching Assistant**, Univ. of Washington.
1982 – 1983 **Analyst**, Computer Sciences Corporation, San Diego, CA.
1981 – 1982 **Senior Research Biologist**, Naval Ocean Systems Center, San Diego.
1975 – 1981 **Staff Research Associate**, Scripps Institution of Oceanography, University of California, San Diego.

Teaching Experience

- 1986 **Predoctoral Teaching Assistant**, School of Oceanography, University of Washington. Karl Banse.
1984 - 1987 **Predoctoral Teaching Assistant**, School of Fisheries, UW. Frieda Taub.
1982 **Instructor**, Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE), Ensenada, B.C., Mexico. Physiological ecology.

Conferences/Sessions

- "Predicting Toxic Effects Based on Contaminants in Tissue". 2008. Society of Environmental Toxicology and Chemistry (SETAC), national meeting, Tampa, FL. Co-organizer and co-chair of session.
"The Tissue Residue Approach for Toxicity Assessment: A Pellston Workshop". An international workshop sponsored by the Society of Environmental Toxicology and Chemistry (SETAC). Organizer and chair. Workshop held June 2007. Proceedings will be published as a book.
"The Tissue Residue Approach and Mode of Action for Assessing Toxicity". 2004. Pacific Northwest SETAC, Port Townsend, WA. Organizer and chair.
"Assessing Toxicity: Critical Body Residue Approach". 2003. SETAC, national meeting, Austin, TX. Organizer and chair of session.

"Sediment Quality Guidelines". 2003. Pacific Northwest SETAC, Port Townsend, WA.
Organizer and chair of session.

"Sediment Chemistry and Toxicology". 2002. SETAC, national meeting, Salt Lake City, UT. Co-chair of session.

"Transboundary Contamination". 1995. SETAC World Congress, Vancouver, B.C.
Organizer and chair.

Fourth Annual Organotin Symposium - Oceans 89 Conference, Seattle, WA. 1989.
Organizer and chair.

Affiliations

Review editor; journal *Aquatic Biology* (Otto Kinne, Editor in Chief).
Staff review editor; journal *Marine Ecology Progress Series* (Otto Kinne, Editor in Chief).
Past Board member, Pacific Northwest chapter of the Society of Environmental Toxicology and Chemistry.
Society of Environmental Toxicology and Chemistry (national).
Research advisor, National Research Council Associateship Program.

Awards

Paper of the Year for 2006 from the journal *Human and Ecological Risk Assessment* for the category of ecological risk assessment.

NOAA Fisheries Bronze Metal. 2006. For innovative work with an interdisciplinary team on a complex Biological Opinion for ESA listed salmonids.

Public Service Award 2005. Seattle Federal Executive Board. For work on the Potlatch mill Biological Opinion.

Several performance awards (NOAA).

University of Washington, School of Fisheries. Geil Memorial Scholarship 1986, Egtvedt Scholarship 1985, Summer Research Scholarship 1986 and 1988.

Peer reviewer

Journals

Aquatic Toxicology, Marine Biology, Marine Environmental Research, Environmental Science and Technology, Comparative Biochemistry and Physiology, Marine Pollution Bulletin, Ecological Applications, Marine Ecology Progress Series, Archives of Environmental Contamination and Toxicology, Bulletin of Environmental Contamination and Toxicology, Water Research, Aquaculture Engineering, Environmental Toxicology and Chemistry, Integrated Environmental Assessment and Management, Science of the Total Environment, and several book chapters (e.g., ASTM and SETAC special publications).

Organizations

Environmental Protection Agency, NOAA Sea Grant, Hudson River Foundation, Puget Sound Water Quality Authority, Washington State Dept. of Ecology, ASTM protocols under development, NMFS, NOAA Hazmat, California Dept. of Fish and Game, CALFED Bay-Delta Program, the Florida Wet Environments Program, and the Virginia Institute of Marine Sciences, Coastal Response Research Center at the University of New Hampshire.

Panels

Appointed to the U.S. EPA Science Advisory Panel for Pesticides (FIFRA) as an ad hoc member (2008). Attended a panel meeting in Washington, D.C. from 28 – 31 October 2008 to provide peer review on proposed methods to assess ecological risks for pesticides with persistent, bioaccumulative, and toxic characteristics.

Member of a peer-review panel for U.S. EPA Region 2 to evaluate the proposed framework for human and ecological risk assessment related to dredging activities in the New York/New Jersey area. 2002 – 2004.

Invited participant for SETAC sponsored Pellston Workshop on Sediment Quality Guidelines. Butte, MT. 2002.

NOAA Related Activities

Consulting

Frequent consulting with state agencies (e.g., Dept. of Ecology, Dept. Fisheries and Wildlife), Federal agencies (EPA, NOAA), consulting firms (e.g., Parametrix, PTI), Universities, other agencies (e.g., Cal Regional Water Quality Board, San Diego Sanitation District), and miscellaneous groups and individuals.

Substantial contribution to EPA's workgroup on tributyltin sediment criteria at local superfund sites.

Substantial contribution to determining guidelines for the use of treated wood in the Columbia River under the Endangered Species Act.

Substantial contribution to the NMFS Biological Opinion on Water Quality Criteria for Idaho and for the Potlatch Mill in Lewiston, Idaho.

Substantial contribution to various NMFS Biological Opinions for several local projects in Washington and Idaho.

Training

Designed, organized, and managed a statistics class for the Northwest Fisheries Science Center. Forty individuals from the center attended two 10-week sessions that covered basic to advanced biometrics.

Organizer of Environmental Conservation Division seminar series 1991-1996.

Presentations:

I have presented papers every year for that last 20 years at the national meeting of the Society of Environmental Toxicology and Chemistry (SETAC). Additionally, I have presented papers at various national and regional meetings such as the Puget Sound Water Quality meetings, the International Conference on Metals in the Environment, and various workshops.

Invited Presentations

Society for Environmental Toxicology and Chemistry (SETAC), national meeting, 1994, 1998, 2000-2007.

Sediment Advisory Group. June 2002. Seattle, WA.

North Pacific Marine Science Organization (PICES), Victoria, B.C. Oct. 2001.

International Navigation Association (PIANC) meeting held in Seattle, WA. June 2001.

US-Japan International Workshop for Endocrine Disruptors. 2001. National Institute of Environmental Studies, Tsukuba, Japan. Invited presentation.

Peer-Reviewed Publications

- Beyer WN and **Meador JP** (editors). Environmental Contaminants in Biota: Interpreting Tissue Concentrations. Taylor and Francis, Boca Raton, FL. 28 chapters. In review.
- Carls MG and **Meador JP**. A perspective on the relationship between environmental chemistry and toxicity of petrogenic PAHs to developing fish. In review.
- Bravo CF, Myers MS, Arkoosh MR, **Meador JP**, Buzitis J, Collier TK, Laetz C, Morrow JD, Loge FJ, Stafford C and Curtis LR. Biomarker response in juvenile rainbow trout *Oncorhynchus mykiss* exposed to a high molecular weight PAH mixture in the diet for 50 days and challenge to *Aeromonas salmonicida*. In review.
- Meador JP**, Adams W, Escher BE, McCarty L, and McElroy A (eds). A Critical Review of The Tissue Residue Approach for Toxicity Assessment. Results of a Pellston Workshop. SETAC Publications. 7 chapters. In review.
- Meador JP**, McCarty LS, Escher BI, and Adams WJ. 2008. The tissue-residue approach for toxicity assessment: concepts, issues, application, and recommendations. Journal of Environmental Monitoring. In press. Published online Oct 2008. DOI: 10.1039/b814041n. One of 10 invited critical reviews for the journal's 10th anniversary issue.
- Johnson LL, Arkoosh MR, Bravo CF, Collier TK, Krahn MM, **Meador JP**, Myers MS, Reichert WR, and Stein JE. 2008. The effects of polycyclic aromatic hydrocarbons in fish from Puget Sound Washington. In: *The Toxicology of Fishes*. Di Giulio R and Hinton D (eds). CRC Press, Taylor & Francis Group, Boca Raton, FL, USA. Pp. 877-923.
- Meador JP**. Polycyclic Aromatic Hydrocarbons. 2008. In: Encyclopedia of Ecology. Jørgensen SE and BD Faith (eds). Volume 4, pp. 2881-2891. Elsevier, Oxford, United Kingdom.
- McIntyre JK, Baldwin DH, **Meador JP**, Scholz NL. 2008. Chemosensory deprivation in juvenile coho salmon exposed to dissolved copper under varying water chemistry conditions. *Environmental Science and Technology* 42:1352-1358.
- Meador JP**, Buzitis J, and Bravo C. 2008. Using fluorescent aromatic compounds (FACs) in bile from juvenile salmonids to determine exposure to polycyclic aromatic hydrocarbons. *Environmental Toxicology and Chemistry* 27:845-853.
- Meador JP**, Sommers FC, Ylitalo GM, Sloan CA. 2006. Altered growth and related physiological responses in juvenile chinook salmon (*Oncorhynchus tshawytscha*) from dietary exposure to polycyclic aromatic hydrocarbons (PAHs). *Canadian Journal of Fisheries and Aquatic Sciences* 63:2364-2376.
- Spromberg JA and **Meador JP**. 2006. Relating chronic toxicity responses to population-level effects: A comparison of population-level parameters for three salmon species as a function of low-level toxicity. *Ecological Modelling* 199:240-252.
- Meador JP**. 2006. Rationale and procedures for using the tissue-residue approach for toxicity assessment and determination of tissue, water, and sediment quality guidelines for aquatic organisms. *Human and Ecological Risk Assessment*. 12:1018-1073. Selected as Paper of the Year by HERA for the category Ecological Risk Assessment.

- Spromberg JA and **Meador JP**. 2005. Population-level effects on chinook salmon from chronic toxicity test measurement endpoints. *Integrated Environmental Assessment and Management* 1:9-21.
- Meador JP**, Ernest DW, and Kagley A. 2005. A comparison of the non-essential elements cadmium, mercury, and lead found in fish and sediment from Alaska and California. *Science of the Total Environment* 339:189-205.
- Meador JP**, Sommers FC, Wolotira RJ, and Kubin L. 2005. Conducting Dose-Response Feeding Studies with Salmonids: Growth as an Endpoint. In: *Techniques in Aquatic Toxicology, Volume 2*. Ostrander GK (ed). CRC Press, Boca Raton, FL. Chapter 5, pp. 93-115.
- Moore DW, Baudo R, Conder JM, Landrum PF, McFarland VA, **Meador JP**, Millward RN, Shine J, Word JQ. 2005. Bioaccumulation in assessment of sediment quality: uncertainty and potential application. In: *Use of Sediment Quality Guidelines and Related Tools for the Assessment of Contaminated Sediments*. Wenning RJ, Batley GE, Ingersoll CG, and Moore DW (eds). Society of Environmental Toxicology and Chemistry (SETAC). Chapter 11. pp. 429-495.
- Word JQ, Albrecht BB, Anghera MI, Baudo R, Bay SM, Di Toro DM, Hyland JI, Ingersoll CG, Landrum PF, Long ER, **Meador JP**, Moore DW, O'Connor TP, and Shine JP. 2005. Predictive ability of sediment quality guidelines. In: *Use of Sediment Quality Guidelines and Related Tools for the Assessment of Contaminated Sediments*. Wenning RJ, Batley GE, Ingersoll CG, and Moore DW (eds). Society of Environmental Toxicology and Chemistry (SETAC). Chapter 4. pp 121-161.
- Meador JP**, Ernest DW and Kagley A. 2004. Bioaccumulation of arsenic in marine fish and invertebrates from Alaska and California. *Archives of Environmental Contamination and Toxicology* 47:223-233.
- Meador JP**. 2003. Bioaccumulation of PAHs in Marine Invertebrates. In: *PAHs: An Ecotoxicological Perspective*. Douben PET (ed). John Wiley and Sons, Pubs. Chapter 9, pp. 147-171.
- Burgess RM, Ahrens MJ, Hickey CW, Den Bensten PJ, Ten Hulscher D, van Hattum B, **Meador JP**, Douben PET. 2003. An Overview of the Partitioning and Bioavailability of PAHs in Sediments and Soil. In: *PAHs: An Ecotoxicological Perspective*. Douben PET (ed). John Wiley and Sons, Pubs. Chapter 7, pp. 99-126.
- Stein JE, Tilbury KL, **Meador JP**, Gorzelany J, Worthy GAJ, and Krahn MM. 2003. Ecotoxicological Investigations of Bottlenose Dolphin (*Tursiops truncatus*) Strandings: Accumulation of Persistent Organic Chemicals and Metals. In: *Toxicology of Marine Mammals*. Vos JG, Bossart GD, Fournier M, and O'Shea TJ (eds.). CRC Press, Boca Raton, FL.
- Collier TK, **Meador JP**, and Johnson LL. 2002. Introduction. Fish tissue and sediment effects thresholds for polychlorinated biphenyls, polycyclic aromatic hydrocarbons, and tributyltin. *Aquatic Conservation: Marine and Freshwater Ecosystems* 12:489-492.
- Meador JP**, Collier TK, and Stein JE. 2002. Use of tissue and sediment based threshold concentrations of polychlorinated biphenyls (PCBs) to protect juvenile salmonids listed under the U.S. Endangered Species Act. *Aquatic Conservation: Marine and Freshwater Ecosystems* 12:493-516.
- Meador JP**, Collier TK, and Stein JE. 2002. Determination of a tissue and sediment threshold for tributyltin to protect prey species for juvenile salmonids listed by the

U.S. Endangered Species Act. *Aquatic Conservation: Marine and Freshwater Ecosystems* 12: 539-551.

- Meador JP** and Rice CA. 2001. Impaired growth in the polychaete *Armandia brevis* exposed to tributyltin in sediment. *Marine Environmental Research* 51:113-129.
- Meador JP**. 2000. Predicting the fate and effects of tributyltin in marine systems. *Reviews of Environmental Contamination and Toxicology* 166:1-48.
- Meador JP**, Ernest D, Hohn AA, Tilbury K, Gorzelany J, Worthy G, and Stein JE. 1999. Comparison of elements in bottlenose dolphins stranded on the beaches of Texas and Florida in the Gulf of Mexico over a one-year period. *Archives of Environmental Contamination and Toxicology*. 36:87-98.
- Meador JP**, Robisch PA, Clark RC, Ernest DW. 1998. Elements in fish and sediment from the Pacific coast of the United States: Results from the National Benthic Surveillance Project. *Marine Pollution Bulletin* 37:56-66.
- Meador JP**, Sibley TH, Swartzman GL, and Taub FB. 1998. Copper tolerance by the freshwater algal species *Oocystis pusilla* and its ability to alter free-ion copper. *Aquatic Toxicology* 44:69-82.
- Meador JP**, Adams NG, Casillas E, Bolton JL. 1997. Comparative bioaccumulation of chlorinated hydrocarbons from sediment by two infaunal invertebrates. *Archives Environmental Contamination and Toxicology* 33:388-400.
- Stehr CM, Myers MS, Burrows DG, Krahn MM, **Meador JP**, McCain BB, and Varanasi U. 1997. Chemical contamination and associated liver diseases in two species of fish from San Francisco Bay and Bodega Bay. *Ecotoxicology* 6:35-65.
- Meador JP**. 1997. Comparative toxicokinetics of tributyltin in five marine species and its utility in predicting bioaccumulation and toxicity. *Aquatic Toxicology* 37:307-326.
- Meador JP**, Krone CA, Dyer DW, and Varanasi U. 1997 Toxicity of sediment-associated tributyltin to infaunal invertebrates: species comparison and the role of organic carbon. *Marine Environmental Research* 43:219-241.
- Tilbury, KL, Stein JE, **Meador JP**, Krone CA, and Chan S-L. 1997. Intra- and inter-organ distribution and concentrations of chemical contaminants in tissues of harbor porpoises (*Phocoena phocoena*) from the North Atlantic Coast. *Chemosphere* 34:2159-2181.
- Kerr D and **Meador JP**. 1996. Modeling dose-response with generalized linear models. *Environmental Toxicology and Chemistry* 15:395-401.
- Rice CA, Plesha, PD, Casillas, E, Misitano, DA, and **Meador, JP**. 1996. Growth and survival of three marine invertebrate species in sediments from the Hudson-Raritan Estuary, New York. *Environmental Toxicology and Chemistry* 14:1931-1940.
- Meador JP**, Stein JE, Reichert WL, and Varanasi U. 1995. A review of bioaccumulation of polycyclic aromatic hydrocarbons by marine organisms. *Reviews Environmental Contamination and Toxicology* 143:79-165.
- Meador JP**, Casillas E, Sloan CA, and Varanasi U. 1995. Comparative bioaccumulation of polycyclic aromatic hydrocarbons from sediment by two infaunal invertebrates. *Marine Ecology Progress Series* 123:107-124.
- Meador JP**, Varanasi U, and, Chan S-L. 1993. Toxic metals in pilot whales (*Globicephala melaena*) from strandings in 1986 and 1990 on Cape Cod, MA. *Canadian Journal Fisheries and Aquatic Sciences* 50:2698:2706.

- Meador JP.** 1993. The effect of laboratory holding on the toxicity response of marine infaunal amphipods to cadmium and tributyltin. *Journal of Experimental Marine Biology and Ecology* 174:227-242.
- Meador JP**, Varanasi U, and Krone CA. 1993. Differential sensitivity of marine infaunal amphipods to tributyltin. *Marine Biology* 116: 231-239.
- Meador JP**, Taub FB, and Sibley TH. 1993. Copper dynamics and the mechanism of ecosystem level recovery in a standardized aquatic microcosm. *Ecological Applications* 3(1) 139-155.
- Varanasi U, Stein JE, Tilbury KL, **Meador JP**, Wigren CA, Clark RC, and Chan S-L. 1994. Chemical contaminants in gray whales (*Eschrichtius robustus*) stranded along the west coast of North America. *Science of the Total Environment* 145:29-53
- Meador JP** 1991. The interaction of dissolved organic carbon, pH, and total copper in the determination of ionic copper and toxicity. *Aquatic Toxicology* 19:13-32.
- Taub FB, Kindig AC, **Meador JP**, and Swartzman GL. 1991. Effects of "seasonal succession" and grazing on copper toxicity in aquatic microcosms. *Verh. Internat. Verein. Limnol.* 24:2205-2214.
- Meador JP**, Ross BD, Dinnel PA, and SJ Picquelle. 1990. An Analysis of the relationship between a sand-dollar embryo elutriate assay and sediment contaminants from stations in an urban embayment of Puget Sound, Washington. *Marine Environmental Research* 30: 251-272.
- Swartzman GL, FB Taub, C Huang, **JP Meador**, and Kindig AC. 1990. Modeling the effect of timing of copper addition in a multispecies aquatic microcosm. *Aquatic Toxicology* 17: 93-117.
- Meador JP.** 1989. Chemoreception in a Lysianassid amphipod: The chemicals that elicit food-searching behavior. *Journal of Marine Behavior and Physiology* 14:65-80.
- Taub FB, Kindig AC, Conquest LL, and **JP Meador**. 1989. Results of interlaboratory testing of the standardized aquatic microcosm protocol. In: *Aquatic Toxicology and Environmental Fate: Eleventh Volume*, ASTM STP 1007, G.W. Suter II and M.A. Lewis (eds). American Society for Testing and Materials, Philadelphia, PA. pp 368-394.
- Meador JP.** 1988. The chemical and biological factors associated with ecosystem recovery from copper-stress as exemplified by microcosms. Ph.D. dissertation, University of Washington. 230 pp. Frieda Taub, committee chair.
- Meador JP** and Present TMC. 1985. *Orchomene limodes*, new species, a scavenging amphipod from Scripps Canyon, California: Species description and analysis of morphological variation. *Journal of Crustacean Biology* 5(3): 523-538.
- Meador JP**, U'Ren SC, and Salazar MH. 1984. A flow-through bioassay system for the evaluation of organotin antifouling compounds. *Journal of Water Research* 18 (5): 647-650.
- Meador JP.** 1981. Chemoreception and food finding abilities of a lysianassid amphipod. Masters Thesis. San Diego State University, San Diego, Calif. 108 pp. Mary E. Clark, committee chair.
- Bernstein BB and **Meador JP**. 1979. Temporal persistence of biological patch structure in an abyssal benthic community. *Marine Biology* 51:179-183.
- Smith KL Jr, White GA, Laver MB, McConnaughey RR, and **Meador JP**. 1979. Free-vehicle capture of abyssopelagic animals. *Deep-Sea Research* 26:57-64.

Non-peer Reviewed Publications

- Meador JP** et al. 1994 National Benthic Surveillance Project: Pacific Coast. Trace element analyses for cycles I to V (1984-1988). NOAA Technical Memorandum NMFS-NWFSC-16. U.S. Dept. of Commerce, National Oceanic and Atmospheric Admin, National Marine Fisheries Service. 206 pp.
- Varanasi U, Stein JE, Tilbury KL, Brown DW, **Meador JP**, Sloan CA, Brown DW, Calamobokidis J, and Chan S-L. 1993. Chemical contaminants in gray whales (*Eschrichtius robustus*) stranded in Alaska, Washington, and California, U.S.A. U. S. Dept. of Commerce, NOAA Tech. Memo. NMFS-NWFSC-11, 115 p.
- Stein JE, Tilbury KL, Brown DW, Wigren CA, **Meador JP**, Robisch PA, Chan S-L, and Varanasi U. 1992. Intraorgan distribution of chemical contaminants in tissues of harbor porpoises (*Phocoena phocoena*) from the northwest Atlantic. 76 pp. NTIS No. PB93-157139.
- Varanasi U, Stein JE, Tilbury KL, Brown DW, **Meador JP**, Krahn MM, and Chan S-L. Contaminant monitoring for NMFS marine mammal health and stranding response program. In Coastal Zone 93 Proceedings of the Eighth Symposium on Coastal and Ocean Management, New Orleans, LA. Vol 3: pp. 2517-2530.
- Stein JE, Tilbury KL, Brown DW, Wigren CA, Meador JP, Robisch PA, Chan S-L, and Varanasi U. 1992. Intraorgan distribution of chemical contaminants in tissues of harbor porpoises (*Phocoena phocoena*) from the Northwest Atlantic. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS NWFSC 3, 76 p.
- Meador JP** and Cardwell RD. 1988. Effects of tributyltin in the marine environment: An update on knowledge. Proceedings of the Eight World Meeting; Organotin Environmental Programme (ORTEP). 1-3 November 1988, San Francisco, CA. pp 3-20.
- Taub FB, Kindig AC, and **Meador JP**. 1986. Interlaboratory testing of an aquatic microcosm protocol. Final Report to Food and Drug Admin. Contract 223-83-7000, Section IV of V, 160 pp.
- Meador JP**. 1986. An analysis of photobehavior in *Daphnia magna* exposed to tributyltin. Organotin Symposium, Marine Technological Society, Oceans 86 Conference, 22-25 September 1986. Washington D.C. Vol 4: 1213-1218.
- Cardwell RD and **Meador JP**. 1989. Tributyltin in the Environment: An overview and key issues. In press. Proceedings of the Organotin Symposium, Oceans 89. Sept. 18-21, 1989, Seattle, WA. Vol 2: 537-544.
- Meador JP**. 1989. The 1989 Organotin Symposium. Proceedings of the Organotin Symposium, Oceans 89. Sept. 18-21, 1989, Seattle, WA. Vol 2: 505-507.