

## Appendices

Appendix 1: Conference Agenda

Appendix 2: Conference Steering Committee Members

Appendix 3: Biographies of Speakers, Moderators, and Steering Committee Members

Appendix 4: Participants

Appendix 5: Slides from Presentations

## Appendix 1: Conference Agenda

### Sunday October 20

8:30 – 10:00 AM     **Registration** in Lobby, Radisson Hotel, Burlington, Vermont

10:00 AM – Noon     **Regional Work Groups.**

**Moderators:**

*Northeast:*     Razelle Hoffman-Contois, State of Vermont  
*Chesapeake Bay and Delaware Estuary:*   Tom Fikslin, State of Delaware  
*Southern:*     Tracy Shelley, State of South Carolina  
*Great Lakes:*   Pat McCann, State of Minnesota  
*Western:*     Bob Brodberg, State of California

2:00 – 3:30 PM     **Topical Discussion Sessions**

**A. Contaminants in Stocked Fisheries: Potential for contamination, human exposure, and human health risks.**

Moderator: Bob Brodberg, State of California

- *PCBs and Hatchery Trout in Pennsylvania—the Good, the Bad and the Ugly!* John Arway, State of Pennsylvania
- *Regulating Contaminants in Feed for Fish.* Frances Pell, US FDA, Center for Veterinary Medicine
- Round Table Discussion

**B. The Use of Composite Samples in the Development of Fish Advisories**

Moderator: Razelle Hoffman-Contois, State of Vermont

- *Issues in the Use of Composite Samples for Assessing Risks to Highly Exposed Populations.* John Persell, Minnesota Chippewa Tribe Research Lab
- *Composite Sampling Analysis of Fish.* Henry Kahn, US EPA
- Round Table Discussion

3:45 – 5:15 PM     **Topical Discussions**

**C. Addressing Multiple Pollutants in Fish**

Moderator: Eric Frohmberg, State of Maine

- *Current Guidance from EPA on Chemical Mixtures.* Roseanne Lorenzana, US EPA
- *Current Guidance from EPA on Cumulative Risk.* Ed Bender, US EPA
- Round Table Discussion

**D. TMDLs (Total Maximum Daily Loads) and the Interplay Between Water Quality Programs and Fish Advisory Programs**

Moderator: Randy Manning, State of Georgia

- *TMDLs and Fish Consumption Advisories.* Jim Pendergast, US EPA
- Round Table Discussion

6:00 – 8:00 PM     **Displays and Materials from Forum Participants**



## **Monday October 21**

- 8:00 – 8:15 AM **I. Review of Agenda and Introductions** Jeffrey Bigler, US EPA  
**Welcome:** Gus Rassam, Executive Director, American Fisheries Society
- 8:15 – 8:30 AM **II. Opening Address**
- *Trends in Chemical Pollutants in Fish.* Usha Varanasi, NOAA/Northwest Fisheries Science Center
- 8:30 – 9:15 AM **III. Update on Activities Related to the 2001 Forum**
- *New Version of the Risk Communication Guidance.* Barbara Knuth, Cornell University
  - *Relationship of TMDLs to Fish Advisories.* Jim Pendergast, US EPA
- 9:15 – 9:45 AM **IV. Reports from the Weekend Sessions**
- *Medical Workshop Report.* Henry Anderson, State of Wisconsin
  - *Report on mercury advisory worksheets.* Amy D. Kyle, University of California Berkeley
- 10:15 AM – 12:15 PM **V. Advisories for Commercial Fish: Federal, State, and Tribal Approaches**  
Moderator: Elaine Krueger, State of Massachusetts
- *Advisory Panel to the Food and Drug Administration on Mercury Advisories.* H. Vasken Aposhian, University of Arizona
  - *FDA National Advisory on Mercury in Commercial Fish.* Phil Spiller, US FDA
  - *State and Tribal Advisories on Contaminants in Commercial Fish.*
    - Henry Anderson, State of Wisconsin
    - Andy Smith, State of Maine
    - Gary Ginsberg, State of Connecticut
- 1:30 – 3:15 PM **VI. Hot Topics—Chemicals of Concern**  
Moderator: Luanne Williams, State of North Carolina
- 1:30-2:15 PM **A. Mercury**
- *Update: On-going Research.* Kate Mahaffey, US EPA
  - *Setting a Reference Dose (RfD) for Adults.* Alan Stern, State of New Jersey
- 2:15-3:15 PM **B. Brominated Flame Retardants (Polybrominated Diphenyl Ethers or PBDEs)**
- *Occurrence of PBDEs in Fish.* Rob Hale, Virginia Institute of Marine Science
  - *Toxicity of PBDEs in Fish.* Linda Birnbaum, US EPA
  - *Assessing the Risks of PBDEs.* Khizar Wasti, State of Virginia
- 3:30 – 4:00 PM **C. Dioxins and Coplanar PCBs**
- *Status of the Reassessment.* Dwain Winters, US EPA
- 4:00 – 4:45 PM **D. Lead**
- *The EPA Lead Model.* Lon Kissinger, US EPA
  - *Occurrence of Lead in Fish.* Bob Brodberg, State of California
- 4:45 – 5:15 PM **E. Polycyclic Aromatic Hydrocarbons**
- *Occurrence in Fish.* Usha Varanasi, Director, NOAA/Northwest Fisheries Science Center

## **Tuesday October 22**

### **8:00 – 10:00 AM VII. Approaches to State and Tribal Advisories**

Moderator: Jeff Bigler, US EPA

- *Statewide Advisories Based on the 95th Percentile of Concentrations in Fish.*  
Eric Frohmberg, State of Maine
- *The Use of Maine's Statewide Advisory in a Tribal Setting*  
Susan Peterson, Aroostook Band of Micmacs
- *Statewide Advisories Based on Average Concentrations in Fish.*  
Mike Ell, State of North Dakota
- *Setting Advisories Specific to Named Water bodies Based with a Default Statewide Advisory*  
Bob Frey, State of Pennsylvania  
Pat McCann, State of Minnesota
- *Regional Advisory for DDT for the Mississippi Delta*  
Henry Folmar, State of Mississippi
- *Statewide Advisory Based on 8 Meals per Month*  
Joe Beaman, State of Maryland

### **10:15 – 11:30 AM VIII. Approaches to Considering Benefits in Advisory Programs**

Moderator: Dan Kusnierz, Penobscot Nation

- John Persell, Minnesota Chippewa Tribe Research Lab
- Paul Lumley, Yakima Tribe
- Sue Unger, Aleutian-Pribilof Islands Association

### **11:30 – 12:30 PM IX. Current Science on the Benefits of Fish Consumption**

Moderator: Andy Smith, State of Maine

- *Overview of Benefits of Fish Consumption.* Judy Sheeshka, University of Guelph
- *Use of Quality-adjusted Life Years to Assess Risks and Benefits of Fish Consumption.*  
Rafael Ponce, University of Washington
- Questions and comments from participants

### **12:30 – 1:00 PM X. Closing Comments**

## Appendix 2: Steering Committee Members

- Jeffrey Bigler, US Environmental Protection Agency, co-chair
  - Betsy Fritz, American Fisheries Society, co-chair
  - Robert K. Brodberg, California
  - Eric Frohmberg, Maine
  - Razelle Hoffman-Contois, Vermont
  - Barbara Knuth, Cornell University
  - Jan Lubeck, American Fisheries Society
  - Randy Manning, Georgia
  - Patricia McCann, Minnesota
  - John Persell, Minnesota Chippewa Tribe
  - Andy E. Smith, Maine
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- Amy D. Kyle, steering committee facilitator

## Appendix 3: Biographies of Speakers, Moderators, and Steering Committee Members

### Henry A. Anderson, MD

Since 1980 Dr. Anderson has been with the Wisconsin Department of Health and Family Services, division of Public Health as a Chief Medical Officer and State Environmental and Occupational Disease Epidemiologist. He is certified by the American Board of Preventive Medicine with a sub-specialty in occupational and environmental medicine and is a fellow of the American College of Epidemiology. He holds adjunct Professorships at the University of Wisconsin - Madison, Department of Population Health and the UW Institute for Environmental Studies, Center for Human Studies. He has published widely on a broad spectrum of environmental, occupational and public health topics. For the past twenty years he has conducted research on the health impact of contaminants in sport fish and risk communication via fish consumption advisories. He is chair of the Environmental Health Committee of the US EPA Science Advisory Board and serves on the US EPA Science Advisory Board Executive Committee. He is a member of the Director's Advisory Committee, National Center for Environmental Health, Centers for Disease Control and Prevention. He is associate editor of the *American Journal of Industrial Medicine* and serves on the editorial board of *Cancer Prevention International*.

### H. Vasken Aposhian, PhD

Dr. Aposhian is Professor of Molecular and Cellular Biology, Professor of Pharmacology and a Member of the Toxicology Center of the University of Arizona. He was a member of the National Academy of Sciences/ National Research Council Committee on Methylmercury Toxicology and its Committee on Arsenic in Drinking Water. His research deals with arsenic metabolism and biotransformation in humans as well as how to remove mercury from the human body. He is very much aware of the problems of the commercial fisherman since he has always spent a month of each year in the town next to Gloucester, Mass, the oldest fishing harbor in the USA.

### John Arway

John Arway is a fisheries ecologist and Chief of the Pennsylvania Fish and Boat Commission's Environmental Services Division. John is responsible for the statewide coordination of the Commission's aquatic risk, damage assessment, habitat management and threatened and endangered species programs. He is also the Commission's representative on the Commonwealth's Fish Tissue Contaminants Technical Workgroup. He has worked for over 22 years in the prediction and evaluation of impacts to aquatic resources living in Commonwealth waters.

## Edward Bender

Dr. Edward Bender is a Science Administrator on the Science Policy Council staff of the Cross Programs Branch of OSP. Ed supports the meetings and activities of the Science Policy Council of EPA. His current focus is on cumulative and environmental risk assessment, risk management decision making, metals hazard and risk, environmental economics, and foresight analysis. Prior to joining the SPC staff, he served as a Designated Federal Official to several committees of EPA's Science Advisory Board which examined a range of ecological, economic, engineering, and futures issues. He worked as an aquatic biologist and national expert with the Enforcement Division, Office of Water Enforcement and Permits on biological monitoring and water quality assessment for the National Pollutant Discharge Elimination System and Pretreatment Program under the Clean Water Act. He also worked for the U.S. Army to assess the effects of manufacturing and base operations on ecological communities of streams and military lands.

Dr. Bender has more than thirty years experience in environmental monitoring, aquatic ecology and toxicology. His dissertation, entitled "Recovery of a Macroinvertebrate Community from Chronic DDT Contamination," studied the toxic effects of DDT runoff from an abandoned manufacturing facility on fish and aquatic invertebrates in a south-central Arkansas stream. Ed chairs a multi-agency panel that monitors a remedial action on DDT contaminated sediment in Northern Alabama. Ed has a bachelor of science degree in biology from Westminster College, a master of science degree in zoology from the University of Florida, and a doctorate in biology from the Virginia Polytechnic Institute and State University.

## Linda S. Birnbaum

Dr. Birnbaum is the Division Director of the Experimental Toxicology Division, National Health and Environmental Effects Laboratory, Office of Research and Development, United States Environmental Protection Agency, in Research Triangle Park, North Carolina.

Dr. Birnbaum received her B.S. in Biology from the University of Rochester, Rochester, New York. She received her M.S. and Ph.D. in Microbiology from the University of Illinois, Urbana, Illinois. After a semester as a Visiting Assistant Professor of Microbiology at the University of Illinois and two years of postdoctoral work at the University of Massachusetts (Amherst), Dr. Birnbaum became an Assistant Professor of Science at Kirkland (Hamilton) College in Clinton, New York. She spent four years at the Masonic Medical Research Laboratory in Utica, New York, first as a Research Associate, then a Research Fellow and a Research Scientist. She next accepted a Senior Staff Fellowship with the National Toxicology Program of the National Institute of Environmental Health Sciences, in Research Triangle Park, North Carolina. Serving next as a Research Microbiologist and then a Supervisory Research Microbiologist, Dr. Birnbaum remained with NIEHS for ten years. After a serving as the Head of the Chemical Disposition Group, NIEHS, she accepted the position of Director, Experimental Toxicology Division with the U.S. EPA, which is responsible for conducting research to determine the health effects of inhaled, ingested, and dermally contacted environmental pollutants, and the cause and effects relationships at pollutant concentrations which mimic those occurring in the environment.



Since going to the EPA, she has served as the Acting Assistant Director for Health for a year and as the Acting Director of the Human Studies Division for another year, returning to her present position.

Dr. Birnbaum is the author of over 600 peer-reviewed publications, book chapters, abstracts, and reports. She is an Adjunct Professor in the Toxicology Curriculum and the Department of Environmental Sciences and Engineering at the University of North Carolina, Chapel Hill, and in the Integrated Toxicology Program at Duke University. She is the former Vice President of the American Aging Association and the Chairperson of the Division of Toxicology of the American Society of Pharmacology and Experimental Therapeutics. She was recently elected to be the Vice President-Elect of the Society of Toxicology and will serve as President in 2004-2005.

### Robert K. Brodberg

Dr. Brodberg received a BS from Heidelberg College, and the MS and Ph.D. from Bowling Green State University. Dr. Brodberg is currently a Senior Toxicologist in the Office of Environmental Health Hazard Assessment (OEHHA), which is part of the California Environmental Protection Agency. Dr. Brodberg has worked in the Pesticide and Environmental Toxicology Section of OEHHA since 1992. He is currently the Chief of the Fish and Water Quality Evaluation Unit that is responsible for assessing the potential human health risks of eating chemically contaminated sport fish and seafood and issuing sport fish consumption advisories for California. Dr. Brodberg also consults on projects with units of the State Water Resources Control Board, Regional Water Quality Control Boards, the Department of Fish and Game, and other agencies. He worked on developing sediment quality objectives as part of the Bay Protection and Toxic Clean-up Program and water quality objectives for the Ocean Plan. Dr. Brodberg was awarded a US EPA cooperative agreement to sample and evaluate chemical contamination in fish from two California Lakes. He is a member of the Society of Environmental Toxicology and Chemistry and has authored government reports and journal publications.

### Michael J. Ell

I currently administer the Surface Water Quality Management Program in the North Dakota Department of Health's Division of Water Quality. The Surface Water Quality Management Program has responsibility for lake and reservoir, river and stream, and wetlands monitoring and assessment, including the Section 305(b) reporting; Water Quality Standards; the Section 319 Nonpoint Source Management Program; and TMDL development. The program also supports the state's fish consumption advisory program through the collection and interpretation of mercury and other contaminant data in fish throughout the state.

I was first employed by the Department of Health in 1985 where I worked in the Atmospheric Deposition Program (Acid Rain). I have been in the Division of Water Quality since 1987 and in my current position since May 1991. I graduated from North Dakota State University with a BS in Zoology in 1982 and completed my MS degree at NDSU in 1988 where I studied the effects of weed harvesting on the biota of a small lake in north central North Dakota. I am married and have two children, both teenagers.

## Henry Folmar

Mr. Folmer serves as Laboratory Director for the Mississippi Department of Environmental Quality in Pearl, MS. He Received B.S. and M.S. in Fisheries Biology from Auburn University. Began working with fish tissue monitoring in 1979. Helped found Mississippi's Fish Advisory Task Force in 1990, and has served as chairperson for the past 10 years. He is a Charter Member of the Southern States Mercury Task Force.

## Robert Frey

Bob is a Water Pollution Biologist with the Division of Water Quality Assessment and Standards in the Bureau of Water Supply and Wastewater Management at DEP. He holds a Bachelor of Science in Education from Bloomsburg University of Pennsylvania. Among other duties, Bob is responsible for preparation of the "Pennsylvania Water Quality Assessment" report for submission to EPA every other year as required by the federal Clean Water Act. He also coordinates rulemakings for stream use redesignations, including High Quality and Exceptional Value designations.

Bob has been involved with Pennsylvania's fish tissue sampling and advisory issuance program since 1980. He is responsible for scheduling the annual fish tissue sampling conducted by DEP regional biologists and PFBC Area Fisheries Managers and coordinating laboratory analysis. He currently serves as Chair of the interagency Pennsylvania Fish Consumption Advisory Technical Workgroup. In this capacity he reviews and summarizes the fish tissue data collected each year and formulates advisory recommendations for the interagency workgroup. After the technical workgroup acts on the advisory recommendations, he forwards the revised advisory listing to an interagency policy workgroup for approval. Following this approval, Bob coordinates issuance of needed advisories, publication in the fishing regulations summary booklet, and posting of advisories on the DEP web site.

## Eric J. Frohberg

Eric Frohberg is a toxicologist with the Maine Bureau of Health. He has been involved in the development of the fish consumption advisories as well as the Bureau's fish advisory communication program. This has included development of the new brochures, testing efforts with low literacy focus groups, and development of the fish consumption advisory website.

## Gary L. Ginsberg

Dr. Ginsberg is currently a toxicologist at the Connecticut Dept. of Public Health within the Division of Environmental Epidemiology and Occupational Health. He has responsibility for human health risk assessments conducted in the state. He is also the project manager for several cooperative agreements with US EPA. One project is researching pharmacokinetic differences between children and adults while the other is exploring the influence of genetic polymorphisms on susceptibility to toxicants and inter-individual variability. Dr. Ginsberg serves as adjunct faculty at the Yale School of Medicine and also at the University of Connecticut School of Public Health. He received a Ph.D. in toxicology from the University of Connecticut (Storrs)

and was a post-doctoral fellow in carcinogenesis/mutagenesis at the Coriell Institute for Medical Research. Dr. Ginsberg's toxicology experience has involved a variety of settings: basic research, teaching, working within the pesticide and consulting industries, and now working in public health. He has published in the areas of toxicology, carcinogenesis, physiologically-based pharmacokinetic modeling, and children's health.

### Robert C. Hale

Dr. Hale is Professor, Department of Environmental & Aquatic Animal Health, Virginia Institute of Marine Science, College of William & Mary. He received a B.S. in Biology and a B.A. in Chemistry from Wayne State University (MI) and a Ph.D. from the College of William & Mary (VA) in 1983. He subsequently joined Mobil Corporation's Environmental & Health Sciences Laboratory in Princeton as a Research Environmental Chemist. In 1987 he joined the faculty at VIMS, received tenure in 1993, and was promoted to Professor in 2002. Rob has been involved for over 20 years in research examining the analysis, fate and environmental effects of organic pollutants. During this time his research group has authored more than 120 peer-review articles and scientific presentations. While at VIMS, he has worked with the Virginia Department of Environmental Quality, the U.S. EPA and NOAA on a variety of projects, including efforts to characterize pollutants present in tissues of fish. Dr. Hale is particularly interested in the sources, fate, bioavailability and effects of brominated flame retardants and other emerging contaminants. He has recently published papers describing high concentrations of polybrominated diphenyl ethers in land-applied sewage sludge, World Trade Center dust and U.S. fishes in Nature, Chemosphere, Environmental Health Perspectives and Environmental Science & Technology.

### Razelle S. Hoffman-Contois

Razelle Hoffman-Contois is the public health risk assessment specialist for the Office of Environmental Health and Toxicology in the Vermont Department of Health in Burlington. She routinely provides toxicology and risk assessment support for various state entities such as the Department of Environmental Conservation and Department of Fish and Wildlife. Ms. Hoffman-Contois was instrumental in the development of Vermont's mercury based fish consumption advisory. She earned both her B.S. and M.S. at the State University of New York College of Environmental Science and Forestry.

### Henry D. Kahn

Senior Statistician, Statistics and Analytical Support Branch

Engineering and Analysis Division, Office of Science and Technology, Office of Water

EPA experience: 28 years

Experience in application of statistics to environmental problems including the design and analysis of studies that involve composite sampling. Received his D.Sc. from George Washington University, M. S. from the University of Miami, and B. E. S. from Johns Hopkins University.

## Lon Kissinger

Lon Kissinger joined U.S. EPA Region 10 as a risk assessor in 2000, where his main focus has been on contaminated sediment sites. Lon's interests include subsistence fish and shellfish consumption by tribes and other populations, as well as use of geographic information systems to evaluate sediment contamination. Prior to working with EPA, Lon worked for eleven years with the Washington State Department of Ecology, where he dealt with implementation of the Washington State Superfund Regulation, air toxics, data management issues, and contaminated sediment sites. Lon received his master's degree in environmental toxicology from Cornell University and a bachelor's degree from Millersville University in biology and chemistry.

## Barbara Knuth

Dr. Barbara Knuth is a Professor of Natural Resource Policy and Management, and Chair of the Department of Natural Resources at Cornell University. She is a Co-leader of the Human Dimensions Research Unit, specializing in inquiry focused on human attitudes, behaviors, and perceptions related to the environment. Her research program includes a focus on risk perception, communication, and management associated with chemical contaminants in fish. She holds a Ph.D. from Virginia Tech, a Masters of Environmental Science (M.En.) from Miami University (Ohio), and undergraduate degrees in Interdisciplinary Studies and Zoology, also from Miami University. Dr. Knuth has served as the President of the Water Quality Section of the American Fisheries Society (AFS), and is currently 1st Vice President of AFS. She has served on numerous scientific and advisory bodies, including the Great Lakes Science Advisory Board of the International Joint Commission, the Board of Technical Experts of the Great Lakes Fishery Commission, and the National Research Council Committee on Improving the Collection and Use of Fisheries Data. She serves currently on the Institute of Medicine/National Research Council Committee on Implications of Reducing Dioxin in the Food Supply. She authored, under contract to US EPA, the first risk communication guidance document for fish consumption health advisory programs.

## Daniel H. Kusnierz

Daniel Kusnierz has been the manager of the Penobscot Indian Nation's Water Resources Program since January 1993. Because the Penobscot Reservation consists of the islands and water of the Penobscot River upstream of Old Town, Maine, clean water is extremely important to the Penobscot tribe. In his capacity as manager of the tribe's water program, Dan Kusnierz oversees many water resource related projects conducted by the tribe including a watershed-wide water quality monitoring program; studies of contaminant levels in fish, aquatic wildlife, and sediments; assessments of water quality using aquatic invertebrates; and studies of cumulative impacts. Working jointly with the tribal health department he is involved with establishing consumption advisories for tribal members. The program also participates in many permitting, licensing, and regulatory proceedings that affect the Penobscot Reservation and its aquatic resources. Dan serves as the tribal coordinator for the model water quality monitoring cooperative agreement between Penobscot Nation and ME DEP.

Dan serves on numerous committees including the Technical Advisory Committee for Maine's Surface Waters Ambient Toxics Program and the Maine Dioxin Monitoring Program, the Maine

Council on Environmental Monitoring and Assessment, and participates on EPA's Regional Tribal Operations Committee. He is the Region I tribal representative to the EPA Tribal Science Council. He is also the chairman of the Penobscot County Soil and Water Conservation District.

Dan earned his B.S. degree in Wildlife Biology from the University of Vermont. He is a M.S. candidate in Wildlife Management at the University of Maine, Orono.

### Amy D. Kyle

Amy D. Kyle works on issues at the intersection of environmental health science and public policy and to further the links between the realms of "environment" and those of "health." She holds research and teaching appointments at the University of California Berkeley School of Public Health where her work focuses on children's environmental health, policy for persistent pollutants, development of methods to measure net population burdens of pollution, and air pollution. She is a component director for the Berkeley Center on Environmental Public Health Tracking at Berkeley. She is also one of the authors of a national analysis of measures relevant to children's environmental health produced by the US Environmental Protection Agency. She works with a variety of governmental and non-governmental agencies on a variety of policy issues. Recently, she worked with state health and environment agencies to develop a national strategy to address environmental factors that contribute to asthma in children, a ground-breaking project sponsored by the Environmental Council of the States and the Association of State and Territorial Health Officials. As a Switzer Environmental Leadership Fellow, she is developing human health indicators to accompany a set of indicators of environmental quality for the San Francisco Bay, rivers, and delta watersheds with the Bay Institute. She serves as an advisor and consultant to organizations including California Communities Against Toxics, the Natural Resources Defense Council, the California Air Resources Board, and the California Department of Health Services. She has an extensive background in public policy and public service at the state level, having served for five years as deputy commissioner for the Alaska Department of Environmental Conservation and in a variety of other positions. She obtained her BA at Harvard College and MPH and PhD at the University of California Berkeley.

### Roseanne M. Lorenzana

Roseanne has been a toxicologist in the US EPA Region 10 Office of Environmental Assessment for the past ten years. And, in the last year has also become Region 10's science liaison to the Agency's Office of Research and Development. Prior to EPA, she was with the Oregon Health Division and the Washington Department of Health. She has a Doctorate in Veterinary Medicine, a Ph.D. in toxicology from the University of Illinois and research experience in biochemical mechanisms of toxicity from the Environmental Health Sciences Center at Oregon State University.

Roseanne has been a Diplomate of the American Board of Toxicology since 1992. She holds an adjunct faculty position the University of Washington, and has guided a number of students through projects involving priority scientific issues important to regional programs. Roseanne has extensive experience with risk assessment for the Superfund program and Water program. She has taught the Agency's Risk and Decision-Making class a number of times in Region 10 as

well as abroad. Roseanne also spent several months in Australia assisting the development of their national cancer assessment guidelines for contaminated sites.

Some of Roseanne's other recent activities have focused on toxicology and exposure assessment for arsenic, issues related to contaminants in traditionally harvested, subsistence food of Northwest Native Americans and Native Alaskans and environmental exposure issues for Asian Americans and Pacific Islander Americans.

### Paul Lumley

Paul Lumley is the Manager of the Watershed Department at the Columbia River Inter-Tribal Fish Commission. The Commission is composed of four tribal nations: the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon and the Confederated Tribes and Bands of the Yakama Nation. Paul Lumley received his Bachelor of Science degree in Mathematics from Western Washington University in 1986. Mr. Lumley is an enrolled member of the Yakama Nation and was born and raised on the reservation. Mr. Lumley has fished throughout the Yakama Reservation, including on the Columbia River.

Paul Lumley has worked for the Commission since 1987. Mr. Lumley worked within the U.S. v. Oregon forums in fisheries management for 12 years and has testified in federal court on behalf of the tribes on numerous issues related to fisheries management and the use of hatcheries as a salmon-rebuilding tool. Beginning in 1999, he expanded his role to include watershed issues, such as habitat protection, habitat restoration and improving water quality for salmon. The project area for the four CRITFC tribes is the entire Columbia River Basin.

Mr. Lumley is active raising funds and assisting in the implementation of projects that are identified in the tribes' salmon restoration plan: *WY-KAN-USH-MI WA-KISH-WIT* (Spirit of the Salmon). As a means to pursue the tribes' goals, Mr. Lumley participates in the following: numerous processes under the Northwest Power Act as related to the Fish and Wildlife program that mitigates for the development of the federal hydrosystem program (Bonneville Power Administration funding), various water quality programs in cooperation with the U.S. Environmental Protection Agency on numerous water quality issues, and promotes and seeks foundation and corporate sponsorships to fund tribal salmon restoration programs.

### Kathryn R. Mahaffey

Dr. Mahaffey's professional career is in exposure assessment and toxicology of metals. She has worked extensively in the area of food safety. Following graduate training in nutritional biochemistry and physiology at Rutgers University, she completed post-doctoral training in neuro-endocrinology at the University of North Carolina School of Medicine. Her research has been on susceptibility to lead toxicity with greatest focus on age and nutritional factors resulting in more than 100 publications in this area. During her long career with the United States Government she has been influential in lowering lead exposures for the United States population through actions to remove lead from foods and beverages, and from gasoline additives during the 1970s and 1980s.

In the past decade, Dr. Mahaffey has been actively involved in risk assessments for mercury. She was the author of the NIH Report to Congress on Mercury, and a primary author of US EPA's *Mercury Study Report to Congress*. These reports emphasized risk of developmental deficits caused by methylmercury exposure during development of the nervous system. Dr. Mahaffey was one of the primary developers of US EPA's *Mercury Research Strategy* which was released in late 2000. Along with other team members, she was responsible for the 2001 EPA/FDA national advisory on fish consumption. Dr. Mahaffey was one of a group of three EPA health scientists who revised the basis for EPA's Reference Dose for Methylmercury which was used in developing the Methylmercury Water Quality Human Health Criterion. In 2002 she received EPA's Science Achievement Award in Health Sciences for this work. This is EPA's highest health sciences award and is presented in conjunction with the Society of Toxicology.

Currently Dr. Mahaffey is the Director of the Division of Exposure Assessment, Coordination and Policy within the Office of Science Coordination and Policy of OPPTS, US EPA. This division runs US EPA's Endocrine Disruptor Screening and Validation Program. Dr. Mahaffey remains active in research and developing US EPA's policies on methylmercury.

### Randall O. Manning

Dr. Manning is the Coordinator of the Environmental Toxicology Program in the Georgia Department of Natural Resources, Environmental Protection Division. Dr. Manning received his Ph.D. in 1986 from the University of Georgia (UGA), College of Agriculture where he studied the toxicity and metabolism of mycotoxins. Prior to joining the Georgia Environmental Protection Division (GAEPD) in 1991, Dr. Manning was a Postdoctoral Research Associate (1987-88) and an Assistant Research Scientist (1989-90) in the Department of Pharmacology and Toxicology at UGA, studying the toxicity of volatile organic chemicals and the development of physiologically-based pharmacokinetic models for use in risk assessment. As the Coordinator of the Environmental Toxicology Program at GAEPD, Dr. Manning is responsible for providing the Division with support in toxicology and risk assessment. Dr. Manning's research interests relate to the development of risk-based approaches for evaluation of environmental contamination by regulatory agencies. Dr. Manning is a member of the Society of Toxicology, a Diplomate of the American Board of Toxicology, and an Adjunct Assistant Professor in the Department of Pharmaceutical and Biomedical Sciences, College of Pharmacy, University of Georgia and the Department of Environmental and Occupational Health, Rollins School of Public Health, Emory University.

### Patricia McCann

Ms. McCann is Program Manager of the Minnesota Fish Consumption Advisory Program at the Minnesota Department of Health. She researches the toxicological characteristics of contaminants in Minnesota fish and wildlife, evaluates environmental and exposure data, and develops fish and wildlife consumption guidelines and communicates them to the public. She holds a M.S. in Environmental Health from the University of Minnesota School of Public Health and a B.S. in Chemical Engineering from the University of Minnesota Institute of Technology.

### G. Tracy Mehan III

G. Tracy Mehan, III, was nominated by President George W. Bush to be Assistant Administrator for Water, U.S. Environmental Protection Agency, and confirmed by the U.S. Senate on August 3, 2001. Mehan has responsibility for implementing the nation's Clean Water Act, as well as the Safe Drinking Water Act, along with other environmental statutes, in collaboration with state and tribal partners.

Since February 1993, Mehan has served as Director of Michigan's Office of the Great Lakes and a member of Governor John Engler's Cabinet, coordinating policy on a variety of issues including toxic contamination, aquatic nuisance species (exotics) and water diversions. He represented Michigan on the Great Lakes commission, an interstate compact organization, and its executive committee. He also served on the board of the Great Lakes Protection Fund, a \$140 million endowment established by the governors of the region as well as the Water Quality Board of the International Joint Commission.

Mehan chaired the Michigan Mercury Pollution Prevention Task Force, a public-private body which initiated numerous mercury minimization efforts including the phasing out of 9.8 metric tons, per year, of mercury in convenience light switches previously used by the Big Three auto companies. Mehan was formally Associate Deputy Administrator of the U.S. Environmental Protection Agency (1992), where he coordinated policy issues for the agency and represented the Deputy Administrator in interactions with federal, state, and local agencies.

From 1989 to 1992, he was Director of the Missouri Department of Natural Resources, which included divisions of environmental quality; parks, re-creation and historic preservation; energy; geology; and land survey. He represented the state in the Missouri Basin States Association, the Upper Mississippi River Basin Association, and the Midwest Interstate Low-Level Radioactive Waste Compact Commission.

Mehan holds a Bachelor's Degree in history from St. Louis University, Missouri, and a Juris Doctor from the St. Louis University Law School. He is member of the Missouri Bar Association and the Bar Association of Metropolitan St. Louis. As a practicing attorney for many years, he concentrated in the area of civil litigation.

Mehan was an Adjunct Professor at the Thomas M. Cooley Law School and Michigan State University Detroit College of Law in environmental law. He and his wife, Mary, have seven children.

### Fran Pell

Fran graduated with a B.S. from Purdue University in 1982. She started her career with the Federal government in USDA as a food inspector about a year after graduation. Fran transferred to FDA in 1985 as an investigator in Baltimore District Office. She conducted mostly food inspections and tissue residue investigations. She transferred to the Center for Veterinary Medicine in 1988. She issued an information gathering assignment in 1989 to the Field to conduct an inspectional survey of aquaculture producers to determine what their drug use patterns were. This Field assignment spawned an educational campaign from the Center on the regulations of drug use for aquaculture. She transferred to the Tissue Residue Branch in 1994 and maintained her expertise in aquaculture. In 1997, Fran was transferred to the Division of



Compliance she became the Compliance expert in Aquaculture drug use. She handles all regulatory questions related to Aquaculture drug use. She is also the lead for the development of regulations on Import Tolerances.

### James F. Pendergast

Jim Pendergast is chief of the Health Protection and Modeling Branch in the Office of Water where he manages EPA's fish and beach advisory programs, and provides technical support for water quality modeling and sediment contamination assessments. He has 26 years of professional experience in environmental engineering, water quality modeling, and regulatory controls. Since moving to EPA Headquarters in 1990, he worked on the revision to the TMDL rule, reauthorization of the Clean Water Act, and as a Section and Branch Chief and later Acting Director of the NPDES Permits Division. He was a principal in leading the Water Protection Task Force where he helped manage EPA's work to support efforts by drinking water and wastewater treatment utilities to understand vulnerable points and to mitigate the threat from terrorist attacks as quickly as possible. He worked for six years in EPA Region 6 in the NPDES permits and Superfund programs. Prior to joining EPA in 1984, he was a project manager at Limno-Tech, Inc., where he developed models of water quality impacts from nonpoint and point sources on rivers, lakes, and estuaries.

Mr. Pendergast received a BS in Environmental Engineering in 1976 and a MS in Water Resources Engineering in 1978, both from the University of Michigan. He is a registered professional engineer. He is a member of the Water Environment Federation, the American Society of Civil Engineers, and the Society of Environmental Toxicology and Chemistry. He has several published papers on water quality modeling in engineering journals and conference proceedings. He is married with one daughter, and spends his non-work time coaching a girls fast pitch softball team and playing golf.

### John Persell

John began working for the Minnesota Chippewa Tribe in 1978 as a Water Quality Planner, shortly after graduating from Bemidji State University (Bemidji, MN) with a B.S. in Biology and Chemistry. The Tribe's Water Quality Program grew to become the Tribal Water Research Lab in 1979, achieving Federal drinking water certification in 1987. John has remained Director of the Tribal Government's Lab, which today employs four staff performing drinking water, surface water, and tissue analyses for a wide variety of parameters. John has directed the Tribe's research focus to contaminants in subsistence resources during the last ten years. At the center of this research focus is the St Regis/Wheeler Superfund Site which is located on the Leech Lake Reservation. The toxic cocktail at this former wood preservation company site includes Dioxins and Furans, PCBs, DDT, PAHs, Phenols, Arsenic, Chromium, and Mercury.

John is a six year veteran of the United States Air Force and Army; a father and grandpa, and particularly enjoys family and outdoor activities.

## Susan M. Peterson

Susan Peterson is an environmental chemist working for the Aroostook Band of Micmacs for a year and a half. A graduate from the University of Maine at Presque Isle, Susan had a double major receiving a BA in Biology and a BS in Environmental Studies. Since working for the Tribe, she has been exposed to the many environmental issues concerning the Micmacs, such as the substandard Tribal housing units in which members are living in and the various toxics found in natural resources that are utilized by the Tribe for food, medicine, and spiritual purposes. One of her major accomplishments was to finish developing a drinking water laboratory and obtain full certification from the state of Maine for the lab. She is currently working on adding more testing parameters to the lab's certification, developing an arsenic-in-drinking water study with all of the Tribes of Maine, and is taking steps to have the lab NLLAP certified for lead testing.

## Rafael Ponce

Rafael's interest in environmental health began during his Master's research investigating methylmercury uptake into rainbow trout. He received his Masters from the School of Fisheries at the University of Washington in 1990, and transferred to the Dept. of Environmental Health where he moved up the food chain to investigate the mechanisms of methylmercury-induced developmental neurotoxicity in rats. Rafael received his doctorate in Environmental Health, Toxicology from the University of Washington in 1995. He moved to Anchorage to work as the toxicologist for the Department of Health and Social Services, conducting health risk assessments and evaluation of subsistence food safety. In 1996, he returned to the University of Washington to perform basic research of heavy metal toxicity and risk assessment. He currently has an affiliate appointment with the University of Washington and works as a toxicologist for a biotechnology company (ZymoGenetics, Inc.) in Seattle, WA.

## GUS N. RASSAM

Executive Director and CEO, Treasurer, and Senior Editor (May 1999-present) American Fisheries Society. Staff of 22; annual budget of \$3 million.

Director of Program Development and Publications (July 1998-1999) Optical Society of America, Washington, DC. Staff of 45; annual budget of \$9 million. Previously he served as Executive Director and CEO (acting) (July 1997-July 1998) Optical Society of America. Member of three-person team acting as Executive Director. Report to Executive Committee and Board of Directors. Before that, as Director of Publications (1995-1997) Optical Society of America, Washington, D.C.

Member, Governing Board of the Renewable Natural Resources Foundation , RNRF (1999-present); chair of Finance Committee, RNRF; chair of Awards Jury Committee, RNRF.

Fulbright Scholar

## Philip Spiller

Philip Spiller has been with the Food and Drug Administration since 1981. He spent the first nine years in the Office of Legislative Affairs in the Office of the Commissioner, where he

became the Deputy to the Director of that office. He worked on a wide variety of legislative initiatives and helped prepare FDA officials to testify at numerous hearings in both the House of Representatives and the Senate. At one of them, involving the pesticide Alar in apples, he engaged in a 5 second conversation with the actress Meryl Streep, which he regards to this day as the high point of his career. During 1989 through 1991 seafood safety became a major issue in the Congress and Mr. Spiller became familiar with that subject as a consequence. In 1990 Mr. Spiller became a special assistant to the Commissioner on seafood-related matters. When an Office of Seafood was subsequently created in FDA's Center for Food Safety and Applied Nutrition, Mr. Spiller transferred to that Office as Deputy to the first permanent director, Mr. Thomas Billy. His major responsibility during that time was drafting FDA's seafood HACCP regulations. Mr. Spiller became the director of the Office of Seafood in 1994.

Before coming to FDA, Mr. Spiller worked for the Health Resources Administration, which is now part of the agency known as HRSA. Mr. Spiller has a law degree from Boston College and an undergraduate degree from the University of Virginia.

#### Alan H. Stern

Alan Stern, PhD DABT, received his doctorate in public health from the Columbia University School of Public Health in 1987. He is Chief of the Bureau for Risk Analysis in the Division of Science and Research of the New Jersey Department of Environmental Protection where he specializes in human health risk and exposure assessment. He is board certified in toxicology, and adjunct associate professor in the School of Public Health, and the Department of Environmental and Community Medicine of the University of Medicine and Dentistry of New Jersey. He served as a member of the National Research Council/National Academy of Sciences Committee on the Toxicological Effects of Methylmercury. His current scientific and research interests include assessment of exposure and risk from methylmercury and other heavy metals, biomonitoring, exposure assessment, interindividual variability in dose-response, and probabilistic approaches to risk assessment.

#### Andrew E. Smith

Andrew Smith, S.M., Sc.D., is the State Toxicologist and Director of the Environmental Toxicology Program within the Bureau of Health, Maine Department of Human Services. Dr. Smith obtained his master's in environmental health management and doctorate in environmental health sciences from the Harvard School of Public Health. He performed post-doctoral studies at Harvard with joint appointments in the Departments of Environmental Health and Biostatistics. As the State Toxicologist and Director of the Toxicology Program, he is responsible for the development health-based drinking water and ambient air guidelines for toxicants, the issuance of fish consumption advisories due to chemical contamination, the design and conduct environmental exposure and epidemiological studies, and management of the Maine Occupational Disease Registry. Dr. Smith has served on U.S. EPA scientific advisory panels to review the Agency's recently revised reference dose for mercury, guidance for evaluating residential exposure to pesticides, and a preliminary evaluation of the non-dietary hazard and exposure to children from contact with CCA pressure-treated wood.

## Judy Sheeshka

Judy Sheeshka is a registered dietitian and an Associate Professor in Applied Human Nutrition at the University of Guelph, in Ontario. For the past 8 years she has been interested in comparing the nutritional benefits and the potential risks of eating sport-caught fish from contaminated waters. She was part of a multi-disciplinary team that received Health Canada funding to investigate fish consumption from 5 Great Lakes Areas of Concern. Over 5,000 people fishing along the Canadian shorelines in these Areas of Concern were surveyed and 91 completed dietary records, tape-recorded long interviews, anthropometric measurements, and provided blood and hair samples for laboratory analyses.

## Suanne Unger

Suanne Unger received a BS in Education with a major in biology from the University of Wisconsin- Madison in 1998. In 1993, she received an MS in Environmental Studies from the University of Montana- Missoula. After finishing her masters program, Suanne served as a US Peace Corps Volunteer in Botswana from 1993-1995 in the Wildlife/ Environment Program. Suanne has taught high school and middle school science. In Alaska, she has worked for several tribal non-profit organizations developing community-based environmental assessment tools for tribes in Alaska. Currently, she works for the Aleutian/Pribilof Islands Association, Inc., a non-profit tribal organization of the Aleut people in Alaska. This organization services communities on the Aleutian Islands and Pribilof Islands in western Alaska. Suanne is the Environmental Health Research Coordinator on a project entitled *Dietary Benefits and Risks in Alaskan Villages*. This project is funded by the National Institute for Environmental Health Sciences.

## Khizar Wasti

Ph.D. Chemistry, 1976, University of Pennsylvania, Philadelphia

M.S. Chemistry, 1972, Marshall University, Huntington, West Virginia

1991-Present: Director, Division of Health Hazards Control, Virginia Department of Health

1978-1991: Toxicologist, Bureau of Toxic Substances, Virginia Department of Health

1976-1978: Project Manager, Toxicology, Franklin Institute, Philadelphia

## Luanne Williams

Dr. Luanne Williams is a state toxicologist for North Carolina and a full member of the Society of Toxicology. Dr. Williams' primary responsibilities as a state toxicologist include developing health-protective environmental standards for North Carolina and health risk assessments for contaminated soil, air, water, and fish. She is also the Co-editor and contributing author of the recently published book titled *Environmental Health Secrets*.

Dr. Williams received a doctor of pharmacy degree at Campbell University School of Pharmacy in North Carolina. Dr. Williams also participated in a residency program at the UNC Hospital in Chapel Hill, North Carolina and most of her undergraduate courses were completed at the University of Tennessee in Knoxville, Tennessee.

## Appendix 4: Forum Participants

# Participants

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