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EPA Region 10
December 8, 2009

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5. Validation of a Streamflow Duration Assessment Method for the Pacific Northwest	

Schedule for December 8, 2009
SAB Science Integration for Decision Making Fact Finding Interviews
EPA Region 10

8:30-9:30	Focus Group with Scientific, Technical, and Policy Staff
9:30-9:45	Break
9:45-10:45	Focus Group with Scientific, Technical, and Policy Staff
10:45-11:00	Break
11:00-11:20	Discussion with Regional Economist
11:20-1:00	Lunch
12:45 -1:45	Focus Group with Scientific, Technical, and Policy Staff in Operations Offices
1:45-2:00	Break
2:00-3:30	Executive Team
3:30-4:00	Break
4:00-5:00	Meeting with the Acting Regional Administrator and Acting Deputy Regional Administrator
5:00	Adjourn



URL: <http://yosemite.epa.gov/R10/EXTAFF.NSF/PERC/Visiting+Seattle>
 Last updated on Friday, November 13th, 2009.

Region 10: the Pacific Northwest

You are here: [EPA Home](#) [Region 10](#) [External Affairs Page](#) [PERC](#) [Visiting Seattle](#)

Visiting Our Offices

The Region 10 office of EPA is located in downtown Seattle at 1200 6th Avenue, in the Park Place building. Visitors are asked to first check in at the Service Center on the 12th floor where we will help locate the people or meeting rooms you are looking for. Below is a list of nearby services for your convenience. EPA does not endorse or recommend any of the businesses below.



- [Hotels](#)
- [Restaurants](#)
- [Transportation Choices](#)
- [Virtual tour of Seattle](#)

Hotels

The location of each hotel is represented by a number on the map. Some hotels use environmental conservation practices. Those hotels with self implemented conservation programs are listed as well as Energy Star Partners, a program of the EPA and U.S. Dept. of Energy. All links below are to websites outside of epa.gov [EXIT disclaimer](#)

- = Water Conservation Program
- = Energy Conservation Program
- = Recycling Program
- = Energy Star Partner

1. [Crowne Plaza Hotel](#)
 6th & Seneca
 (206) 464-1980 (800) 521-2762

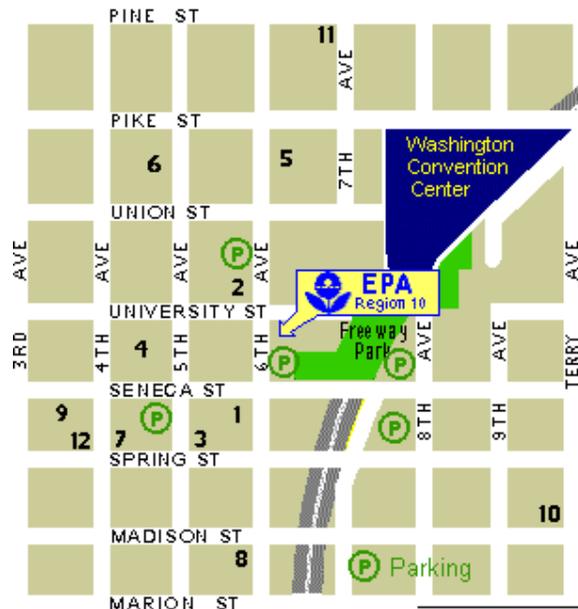


2. [Seattle Hilton](#)
 6th and University
 (206) 624-0500



3. [Hotel Vintage Park](#)
 1100 Fifth Avenue
 (206) 624-8000 (800) 624-4433

4. [Fairmont Olympic Hotel](#)
 411 University Street
 (206) 621-1700
 Adopt-a-Shelter: Items normally disposed of during renovations go to families in need.



5. Sheraton Seattle Hotel & Towers
 1400 Sixth Avenue
 (206) 621-9000

6. Red Lion on Fifth Avenue
 1415 Fifth Avenue
 (206) 971-8000



7. Executive Hotel Pacific
 4th & Spring
 (206) 623-3900 (800) 426-1165

8. Renaissance Hotel
 6th & Madison
 (206) 583-0300

9. Hotel Seattle
 315 Seneca
 (206) 623 5110

10. Sorrento Hotel
 900 Madison
 (206) 622-6400
 (800) 426-1265

11. Roosevelt Hotel
 1531 7th Ave
 (206) 621-1200 (800) 426-0670

12. Hotel Monaco
 1101 4th Avenue
 (206) 621-1770

For visitors or groups of EPA staff that are planning to be here more than 4 nights here is a great place to rent a condo for several days or several months: <http://seattlesuite.com/>.

Restaurants

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Each block on the map is numbered. Restaurants are shown grouped together by the block upon which they are located. The location of each restaurant is further defined by the name of the street it faces listed in parentheses.

1. Park Place Building

Beba's Deli (2nd Floor)

2.

Seneca Deli
 J.C.'s Deli
 Tulio (5th Ave.)
 Regatta Bar and Grill (6th Ave.)

3.

Benihana of Tokyo (University)

4.

Fergy's Cafe/Espresso (6th Ave)
 Top of the Hilton (6th Ave)
 Wild Tiger Pizza (Underground)
 Le Chatel (Underground)
 Market Fresh Buffet (Underground)

5. One & Two Union Square

Organic To Go

17.

Andiamo Presto (6th)

32.

Metro Stop Deli (3rd Ave))



Blue Water Taco Grill
Tully's Coffee
Starbuck's Coffee
World Wraps
Pallino Pasta
Chez Dave
Union Square Grill
World Fresh Buffet

7.
Han's Deli & Grocery (Seneca)
Reiners (8th)

12.
Jasmine (4th Ave)
Community Deli
Earth & Ocean (4th Ave)
Seattle's Best Coffee (4th Ave)

13.
Shuckers (4th)

14.
Medi Cafe (4th Ave)
Schwartz Brothers (5th Ave)
Dilettante Mocha Cafe
Rock Bottom (5th Ave.)

15.
Terrace Garden (middle)
Tully's Coffee (Union)

16.
Briazz (5th)
Palomino Euro-Seattle
Seattle Best Coffee (Union)
Starbuck's Coffee (5th)

Fuller's (6th)
Pike St. Cafe (6th)

19.
Subway (Pike)
Taco del Mar (Pike)
Johnny's Grill
Starbucks
Unconventional Pizza
Cafe Espresso

23.
The Hunt Club (Terry)

24.
First Hill Bar & Grill (Madison)

25.
Vito's (Madison)

26.
Taco del Mar (Madison)

28.
Metro Deli & Sushi (5th Ave))

29.
Cafe Zum Zum (3rd Ave))
Mexico Lindo (Marion)
Saigon Express (Madison)
Subway (3rd Ave)

31.
Bernard's on Seneca (Seneca)
Sazerac (4th Ave.)
Starbuck's Coffee (3rd)

Bernard's on Seneca (German)
Torrfaione Italia

33.
Starbuck's Coffee (4th Ave))
Wild Ginger Asian Restaurant (3rd Ave))

34.
Bruno Mazarella (Mexican)

35.
The Frankfurter (4th Ave))
Mc Donald's (3rd Ave))
Campagne (86 Pine Street)

36.
Nordstrom Espresso Bar (4th Ave)
Nordstrom Cafe (middle)

37.
Baci (6th Ave)
Happy Teriyaki (5th Ave)
Starbuck's Coffee (Pine)

38.
Von's (Pine)

39.
Dragonfish Asian Cafe (7th Ave)

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Transportation Choices

By Air: There are many environmentally friendly, cost effective modes of transportation to downtown Seattle from SeaTac Airport.

- [Metro Bus Route 194 \(express\)](#)
- [Private Buses, Shuttles and Courtesy Vehicles](#)

By Bicycle: The EPA Region 10 office has free, covered bike parking for the general public located on the -1 level of the underground parking garage. You can access the garage from 6th Avenue. Recommended biking routes can be found on the [Seattle Department of Transportation](#) web page.

By Bus: Metro and Sound Transit offer a variety of routes to downtown Seattle from as far away as Tacoma to the south, Issaquah to the east, and Everett to the north.

By Car: Driving to the Seattle Office on I-5, exit at the Union Street Exit Southbound or the James Street Exit Northbound. Parking lots are indicated on the hotel map above.

By Train: Coming from the [Amtrak](#) / [Sound Transit](#) King Street Train terminal (4th and Jackson Metro "island" stop), there are several bus routes that run between the Region 10 Offices and the train

station (the closest stop to EPA is at 3rd and Union). The bus ride is free from the train station in both directions: **7, 11, 14, 26, 28, 36, 39, 42, 43, 49** or take a tunnel bus at the International District Station (between 4th and 5th Avenues at Jackson street, just east of the train station) to the University Station (located at 3rd and University). The tunnel ride is free.

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**SAB Science Integration for Decision Making Fact-Finding Interview
With Scientific, Technical, and Policy Staff, EPA Region 10
1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 8:30-9:30 a.m.
Draft Agenda**

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
 - Practices for integrating science to support decision making
 - Consideration of public, stakeholder, external scientific, and other input in science assessment
 - Drivers and impediments to implementing past recommendations for science integration
 - Ways program receives feedback on how science is used in decision-making
 - Workforce to support science integration for decision making
2. Discussion facilitated by SAB Members
3. Identification of any follow-up actions

Planned participants

EPA Region 10

Mr. Don Martin, facilitator, ecologist , Office of Water and Watershed, Coeur d'Alene office
Ms. Allison Hiltner, Superfund Remedial Project Manager, Office of Environmental Cleanup
Mr. Bruce Duncan, ecological risk assessment, Office of Environmental Assessment
Dr. Dana Davoli, human health risk assessment, Office of Environmental Assessment
Ms. Denise Baker-Kircher, remedial project manager, Office of Environmental Cleanup
Mr. Larry Gadbois, Hanford project manager, Office of Environmental Cleanup
Ms. Sheila M. Eckman, Unit Manager, Office of Environmental Cleanup

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute
Dr. Wayne Landis, Western Washington University
Dr. Thomas Theis, University of Illinois at Chicago
Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)
Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director
Dr. Angela Nugent, Designated Federal Officer

**SAB Science Integration for Decision Making Fact-Finding Interview
With Scientific, Technical, and Policy Staff, EPA Region 10
1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 9:45-10:45 a.m.
Draft Agenda**

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
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Planned participants

EPA Region 10

Mr. Don Martin, facilitator, ecologist , Office of Water and Watershed, Coeur d'Alene office
Mr. Ben Cope, modeling/environmental engineer, Office of Environmental Assessment
Brian Nickel, Engineer-in-Training, water quality permit writer, Office of Water and Watersheds
Ms. Carla Fisher, Corrective Action Project Manager/Permit Writer, Office of Air, Waste and Toxics
Mr. David Bray, special assistant to the Director, Office of Air, Waste and Toxics
Mr. David C. Croxton, Watershed Unit Manager, Office of Water and Watersheds
Ms. Gretchen Hayslip, aquatic biologist/water quality monitoring, Office of Environmental Assessment
Ms. Lisa Olson, water quality, Office of Water and Watersheds
Ms. Lynne McWhorter, Environmental Impact Statement review, Office of Ecosystems, Tribal and Public Affairs,
Mr. Michael J. Szerlog, supervisory scientist, Office of Ecosystems, Tribal and Public Affairs

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute
Dr. Wayne Landis, Western Washington University
Dr. Thomas Theis, University of Illinois at Chicago
Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)
Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director
Dr. Angela Nugent, Designated Federal Officer

SAB Science Integration for Decision Making Fact-Finding Interview
With the Regional Economist, EPA Region 10
1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 11:00 - 11:20 a.m.
Draft Agenda

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
 - Practices for integrating science to support decision making
 - Consideration of public, stakeholder, external scientific, and other input in science assessment
 - Drivers and impediments to implementing past recommendations for science integration
 - Ways program receives feedback on how science is used in decision-making
 - Workforce to support science integration for decision making
2. Discussion facilitated by SAB Members
3. Identification of any follow-up actions

Planned participants

EPA Region 10

Mr. Elliott Rosenberg, senior economist, Office of Environmental Assessment

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute

Dr. Wayne Landis, Western Washington University

Dr. Thomas Theis, University of Illinois at Chicago

Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)

Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director

Dr. Angela Nugent, Designated Federal Officer

**SAB Science Integration for Decision Making Fact-Finding Interview
Scientific, Technical, and Policy Staff in Operations Offices, EPA Region 10
1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 12:45 - 1:45 p.m.
Draft Agenda**

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
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2. Discussion facilitated by SAB Members
3. Identification of any follow-up actions

Planned participants

EPA Region 10

Mr. Don Martin, facilitator, ecologist , Office of Water and Watershed, Coeur d'Alene office
Mr. John Palmer, Office of Water and Watershed
Mr. Bernie Zavala, Hydrogeologist, Office of Environmental Assessment
Ms. Carla Fromm, water quality, Idaho Operations Office
Ms. Erika Hoffman, Office of Ecosystems, Tribal and Public Affairs
Mr. Greg Kellogg, Alaska Operations Office
Mr. Leigh Woodruff, Idaho Operations Office
Dr. Tracie Nadeau, environmental scientist, Washington Operations Office, Office of Ecosystems, Tribal and Public Affairs

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute
Dr. Wayne Landis, Western Washington University
Dr. Thomas Theis, University of Illinois at Chicago
Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)
Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director
Dr. Angela Nugent, Designated Federal Officer

**SAB Science Integration Study
Region 10
Science Technical Focus Group Participants
December 8, 2009**

Alphabetical by first name:

Allison Hiltner, project manager, ECL
Ben Cope, environ. engineer/modeler, OEA
Bernie Zavala, hydrogeologist, OEA
Brian Nickel, engineer/permit writer, OWW
Bruce Duncan, ecologist, OEA
Carla Fisher, project mgr/permit writer, AWT
Carla Fromm, IOO
Dave Croxton, Unit Manager, OWW
David Bray, special assistant, AWT
Dana Davoli, human health risk assessor, OEA
Denise Baker, project manager, ECL
Don Martin, ecologist, OWW
Erika Hoffman, aquatic toxicology, WOO
Greg Kellogg, AOO
Gretchen Hayslip, ecologist, OEA
Larry Gadbois, project manager, ECL Hanford
Leigh Woodruff, IOO
Lisa Olson, water quality, OWW
Lynne McWhorter, EIS review, ETPA
Mike Szerlog, supervisory scientist, ETPA
Sheila Eckman, Unit Manager, ECL
Tracie Nadeau, ETPA at OOO

Roseanne Lorenzana, science liaison, OEA

Focus Groups:

8:30 – 9:30 (Don Martin, facilitator)
Allison Hiltner
Bruce Duncan
Dana Davoli
Denise Baker
Larry Gadbois
Sheila Eckman

9:45 – 10:45 (Don Martin, facilitator)
Ben Cope
Brian Nickel
Carla Fisher
Dave Bray
Dave Croxton
Gretchen Hayslip
Lisa Olson
Lynne McWhorter
Mike Szerlog

1:00 – 1:45 (Don Martin, facilitator)
Bernie Zavala
Carla Fromm
Erika Hoffman
Greg Kellogg
Leigh Woodruff
Tracie Nadeau

Acronyms:

AWT Office of Air, Waste and Toxics
ECL Office of Environmental Cleanup
ETPA Office of Ecosystems, Tribal and Public Affairs
OCE Office of Compliance and Enforcement
OEA Office of Environmental Assessment
OWW Office of Water and Watersheds
AOO Alaska Operations Office
IOO Idaho Operations Office
OOO Oregon Operations Office
WOO Washington Operations Office

Biosketches and Examples (see following pages)

Region 10 Science, Technical & Policy staff
Biosketches and Science Integration Examples
(listed alphabetically by first name)

Allison Hiltner, Superfund Remedial Project Manager, Office of Environmental Cleanup

Allison Hiltner has been a Remedial Project Manager with EPA's Superfund program for 23 years. She managed Superfund sites in Illinois and Indiana for EPA's Chicago office from 1986 – 1992. She managed various aspects of the Superfund sediment cleanup at the Commencement Bay Nearshore/Tideflats site from 1992 - 2001, and has served as EPA's Superfund project manager for the remedial investigation and feasibility study at the Lower Duwamish Waterway Superfund site since 2001. Education: BS, Environmental Science, Allegheny College; MS, Zoology, University of Wisconsin

Example:

The Lower Duwamish Waterway is a polluted river that flows through industrial and residential areas south of downtown Seattle. It was declared a Superfund site in 2001. EPA and the Washington Department of Ecology are overseeing a large-scale investigation to determine the nature and extent of contamination and approaches for cleanup of the river conducted by four potentially responsible parties. The assessment includes integration of scientific studies from several disciplines, including chemical and geological evaluations, human health and ecological risk assessment, hydrodynamic and sediment transport modeling, and engineering. The local community, affected Native American tribes, and area environmental groups have been actively involved and have provided their input on plans and reports since the beginning of the study. EPA and Ecology are currently overseeing the development of a feasibility that attempts to integrate all of this information with the objective of proposing a cleanup plan for the Duwamish in the next few years.

Ben Cope, modeling/environmental engineer, Office of Environmental Assessment

Ben is an environmental engineer with 22 years of experience in the water programs and Office of Environmental Assessment. He worked for 13 years in the Region's water programs (NPDES permits, TMDLs) prior to moving into water quality modeling and assessment in 2000. His current projects include assessments of the Snake River (temperature), Spokane River (dissolved oxygen, nutrients), and Klamath River (temperature, nutrients, dissolved oxygen). Ben also brings state and EPA modelers together for an annual meeting, and he co-authored the recent guidance document on modeling by EPA's Council on Regulatory Environmental Modeling (CREM).

Example:

Models are frequently used to provide critical information for permits and TMDLs in the Northwest. These models can be complex, and controversial components of the water program's work; accordingly, the Region has dedicated a position to this field of expertise since the 1970s. The Klamath River TMDL, spanning Oregon and California, highlights the inconsistent staffing in water quality modeling within EPA. Ben is providing support from Region 10 on this project, but Region 9 does not have any water quality modeling staff. This lack of modeling staff appears to be common across the EPA regions. This inconsistent staffing may be one reason there is no national workgroup for water quality modeling within EPA, despite the central role models play in many water program decisions.

Bernie Zavala, Hydrogeologist, Office of Environmental Assessment

Joined the EPA in September 1985, where my primary duty is to provide hydro-geologic support to the hazardous waste cleanup programs both Superfund and RCRA Corrective Action. I have been in this position for 24 years working on many Superfund and RCRA cleanup sites from site characterization to the implementation of the remedy to final close-out. During this period of time I have developed EPA Issue Papers on groundwater sampling and monitoring well development. I have been a Co-Chair of the EPA's Groundwater Forum, a national workgroup. I have organized and participated in EPA workshops both nationally and internationally. I have also been involved with ORD multi-year planning for Land. I have a BS in Hydrology from the University of Arizona.

Example:

General categories of a science example would be both hydrogeology investigation and groundwater monitoring for effectiveness of a remedial action. This has been conducted at two Superfund site in Vancouver, WA. The environmental media is the subsurface geology and its groundwater quality. The science issue is the subsurface investigation and the chose of the remedy and monitoring its effectiveness. The environmental decision is remedy selection and tools for achieving site closure.

Brian Nickel, E.I.T., water quality permit writer, Office of Water and Watersheds

Brian Nickel, environmental engineer, has been an NPDES permit writer with EPA Region 10 for six years. He has worked on complex and controversial permits involving pulp and paper, mining, and sewage treatment facilities, including permits for discharge to the Spokane River in Idaho, where low phosphorus effluent limits are necessary. He holds a bachelor's degree in chemical engineering from Washington State University.

Example:

Lake Spokane is a 24-mile long reservoir in the State of Washington, which exhibits low dissolved oxygen and algae blooms due to excess loading of phosphorus, ammonia, and CBOD originating from point and non-point sources in both Idaho and Washington. Resolving these water quality impairments requires solving a number of science and policy issues, including:

What is the natural condition of Lake Spokane?

What is the proper role of the dam operator in mitigating the impairments?

To what extent should sources in Idaho be expected to reduce their loading of nutrient and oxygen-demanding pollution?

The science activity that has informed the decisions that, primarily, the Washington Department of Ecology, but also Region 10 has made on this project is the development, calibration, refinement, and ultimately the use in decision making of a dynamic water quality model that tracks the fate and transport of pollution discharged from various sources, and estimates the effect of that pollution upon water quality in Lake Spokane.

Bruce Duncan, ecological risk assessment, Office of Environmental Assessment

Carla Fisher, Corrective Action Project Manager/Permit Writer, Office of Air, Waste and Toxics

With EPA since 1985, currently working as a Resource Conservation and Recovery Act (RCRA) Corrective Action Project Manager/Permit Writer (Region 10, Office of Air, Waste and Toxics). Previous work includes NPDES permit writer and drinking water state coordinator. Humboldt State University, BS Environmental Engineering, 1985.

Example:

Groundwater modeling performed by OEA and ORD played a key role in decisions regarding the Resource Conservation and Recovery Act (RCRA) permit at the ChemWaste hazardous waste landfill in Arlington, Oregon. Region 10 was able to support the state in siting wells for the permit's groundwater monitoring program to ensure that releases of hazardous constituents can be detected in a timely manner. In addition, OEA was critical in providing support and justification for requiring ChemWaste to use low flow sampling techniques to ensure representative sampling for volatile organic compounds.

Carla Fromm, water quality, Idaho Operations Office

Ms. Carla Fromm is a biologist in the Aquatic Resources Unit of the Office of Ecosystems, Tribal and Public Affairs. She is located in the Idaho Operations Office of Region 10. An aquatic ecologist, educated at the University of Kansas (MA), she divides her time between NPDES (National Pollutant Discharge Elimination System) permitting of the aquaculture industry in Idaho and Clean Water Act Section 404 permitting and enforcement. She provides input to the U.S. Army Corps of Engineers on projects which impact Idaho streams and wetlands and takes enforcement action against those who violate the law. The enforcement work generally involves reviewing restoration plans prepared by consultants for the violators.



Example:

Federal agencies are required to determine the effect of their actions on species protected under the Endangered Species Act. Before we issue an NPDES permit to dischargers, we evaluate the effect the permitted discharge may have on listed species or their critical habitat. Where effects are likely, Biological Evaluations or Assessments are written by our Office of Environmental Assessment and submitted to the U.S. Fish and Wildlife Service (FWS) and/or NOAA-Fisheries. Several listed snails live in the Snake River, the receiving stream of discharges from about 20 of the largest aquaculture facilities in the country. Another 50 small facilities discharge to tributaries to the Snake River. We evaluated the potential effects on the listed snails of chemicals used by the industry to treat fish diseases. The evaluation was limited to a literature review. Funds and time did not allow for laboratory experiments, but funds were acquired to assist FWS with achieving successful reproduction in the lab of one snail species. Ultimately, we concluded that the aquaculture chemical usage was not likely to adversely affect any of the snail species and we issued the general NPDES permit to the facilities.

David C. Croxton, Watershed Unit Manager, Office of Water and Watersheds, EPA R10

EPA: Dave has been with EPA since 1987 and a Unit Manager there since 1995. Presently, he manages a group that is responsible for the review and determinations on Listings of Impaired Waters and Total Maximum Daily Loads (TMDLs) as well as implementation of the 319 Nonpoint Source program. Dave's previous manager positions were in the Superfund and Brownfields program and Solid Waste and Toxics. Education: M.P.H. in Environmental Toxicology, University of Michigan. B.S. in Biology, University of Michigan

Example:

EPA developed a water quality model for the Klamath and Lost River systems which flow in Oregon and California. The direct contract costs for the model work is approximately \$1.4 M over a 6 year period. The model is being directly utilized in the Total Maximum Daily Load (TMDL) to establish the nutrient and temperature allocations addressing DO, pH, ammonia, chlorophyll-a, and temperature impairments in the Klamath and to establish DIN and CBOD allocations addressing DO, pH, algae, and ammonia impairments in the Lost.

Due to the complexity of the system, the model for the Klamath and Lost rivers was constructed as a series of integrated models. The model has components based on the CE-QUAL-W2, RMA2/RMA-11, and EFDC frameworks. The model was developed by EPA contractors, Tetra Tech, and was successfully peer reviewed by both an EPA-commissioned panel and through the State of California peer review process. The model will be made available for stakeholders to use in the basin upon completion of the TMDLs by the states of California and Oregon.

David Bray, special assistant to the Director, Office of Air, Waste and Toxics

Dana Davoli, human health risk assessment, Office of Environmental Assessment

Dana has been with EPA since 1979 as a human health risk assessor focusing on risk assessment issues related to fish consumption and sediments. She is currently the Senior Human Health Risk Assessor in the Risk Evaluation Unit in the Office of Environmental Assessment. She provides technical support primarily to the Superfund and Water Offices. She is also the Region's representative to the National Tribal Science Council and has been on several National workgroups dealing with issues on dioxins and PCBs among others. She graduated from Harvard University in 1976 with a PhD in Biological Chemistry.

Example:

Approach for evaluating potential risks to infants from consumption of human milk:

In collaboration with the Oregon Department of Environmental Quality (ODEQ), ATSDR, the Oregon Department of Human Services (OR DHS) and other researchers (Ray Yang and Sami Haddad), Dana and her EPA co-worker in Region 10 reviewed several models for evaluating the risk to infants from consumption of human milk contaminated with environmental pollutants. Environmental contaminants, especially those that are lipophilic, such as polychlorinated biphenyls (PCBs), chlorinated dioxins/furans and chlorinated pesticides, can concentrate in human milk resulting in the nursing infant being at the pinnacle of the human bioconcentration food chain. Our objective was to evaluate the precision of several available models to provide risk assessors and public health practitioners with the information they need to choose the most appropriate model. A secondary objective was to highlight the marked increase in dose that occurs between maternal lifetime intake and the nursing infant. To that end, we compared adaptations of 3 published models as to their ability to predict human milk concentrations of PCB congener 153 (PCB-153) and doses to infants, compared PCB-153 doses to mothers with estimated doses to infants, and calculated the effect of maternal dietary interventions at various ages on subsequent PCB-153 concentrations in breast milk. The three models were: the Haddad model, an 8-compartment physiologically-based pharmacokinetic (PBPK) model that has been validated by comparing estimated milk concentrations against concentrations measured in a Canadian Inuit population; the Yang model, a 3-compartment PBPK model, and; an EPA model, a single compartment, first-order kinetic model based in large part on EPA's Human Health Risk Assessment Protocol for Hazard Waste Combustion Facilities (Combustion Guidance). The results showed that the simulated milk concentrations and doses to the infants from each of the 3 models for the selected individuals were similar within a factor of 2. EPA's model, which is the simplest, consistently calculated 1-year average milk concentrations that were the highest of the 3 models but still within a factor of 2 of the validated Haddad model. This suggests that the EPA model is accurate and protective and may be a good choice for risk assessors and fish advisory practitioners. We found that PCB-153 doses to the infant were, on average 2 orders of magnitude higher than the maternal lifetime daily average.

As a result of this work, Region 10 EPA and ODEQ will be developing guidance for evaluating risks to infants from consumption of human milk based upon estimated exposures of the mother from environmental contaminants at hazardous waste sites and other environmental media. This guidance will incorporate the EPA single compartment, first-order kinetic model. Oregon DHS will be evaluating this pathway in their Public Health Assessments done for Superfund sites and for fish consumption advisories.

Denise Baker-Kircher, remedial project manager, Office of Environmental Cleanup

With EPA since Jan 1985. Was small business ombudsman for generators of hazardous waste in EPA, Region 5 for 2.5 years, worked in, then managed the EPA, Region 5 and 10 Underground Storage Tank Program for nearly 8 years, was a direct report to Office of Water Director and managed 22 water program grants for 2 years, wrote and reviewed Title V Air Permits for 4.5 years, then moved on to the Superfund Program. Am currently a Remedial Project Manager with responsibility for 3 National Priorities List sites. Education: University of Illinois, Geology; Governors State University, Environmental Chemistry

Example:

EPA Region 10 conducted activity based (ABS) sampling at two of my sites. The first was the Swift Creek site just outside of Bellingham, WA., and the second is the North Ridge Estates Asbestos site in Klamath Falls, Oregon. Both ABS sampling events have informed the risk assessments for asbestos in soils at these sites. The ABS activities conducted at NRE, have informed the selection of our proposed plan for the site (due out in February/March 2010).

Don Martin, ecologist , Office of Water and Watershed, Coeur d'Alene office

Manager, Facilitator, R10 Science Steering Council member

Elliot Rosenberg, senior economist, Office of Environmental Assessment

Senior Economist, EPA Region 10. He has been with EPA since June 1993, and is Region 10's expert for economics and financial analysis related issues. He provides technical support across all programs and offices, and to other federal, state, tribal, and local agencies, and to national and international organizations. Mr. Rosenberg's expertise is in environmental and resource economics, development economics, socio-economic policy, project related issues, and in economic-financial related crossover issues such as business operations and management, sustainability, ecosystem services, real estate – often related to ability to pay issues. He has participated in numerous conferences, workshops, and professional association meetings as a session organizer, panelist and moderator; has been an invited speaker at universities; and has developed, organized and presented or co-presented workshops and conference sessions, e.g., ecosystem services, market-based incentives, socioeconomic issues for water quality standards, environmental economics for non-economists, and ability to pay analyses. Mr. Rosenberg has provided technical assistance to numerous federal and state agencies, the United Nations, and has consulted for the Asian Development Bank. Prior to joining EPA, Mr. Rosenberg's career included working in Pacific Island nations as an economist, executive director of an economic development agency, and company manager. He also worked in commercial real estate and the regulatory part of commodity futures. Mr. Rosenberg received a B.A. in economics from Lehman College, CUNY; an M.Sc. with honors from Pace University; and has done PhD level coursework and research.

Erika Hoffman, Office of Ecosystems, Tribal and Public Affairs

With EPA since 1993 as a biologist focusing on sediments in marine and estuarine systems; Currently in Environmental Review and Sediment Management Unit (Office of Ecosystems, Tribal and Public Affairs, Region 10). Provides technical support to Dredging, Superfund, and RCRA programs; EPA staff lead on Dioxin project. Expertise in ecological risk assessment, sediment & tissue guideline development/application, bioaccumulation and toxicity of persistent organic pollutants, sediment and tissue sampling and analysis, benthic ecology. Education: UC Berkeley, MS Energy and Resources Group (aquatic toxicology), 1993

Example:

Impediments to use of science: Revision of Dioxin Guidelines for Dredged Material Disposed in Puget Sound: Context - Regional dioxin guidelines for dredged sediments are being revised because they do not reflect current understanding of exposures to and risk from consumption of dioxin-contaminated seafood. Agency risk estimates for both subsistence-level consumers and the general public indicate that seafood reflecting non-urban background sediment concentrations of dioxin in Puget Sound pose an already unacceptable excess cancer risk (greater than 1×10^{-5}).

Problem - Illustrates difficulties with merging policy and science. Scientists on opposite sides of the debate have reached different conclusions on the risk posed by open water disposal of dioxin-contaminated sediments and what is generally a workable approach to regulating persistent, bioaccumulative COCs. The debate centers around if and how the incremental risk posed by a specific disposal site should be used to develop numerical guidelines for dioxin.

Greg Kellogg, Alaska Operations Office

Gretchen Hayslip, aquatic biologist/water quality monitoring, Office of Environmental Assessment

Larry Gadbois, Hanford project manager, Office of Environmental Cleanup

Environmental Scientist EPA Region 10. 1992-Present
CERCLA project manager for Hanford nuclear reservation in Richland, WA. 1992-Present. Total Maximum Daily Load project manager for central WA waterbodies. 2000-Present.

Environmental Scientist, Naval Ocean Systems Center, San Diego, CA. 1984-1992, Artificial Intelligence computer programming and environmental toxics studies.

Masters degree, Marine Science, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, VA 1984

Masters thesis "The Response of Benthic Respiration to Nutrient Levels."

Bachelors degree, Biology, Saint Johns University, Collegeville, MN 1981



Example:

The Hanford CERCLA cleanup site in south central WA state has the Columbia River flowing through it. One of the cleanup issues is groundwater contaminated with hexavalent chromium. It is a gaining river through Hanford. The river fluctuates about six feet on a daily basis due to operations of an upstream dam. The river also fluctuates another 10 feet or so on an annual cycle. Based on river stage, groundwater may flow into the river or river water may flow into the groundwater. What cleanup level is needed for the inland groundwater plume such that aquatic water quality standards will be met at our point of exposure, 18 inches into the river bottom (determined by the maximum salmon spawning redd depth)? How much dilution and mixing occurs in the near-river groundwater, or is there minimal mixing therein the interfaces moves within the groundwater or to the river bottom? Push probes were used to measure the chromium and conductivity off shore in the hyporheic zone, in the aquifer at the river's edge, and in inland wells. The result was the CERCLA ROD provided for a 1:1 dilution.

Leigh Woodruff, Idaho Operations Office

Leigh has worked for EPA since 1985 on a variety of issues including drinking water, human health risk assessment, and for the past 14 years, on surface water quality issues in Region 10's Office of Water. Currently Leigh is the Idaho TMDL State lead located in Boise, Idaho. In this capacity he has been EPA's lead reviewer for Idaho §303(d) lists, numerous Idaho TMDLs, as well as facilitating agreements for development of TMDLs on Tribal Reservations. Over the past three years Leigh has also co-lead an effort to establish Region 10's multi-media mercury control strategy for Alaska, Oregon, Washington, and Idaho. Leigh has a BS in Microbiology from Washington State University, and an MPH in Environmental Health Policy from the University of Michigan.



Example:

In Idaho, state water quality standards for temperature indicate that streams which exceed the temperature criteria due to natural conditions, are in compliance with state water quality standards. Anthropogenic impacts to stream shade are one of the most significant drivers of increased stream temperature. Under the CWA, a Total Maximum Daily Load must be developed for streams which are impaired due to temperature problems. Because loss of stream shade is most often the primary driver of elevated temperature, the primary target of Idaho temperature TMDLs is a natural level of stream shade.

EPA collaborated with Idaho to collect basic vegetation type, height, density and other information in relatively undisturbed settings for forested and non-forested settings in Idaho. Information was obtained

from the USFS and the literature, and was summarized as input to the Washington Department of Ecology Shade.xls model, which converts landscape information into percent stream shade. The model output are a series of curves which represent natural stream shade for a range of vegetation types, stream widths, and stream aspect.

In this example, basic scientific information was converted through modeling and assumptions to a form which could be used by the State and EPA for decision making in interpreting state water quality standards, and hence used as targets in TMDLs. There continues to be debate amongst industry and the agencies over how the underlying data was summarized as input to the model, what equations were used in the model, how the results are applied in the field, and what impacts the resulting shade targets will have in timber harvest. However, the underlying science of stream temperature dynamics, and the role shade plays in regulating stream temperature, continues to be at the forefront of the policy discussions.

Lisa Olson, water quality, Office of Water and Watersheds

Lynne McWhorter, EIS review, Office of Ecosystems, Tribal and Public Affairs,

Located in the ETPA Environmental Review and Sediment Management Unit. Environmental Assessment/Environmental Impact Statement Review for 8 years with EPA. Primarily work on federal land management projects with a specific focus in mining. Proposals reviewed range from hard rock mining, minerals mining, suction dredge operations, and gravel mines across Region 10. University of Washington, Environmental Science.

Example:

EPA R10 conducts technical review of phosphate mine proposals in SE Idaho. EPA R10 has a mine team and draft R10 mine strategy, which supports cross programmatic work on mine proposals. One of the key issues with mining is impacts to water quality. The major issues with phosphate mines is the potential release of selenium to groundwater and surface water from waste rock piles. For many years EPA R10 has been reviewing BLM lead phosphate mine EISs and we consistently recommend detailed waste rock characterization, disclosure of uncertainty with modeling, and adequate financial assurance for long term management and post closure. Our efforts encourage public disclosure of environmental risk, reducing environmental impacts, and informed decision making based on adequate environmental analyses. Currently, we are engaged with two phosphate mine proposals and ongoing exploration.

Michael J. Szerlog, supervisory scientist, Office of Ecosystems, Tribal and Public Affairs



Michael Szerlog has been a supervisory scientist in the Aquatic Resources Unit, Office of Ecosystem, Tribal, and Public Affairs since February 2007. Previous scientific work experiences include: a Federal On-Scene Coordinator in the Emergency Response Unit, Office of Environmental Cleanup from 1999 to 2007 where he managed time-critical cleanups involving oil and hazardous substances, was responsible for the unit's quality assurance efforts, and was on a national team working on staged-electronic data deliverable formats for standardized data deliverables to assist with rapid data validation in the field; a State On-Scene Coordinator, State of Oregon, from 1998 to 1999 where he managed oil and hazardous substance responses, conducted site assessments, and negotiated voluntary cleanup actions; and an Environmental Chemist/Scientist, Ecology and Environment, Inc. from 1990 to 1998 where he operated field laboratories, managed sampling efforts for air, water, soil, and other media, and conducted site assessments and inspections at oil and hazardous waste sites. An environmental chemist by training, he now is in a supervisory scientist role supervising biologist/ecologist staff working on scientific issues involving aquatic resources - including wetlands. Staff work to administer Section 404 of the Clean Water Act and are involved in Jurisdictional Determinations, Permit Review, Enforcement, Monitoring and Assessment, Compensatory Mitigation, and Technical Assistance to States/Tribes and other programs within Region 10. Mr. Szerlog has a Bachelor of Science degree in Chemistry from the University of New Hampshire, 1990.

Example:

Scientific needs related to Clean Water Act, Section 404 Enforcement Program work: The goal of the Clean Water Act (CWA) is “to restore and maintain the chemical, physical and biological integrity of the Nation’s waters”. The Army Corps of Engineers and EPA co-administer Section 404 of the Clean Water Act. EPA, Region 10, is responsible for enforcing unauthorized discharges of dredge and fill material into the Nation’s waters in Oregon, Idaho, Washington, and Alaska. The goal of enforcement is to replace lost ecosystem function(s) associated with the unauthorized dredge and fill of waters of the United States and to provide meaningful deterrence for repeat and flagrant violators. Recent Supreme Court rulings involving CWA Section 404 enforcement cases has increased the need for collecting a higher level and larger volume of scientific data in order to make informed decisions. For example, a determination of jurisdiction is needed before the Federal Government is able to take an enforcement action against an alleged violator of the Clean Water Act. Additional scientific data must be collected and reviewed to determine if the waters are “waters of the United States” and therefore jurisdictional for EPA to begin to develop its enforcement case. This scientific need has to be fulfilled before moving forward down the enforcement road. Once the aquatic resource is determined to be jurisdictional, another determination is made to find out if a wetland or other aquatic resource exists at the disturbed site. Scientific data related to vegetation, soil, and hydrology must be collected to make this determination. Once it is determined that a wetland or other aquatic resource exists at the site, another determination is made to delineate the extent of the aquatic resource and the extent of the unauthorized activity. The collection of the scientific data is crucial to EPA being able to issue an Enforcement Order to require restoration of the jurisdictional wetland or other aquatic resource.

Roseanne M. Lorenzana, Sr. Toxicologist & Science Liaison, Office of Environmental Assessment



Dr. Lorenzana is a senior toxicologist, science advisor to the Director and science liaison to EPA’s Office of Research and Development (ORD). She has been with EPA for 18 years. Liaison work involves research planning, as well as transfer or translation activities to enhance the use of ORD’s research products in environmental decision-making. She has extensive experience as a human health risk assessor, and has lead efforts to document unique environmental exposures of population groups which may experience disproportionate adverse environmental health impacts and burdens, and investigations regarding the bioavailability of arsenic and lead in environmental media. She was a member of the team which received the Agency’s highest honor award (Gold) for her role in children’s health protection at the Bunker Hill Superfund site. She is an adjunct Associate Professor in the Environmental and Occupational Health Sciences Department in the School of Public Health at the University of Washington, and also has an adjunct position at Oregon State University. She’s guided several EPA student interns and visiting international scientists through projects involving human health risk assessment. Dr. Lorenzana has taught EPA’s Risk and Decision-Making and other risk assessment classes both nationally, as well as internationally. She has authored many EPA technical documents, as well as manuscripts published in peer-reviewed journals. Dr. Lorenzana has a Doctorate in Veterinary Medicine, Ph.D. in toxicology from the University of Illinois, and, since 1992, is board certified as a Diplomate of the American Board of Toxicology.

Sheila M. Eckman, Unit Manager, Office of Environmental Cleanup

Sheila Eckman is a Unit Manager of a Site Cleanup Unit in the Office of Environmental Cleanup at EPA’s Region 10 office in Seattle. Her unit oversees cleanup of many of the Superfund sediment cleanup projects in Puget Sound. Sheila has been with EPA for 20 years, 17 of those in the Superfund Program in Regions 1 and 10. Prior to joining EPA, she worked for a state environmental agency and a private consulting firm. She has a Masters Degree in Geo-Environmental Studies.

Example:

For any one of our Superfund cleanup projects in Region 10, science is highly integrated into evaluation and decision-making. Generally, environmental data is collected over a number of years to determine the nature, extent, and concentrations of contaminants. Prior to data collection, a scoping process

culminates in a project work plan so that data collected is useful in answering a number of questions. Environmental data and exposure information is then used in Human Health and Ecological Risk Assessments to determine whether unacceptable risks are present at the site. This information is then used to develop remedial action objectives, aimed at reducing this risk. A Feasibility Study considers environmental data and engineering principles to develop alternatives for cleanup. It is also common to use modeling exercises to look at groundwater flow, sediment transport, contaminant transport, and food webs to assist in the selection of a cleanup plan. Region 10 involves a multitude of stakeholders, Tribes, and community members in reviewing and commenting on scientific and technical information and evaluations, especially at our larger, more complex sites.

Tracie Nadeau, Ph.D., environmental scientist, Washington Operations Office, Office of Ecosystems, Tribal and Public Affairs

Dr. Tracie Nadeau has been an environmental scientist in the Aquatic Resources Unit since October 2008. She came to Region 10 from HQ's Office of Wetlands, Oceans and Watersheds (OWOW), where she worked for several years on wetland and watershed issues and on issues related to Clean Water Act jurisdiction. She was most recently the Team Leader of OWOW's Policy and Communication Team, and co-Team Leader of OWOW's cross-office Watershed Planning Team. Much of Dr. Nadeau's work has been at the science-policy interface, and she has twice been awarded the Level I Scientific and Technological Achievement Award. She has also received the Office of Water's Achievement in Science and Technology award. An aquatic ecologist by training, she has interest and experience in both freshwater and marine systems. Dr. Nadeau did her undergraduate work at the University of Michigan, has a Master's degree in Biological Sciences from the University of Wisconsin-Milwaukee and Center for Great Lakes Studies, and a Ph.D. in Ecology and Evolution from the University of Oregon.

Example: Validation of a Streamflow Duration Assessment Method for the Pacific Northwest
Following the U.S. Supreme Court's 2006 Rapanos decision, the U.S. Army Corps of Engineers and EPA now place greater emphasis on determining the duration of streamflow in making jurisdictional determinations for purposes of the Clean Water Act. We have a project underway developing a field assessment tool to help distinguish between ephemeral, intermittent, and perennial streams; the primary driver behind development of this method is post-Rapanos guidance implementation and enforcement. This Streamflow Duration Assessment Method (Method), which was released as an interim version in March 2009, has been the subject of an ongoing two-year validation study, in cooperation with ORD/Western Ecology Division, testing the method at more than 170 sites in Oregon. That study aims to validate the streamflow duration classes—ephemeral, intermittent, perennial—provided by the Method in major hydrologic landscape regions across Oregon. Final data collection was completed in October 2009, and data analyses are underway; we anticipate releasing a final version of the Method for Oregon, reflecting the study results, in winter 2010. The objective is to provide a scientifically supported, rapid assessment framework that is consistent, robust, repeatable, and defensible. We were recently awarded Region 10 RARE funding to expand the validation study to Washington and Idaho, to further improve the specificity and scientific underpinning of the Method. Because this method informs CWA jurisdictional determinations, it also can affect project development, mitigation, and enforcement decisions, which are core elements of the Section 404 regulatory program. Beyond providing for a scientifically robust method that is applicable across the Region/Western states, an additional study objective is to generate research to directly inform the program and policy arena on CWA jurisdictional issues.

SAB Science Integration for Decision Making Fact-Finding Interview
With Executive Team, EPA Region 10
1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 2:00 - 3:30 p.m.
Draft Agenda

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
 - Practices for integrating science to support decision making
 - Consideration of public, stakeholder, external scientific, and other input in science assessment
 - Drivers and impediments to implementing past recommendations for science integration
 - Ways program receives feedback on how science is used in decision-making
 - Workforce to support science integration for decision making
2. Discussion facilitated by SAB Members
3. Identification of any follow-up actions

Planned participants

EPA Region 10

Ms. Julie Hagensen, Assistant Regional Administrator
Mr. Mike Bussell, Director Office of Water & Watersheds
Mr. Richard (Rick) Albright, Director, Office of Air, Waste & Toxics
Ms. Joyce C. Kelly, Director, Office of Environmental Assessment
Ms. Lori Cohen, Acting Director, Office of Environmental Cleanup
Mr. Jim Werntz, Director, EPA Idaho Operations Office (by phone)
Mr. Anthony (Tony) Barber, Director, EPA Oregon Operations Office (by phone)
Mr. Tom Eaton, Director, EPA Washington Operations Office
Mr. Rick Parkin, Acting Director, Office of Ecosystems, Tribal and Public Affairs
Mr. Ed Kowalski, Director, Office of Compliance and Enforcement

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute
Dr. Wayne Landis, Western Washington University
Dr. Thomas Theis, University of Illinois at Chicago
Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)
Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director
Dr. Angela Nugent, Designated Federal Officer

SAB Science Integration for Decision Making Fact-Finding Interview
With Acting Regional Administrator and Acting Deputy Regional Administrator
EPA Region 10, 1200 6th Avenue, Seattle, Washington
Executive Team 14th Floor Conference Room
Call-in Number: 866-299-3188, access code 343-9981 and press the # sign
December 8, 2009, 4:00 - 5:00 p.m.
Draft Agenda

Purpose of Interview: to help SAB Committee members learn about Region 10's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts.

1. Introductions facilitated by the SAB Staff Office
 - Practices for integrating science to support decision making
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3. Identification of any follow-up actions

Planned participants

EPA Region 10

Ms. Michelle Pirzadeh, Acting Regional Administrator
Mr. Daniel Opalski, Acting Deputy Regional Administrator

SAB Committee on Science Integration Committee Members

Dr. Rogene Henderson, Lovelace Respiratory Research Institute
Dr. Wayne Landis, Western Washington University
Dr. Thomas Theis, University of Illinois at Chicago
Dr. Penelope Fenner-Crisp, Independent Consultant (by telephone)
Dr. John Giesy, University of Saskatchewan (by telephone)

SAB Staff Office

Dr. Vanessa Vu, Director
Dr. Angela Nugent, Designated Federal Officer

Region 10 Profile

Contacts: Michelle Pirzadeh, Acting Regional Administrator, 206-553-1234

Dan Opalski, Acting Deputy Regional Administrator, 206-553-1200

Functional Statement for EPA's Regional Offices

(<http://www.epa.gov/history/org/regions/index.htm>)

Regional Administrators are responsible within the boundaries of their regions, for the execution of the programs of the Agency and such other responsibilities as may be assigned. Regional Administrators cooperate with Federal, state, interstate and local agencies, industry, and academic institutions, and other private groups to make sure regional needs are considered and Federal environmental laws implemented. Regional Administrators are responsible for developing, proposing, and implementing regional programs for comprehensive and integrated environmental protection activities; conducting effective regional enforcement and compliance programs; translating technical program direction and evaluation provided by various Assistant Administrators, Associate Administrators and Heads of Headquarters Staff Offices into effective operating programs at the Regional level, and assuring that such programs are executed efficiently; exercising approval authority for proposed State standards and implementation plans; and providing overall and specific evaluations of regional programs.

Region 10 Organizational Description

Region 10 is headquartered in Seattle and includes Washington, Oregon, Idaho, and Alaska.

Two Unique Features:

EPA Region 10 is unique among other Regions in that Seattle has chosen to establish field locations called Operations Offices with a total of 94 staff, spread through all four of their states as well as placing 18 staff members in "place-based" locations within the Region. Each of Region 10's Operations Offices is located near the state environmental agency and is headed by an Office Director that reports to the Regional Administrator. This allows for frequent personal communication at a senior level with state agencies and facilitates early resolution and prevention of problems before they become serious.

There are 270 federally recognized tribes in the Region, including 229 in Alaska. This represents nearly half of the nation's total.

Region 10 Strategic Plan: Since 2007, when the Region revised its strategic plan, we have focused on the following six strategic endeavors.

- **Support the Core Regulatory Programs**
- **Clean Energy and Climate Change**
- **Enhancing Tribal Environments**
- **Protecting and Restoring Watersheds**
- **Sustainability and Strategic Partnerships**
- **A Stronger EPA.**

An overview for each of these endeavors is provided in Appendix A.

Region 10 Reporting Organizations

See: Region 10 Organization Chart, Appendix B. and Office Director Profiles, Appendix C.

1. Office of Air, Waste and Toxics (OAWT)

Contact: Rick Albright, Director, 206-553-1847
Jan Hastings, Assoc. Director, 206-553-1582

OAWT Organizational Description

OAWT carries out waste and chemicals management programs under statutory authorities such as RCRA, TSCA and EPCRA, and carries out enforcement actions dealing with lead based paint 1018 and 406 rules, AHERA, and the Toxics Release Inventory reporting requirements. In addition, this Office implements regulatory programs under the Clean Air Act, including development and support of collaborative projects to protect air quality.

OAWT Recent Accomplishments

OAWT has been actively engaged in working with HQ on national rules and approaches as well as evaluating our existing tools to identify opportunities to address the impacts of climate change and enhance sustainability. Recent accomplishments include:

- Preliminary PM 2.5 non-attainment designations made in seven air sheds.
- Idaho State Implementation Plan for Agricultural Open Field Burning approved.

- Major ports in Pacific Northwest (ports of Vancouver, BC, Seattle and Tacoma) committed to reducing air pollution by 30% by 2010.
- Technical assistance to Washington State to ensure effective regulation of radioactive waste at Hanford Federal Facility.
- Leadership role in addressing climate change, including:
 - * Launch of the “Federal Green Challenge” in which Region 10 and dozens of other federal agencies have committed to reducing greenhouse gas emissions by 5% over the next year by managing energy, transportation, waste, and water
 - * Introducing the Energy Star benchmarking tool to the Region’s wastewater treatment plant managers
 - * Convening an EPA Region 10 Climate Partnerships Forum with Fortune 1000 companies in the Pacific Northwest

OAWT Significant Actions

The OAWT Tribal Solid and Hazardous Waste Team met the Indian Health Service/EPA national goal to identify and upload Regional data on open dumps into the national Indian Health Service Operations and Maintenance System (OMDS) database. This information is the first national inventory of open dumps in since 1997. The Regional open dumps tally is over 600 and climbing.

At mid-year 2009, Region 10 and OAWT have closed, cleaned-up, or upgraded 21 open dumps, and significantly exceeded the original goal of 9 by FY2011. The number of tribes covered by an integrated waste management plan has increased by 30.

West Coast Collaborative (WCC) awarded over \$9 million to states, local governments, and non-profits diesel emissions reduction projects. An additional \$6 million from the Recovery Act of 2009 will soon be awarded through the competitive grants solicitation.

Follow-up from the September 2008 Climate and Waste Forum is ongoing. Regions 9 and 10 are planning a new series of climate and waste webinars that highlight EPA’s WARM model, CARB’s community accounting protocol and discuss potential cap and trade/offset opportunities for materials management and waste reduction.

It has been almost four years since promulgation of the Federal Air Rules for Reservations (FARR) that apply on 39 Indian Reservations in Idaho, Oregon, and Washington and we are seeing significant accomplishments in almost every aspect of

implementation. Over the past six months, we issued two non-Title V permits and one Title V permit renewal, called ten burn bans, issued two Notices of Violation (NOVs), hosted a FARR Complaint Response Workshop, responded to 33 complaints, registered 115 sources and provided targeted open burning compliance assistance to mint growers on the Yakama Reservation.

In 2007 and 2008, we designated seven new nonattainment areas in the Region as failing to comply with the 2006 fine particulate matter (PM2.5) standards. Many of these PM2.5 nonattainment areas in our Region are rural, isolated, sparsely populated communities. In many of the affected communities, woodstoves and other wood burning sources contribute to fine particulate pollution. To this end, the Region is promoting woodstove change out programs and outreach campaigns in all of these communities.

2. Office of Compliance and Enforcement (OCE)

Contact: Edward Kowalski; Regional Counsel, 206-553-6695 Lauris Davies, Assoc. Dir. 206-553-2857

OCE Organizational Description

OCE serves as the focal point for compliance and enforcement planning, guidance, and resources. This office is responsible for coordinating strategic compliance assurance efforts, measuring progress, coordinating with EPA HQs, states and tribes, and assisting in special enforcement or compliance assistance efforts. OCE is also responsible for protecting the air, soils, surface water and ground water through effective permitting, enforcement, and remediation of point source dischargers, area sources, underground and above ground storage tanks, PCBs, and underground injection wells. OCE works closely with states and tribes to effectively monitor and enforce the safe production, import, sale and use of pesticide products.

OCE Recent Accomplishments

In FY08, OCE completed 1,183 inspections, reduced over 20 million pounds of pollution and recovered \$55 million dollars of injunctive relief (i.e., cost to achieve compliance). These accomplishments represent a significant increase over 2007 results. In 2008 OCE referred 18 civil judicial enforcement cases to the Department of Justice and settled 116 final administrative penalty orders and collected penalties exceeding \$3 million.

These accomplishments reflect active work in nationally significant air and water cases, as well as direct implementation of several programs in undelegated states and on tribal lands.

OCE Significant Actions

In state oversight, OCE completed three state program reviews including two compliance reviews of air, waste, and water in Oregon and Washington and one permit and compliance review of Alaska's Class 2 injection well program. OCE also has worked extensively and closely with Region 10 OWW and the state of Alaska to work toward a complete and approvable package for NPDES program authorization. In October 2008, the Region approved the NPDES program authorization package that called for a five year phased approach for assuming responsibility for the NPDES program. OCE resources are now heavily focused on capacity building, training, and oversight of Alaska's implementation of the compliance and enforcement aspects of the program.

OCE awarded to states and tribes nearly \$10,000,000 in grants, cooperative agreements, interagency agreements, and contracts in 2008 to support the pesticides, underground storage tanks, and underground injection well programs. In 2009, OCE will award similar amounts, plus an additional \$8,400,000 in ARRA funds to drive additional leaking underground storage tank cleanups.

OCE successfully met the first aggressive statutory deadline under the 2005 Energy Policy Act to inspect all petroleum underground storage tanks (USTs) in three years. With the next deadline in 2010, OCE is investing significant inspection capacity in Washington State to meet the deadline. OCE also has additional state oversight responsibilities as each state modifies its regulations to include Energy Policy Act requirements, which must be approved by EPA in order for them to maintain a federally-approved state program. In other UST accomplishments, OCE assisted Idaho DEQ in developing their first-ever underground storage tank regulatory program - one of the last states in the nation to develop prevention regulations for USTs. Finally, OCE leveraged resources for Washington Department of Ecology to develop a ground-breaking multi-site clean up agreement for voluntary cleanup of leaking USTs owned by Shell, Inc.

As development for oil resources booms on the Alaskan North Slope, demand for waste injection well permits has also climbed. In the past three years, OCE has doubled the number of permits issued for deep well injection of industrial non-hazardous wastes. Despite

the complexity of these permits, OCE has dramatically shortened development and review time, while increasing field oversight of well construction, attaining a sustainable level of up to three permits issued per year in this one-person permitting program.

In FY 2009, OCE was allocated an additional FTE to provide support to the Puget Sound Initiative. This resource has been focused on evaluating environmental threats related to Puget Sound for which federal enforcement could be most effectively targeted.

3. Office of Environmental Assessment (OEA)

Contacts: Joyce Kelly, Director, 206-553-4029
Ann Williamson, Assoc. Director, 206-553-2739

OEA Organizational Description

OEA provides scientific and technical leadership and expertise for assessing the condition of the environment in support of media program decision-making and scientific initiatives.

OEA collects and analyzes data to characterize the environment, investigate environmental problems, and evaluate proposed solutions. Scientific and engineering capabilities are directed toward environmental modeling, monitoring, and assessment, chemical and microbiological laboratory analyses, facility compliance inspections, evaluation of pollution control technologies at pollution sources, risk assessments, management of Region 10's Quality Assurance Program, and providing technical assistance to partner agencies and the public.

OEA Recent Accomplishments

See: OEA 2007-2008 science report, Appendix D.

OEA has been instrumental to the success of several high profile Regional activities including federal, state, and tribal coordinated implementation of the National Lake Survey assessing the ecological health of the nation's lakes; water quality, and sediment research conducted aboard the Ocean Survey Vessel BOLD; and, taking the lead on cutting edge research in the areas of microbial source tracking and arsenic speciation method development.

The Region 10 OEA Laboratory is in the process of becoming certified as a laboratory capable of performing sophisticated analytical testing of ultra-dilute analysis of chemical warfare agents (CWA) for the Department of Homeland Security. The Lab will be one of a very select few EPA laboratories capable of performing this critical function.

OEA Significant Actions

OEA staff was instrumental in the development of risk assessment guidance affecting Region 10 tribes. The document, "Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia" provides tribes and other interested individuals with information on how to derive a fish consumption rate that is protective of tribal health and resources. The outcomes of applying the framework can be used to establish cleanup goals for Superfund sites.

The Laboratory, with ORD, is developing an arsenic speciation method for fish and shellfish, resulting in better protection of Native and Asian Americans, enhanced RCRA/SF cleanup decisions and possibly improving Water Quality criteria.

Using their knowledge of ecology, hydrogeology, and hazardous waste fate and transport, Region 10 technical staff developed specialized equipment capable of sampling at the transition zone between surface water and ground water. The method will help scientists and decision makers understand the consequences of contaminants leaching through ground water into surface water and potentially re-contaminating "capped or clean" sediments. These innovative sampling tools and creative collection method are less expensive and much easier to use than traditional techniques.

4. Office of Environmental Clean-Up (OECL)

Contacts: Lori Cohen, Acting Director, 206-553-1855
Linda Anderson-Carnahan, Acting Associate Director, 206-553-2601

Organizational Description

ECL is responsible for Superfund and oil spill cleanup and enforcement work. Emergency response and long-term site cleanup work is conducted directly by EPA, shared with the states and tribes, or directed through enforcement agreements. In addition, ECL has responsibility for implementing the Brownfields program

in Region 10, which includes managing over \$27M in 70+ grants/cooperative agreements to non-profit organizations, local, state and tribal governments. The work of the ECL also includes site assessment, Homeland Security preparedness, chemical release and oil spill prevention and preparedness programs, and case development.

ECL Recent Accomplishments

In FY08, Region 10 completed construction of the remedy for the Taylor Lumber Superfund site. Seventy of 98 National Priorities List sites in the Region have now reached the construction complete milestone. EPA also completed the cleanup and a Consent Decree for the Reynolds Metals site in Troutdale, Oregon, clearing the path for economically beneficial reuse for a FedEx transfer facility.

Last year, the Superfund remedial program completed residential yard cleanup in the Bunker Hill 'Box,' a project that started in the mid-80s. This project to clean up mining-related contamination has been instrumental in reducing child blood-lead levels from the highest in the country to well within the national average.

This last year also saw the completion of two major penalty actions at the Commencement Bay and Hanford Superfund sites. Both actions included important supplemental environmental projects. The Hanford action led to improved landfill management practices, including the purchase of better equipment at Department of Energy facilities across the country.

In FY09, Region 10 received American Recovery and Reinvestment Act (ARRA) funding to accelerate cleanup at the Bunker Hill, ASARCO (smelter contamination within the Commencement Bay site) and Wycoff Superfund sites. The latter two sites are on Puget Sound. Funding for the Bunker Hill and ASARCO sites will continue and accelerate cleanup of residential properties. The Wycoff ARRA funds will be used to accelerate completion of the containment remedy for the site.

The Region has seen a significant increase in the number of cases related to spills of mercury in schools. Once a spill is reported, the situation can quickly evolve into a large scale clean-up operation due to the physical properties of elemental mercury. Oils spills of varying sizes have also occupied much of the resources and time of the Region 10 responders. Additional short-term cleanup activities

have focused on managing old mine wastes, such as asbestos and heavy metals, and sites involving asbestos containing demolition wastes at a former military installation and contaminated soil at a former wood treating facility.

Recently, Region 10 developed the “Western Regions Catastrophic Earthquake Response Plan” with our back-ups, Regions 8 and 9. This plan is part of a national EPA effort to address the Department of Homeland Security’s National Preparedness Scenarios. The plan details EPA’s roles, responsibilities, and incident objectives during a post-incident response.

ECL Significant Actions

Region 10 is currently engaged in a number of large and complex Superfund sediment cleanup projects, including the Lower Duwamish River and Upper Columbia River sites in Washington and the Portland Harbor site in Oregon. The Remedial Investigation Report and Risk Assessments for the Lower Duwamish site are completed and the first draft of the Feasibility Study is under review. Significant public outreach is being conducted in this Environmental Justice community. Field sampling for the Remedial Investigation/Feasibility Study at the Upper Columbia River Superfund Site is beginning this summer.

The Region is also conducting investigations and cleanup on numerous other sites in Puget Sound and has a commitment to address an additional 200 acres of contaminated sediments between 2009 and 2014.

Region 10 is proceeding with nearly \$2.5 million in cleanup work at the Northridge Estates Site to accelerate the cleanup of asbestos in a residential neighborhood.

Future planned work over the next two years will involve expanding our planning efforts externally with other key federal agencies, state agency response partners, and selected major metropolitan governments.

5. Office of Ecosystems, Tribal, and Public Affairs (OETPA)

Contacts: Richard Parkin, Acting Director, 206-553-8574

Tina Reichgott, Acting Assoc Director, 206-553-6523

ETPA Organizational Description

OETPA promotes community based environmental protection. OETPA’s goal is to protect and restore an

environment of naturally functioning ecosystems with healthy human communities by:

- Taking action to protect and restore wetlands and the aquatic environment by promoting the use of innovative tools, regulatory tools, and enforcement.
- Working with tribal governments to protect and restore lands and environmental resources of tribes throughout the Pacific Northwest and Alaska.
- Providing people with information, opportunities, resources, and technical assistance to influence environmental decision-making and take action to protect the environment.

Our work includes community involvement, environmental justice, environmental education, ecosystem and community health, aquatic resources (wetlands and oceans), NEPA review, and tribal programs.

Through the community involvement team, press team, web team, and Public Environmental Resource Center, OETPA provides timely, accurate and relevant information to the public, the press, and elected officials.

ETPA Recent Accomplishments

Region 10 completed its commitment to manage agreements with the Taiwan government for EPA to provide technical support for air monitoring, a Ports Initiative and other environmental work. Lead transferred to Headquarters, with Region 10 continuing to provide technical assistance.

Established and hired the EPA Region 10 Agriculture Advisor position to enhance our effectiveness in addressing environmental issues in the agricultural sector.

Worked with the Puget Sound Partnership to develop the Puget Sound Action Plan and fund high priority environmental research, monitoring and restoration and work in Puget Sound.

Managed \$24M in grants to tribal governments for building capacity in their environmental programs that highlight proper waste management and education.

Enhanced the wetlands program through increased coordination with the Corps of Engineers for improved planning and case development processes, promoting the new Oregon Streamflow

Duration Assessment Method, and kicking off watershed pilot projects.

Designated the Rogue and Umpqua River Ocean Disposal Sites off the Oregon coast to properly dispose and manage dredged material from navigational projects.

Influenced actions of other federal agencies on major projects such as forestry in Western Oregon, oil and gas projects in Alaska, and transportation projects such as Seattle's 520 bridge through our NEPA commenting authority.

ETPA Significant Actions

Continued an aggressive schedule of Environmental Justice training workshops to EPA staff. Other agencies and the public are invited.

Developed a North Slope Communication Protocol to require and provide guidance to EPA programs to provide opportunities for meaningful involvement by Alaska Native Villages in EPA program actions such as permit issuance.

Selected and managed CARE grants, environmental education grants, wetlands grants and targeted watershed grants that provide local environmental, community based projects.

Provided community involvement expertise to major projects across the Region, including Superfund cleanups and emergency response efforts, the Puget Sound Partnership, the North Slope Communication Protocols, and the Puget Sound Dredged Material Disposal Program.

Continued to provide press and media support to the Regional office, including several successful media events hosted by the Regional Administrator. These events highlighted the Diesel Initiatives and projects funded by EPA and managed by Tribal Governments in Puget Sound.

6. Office of Management Programs (OMP)

Contacts: Julie Hagensen, Director, 206-553-0758
Tim Hamlin, Acting Assoc Director, 206-553-1563

OMP Organizational Description

OMP provides advice and support on administrative programs for all components of the Regional Office. OMP functions include administrative management of assistance agreements and interagency agreements, budget execution and financial management for the Regional Office and individual programs, management control and integrity assurance, Civil Rights and Equal Opportunity Employment programs, management and organization of human resources, information technology and information management, space and facilities management, and health and safety, assistance on organizational effectiveness and management of Contingency of Operations efforts.

OMP Accomplishments

OMP has strong programs across the board, but in 2008, our standout program was Grants Administration. Region 10 received the 2008 Excellence in Grants Management Program award. This award, which is jointly sponsored by the Office of the Chief Financial Officer and the Office of Administration and Resources Management, was established in 2003 to recognize and reward those regions and Headquarters program offices that substantially exceed the standard performance measurement targets of EPA's Long-term Grants Management Plan.

EPA recently made the decision to consolidate its interagency agreement (IA) activities in two strategically located Shared Service Centers (SSCs). One of these Centers is located in Region 10 OMP's Grants Administration Unit. Moving from eleven locations to two strategically located centers will improve IA consistency and efficiencies while assuring "back-up" capacity, if needed. The IA operational activities that will move to SSCs include all pre-award, award, administrative management, post-award, and close-out functions.

OMP Significant Actions

After working with the Government Services Administration and Office of Administration and Resources Management, the Seattle Regional Office lease has been renewed for another 10 years.

7. Office of Regional Counsel (ORC)

Contacts: Teddy Ryerson, Acting Regional Counsel, 206-553-6219

Ann Prezyna, Deputy Reg.Counsel, 206-553-1023

ORC Organizational Description

ORC is responsible for the development, implementation, and coordination of all Regional legal activities including: coordination and conduct of enforcement and defensive litigation; legal aspects of the Region's financial assistance activities including grant appeals and bid protests; review for legal sufficiency of many Regional actions such as state program authorization petitions, permit actions, Federal Register notices, etc., and various other Regional actions; and activities which raise legal questions, interpretation of Agency guidance, regulations, and statutes, and coordination of legal and enforcement activities with state and local governments.

ORC Recent Accomplishments

Rock Creek Mine - settled Clean Water Act claims against Alaska Gold Company and NovaGold Resources related to the Rock Creek Mine near Nome, Alaska. Defendants agreed to pay \$883,628 in civil penalties and \$8 million to remedy the violations alleged in the complaint. EPA estimates this remedy will prevent 10 million pounds of sediment from being released into nearby surface waters.

British Petroleum Exploration (Alaska) Inc. ("BPXA") - filed a civil complaint against BPXA alleging illegally discharge of more than 200,000 gallons of crude oil onto the North Slope of Alaska during two major oil spills in 2006. The lawsuit also alleges that BPXA failed to prepare and implement adequate spill prevention and control plans, failed to implement certain required spill prevention measures, and violated the Clean Air Act by improperly removing asbestos-containing materials from its pipelines.

Grandview Mine - entered into a Superfund Administrative Order on Consent with Teck Cominco, Seattle City Light, Blue Tee Corporation, and Washington Resources to address contamination at this former mining site located in eastern Washington.

Shell Permits - The EAB granted EPA's motion to dismiss as moot the petitions for review of the 2008 Outer Continental Shelf permit issued to Shell Offshore Inc., after Shell withdrew its minor source permit application and requested that EPA terminate the permitting activity for the Kulluk in the Beaufort Sea. Shell has submitted a PSD permit application for

exploratory drilling in the Chukchi Sea and a notice of intent to submit a PSD permit application for the Beaufort Sea for drilling to begin in 2010.

U.S. v. Cory King – On April 30, 2009, Cory King, manager of Double C Farms/Lambert Produce, was found guilty of 4 criminal charges related to illegal underground injection in violation of the Safe Drinking Water Act, and one charge for making a material false statement to an Idaho State Inspector related to illegal injection into an irrigation well. The jury returned a guilty verdict on all 5 counts in the case.

8. Office of Water and Watersheds (OWW)

Contacts: Mike Bussell, Director, 206-553-4198
Christine Pysk, Associate Director, 206-553-1906

OWW Organizational Description

OWW is responsible for water programs primarily under the Clean Water Act and Safe Drinking Water Act. This work includes Drinking Water and Source Water Protection, NPDES Permits, Water Quality Standards (WQS), and TMDLs as well as grants project management and technical assistance functions.

OWW Recent Accomplishments

OWW formed a Groundwater-Nitrate team to address issues in the Yakima Valley.

Worked as a key Regional partner with HQ OW to develop and release "National Water Program Strategy- Response to Climate Change", September 2008.

Released the "Columbia River Basin State of the River for Toxics Report", January 2009.

Approved the Alaska NPDES authorization application and started implementation.

Formed a Region 10 Sustainable Water Infrastructure Team to facilitate energy management and other effective utility management tools for water and wastewater utilities.

Exceeded TMDL production goal for the year.

Exceeded the targets for lifting of shellfish harvest restrictions, contaminated sediments remediation and protection of wetlands in Puget Sound for FY2008.

Exceeded the FY2008 target for cumulative acres of wetland habitat protected or restored in the Lower Contact: Columbia Watershed.

OWW Significant Actions

Approved the CWA §303d impaired waters list(s) for AK, ID, & WA

Region 10 leads the nation in the number of tribes with approved WQS

Signed extensions for the Consent Decree on Oregon toxic water quality standard litigation.

Working on implementation with Oregon on the fish consumption rate underlying their water quality standards.

Working with HQ, developed a preliminary framework for how water systems might qualify for a variance from the surface water treatment rule.

Worked with the Puget Sound Partnership to supplement the December 1, 2008 released Action Agenda so that the Action Agenda can be approved as the required CCMP for National Estuary Program under CWA § 20.

9. Alaska Operations Office (A00)

Contacts: Marcia Combes, Director, 907-271-6555
Greg Kellogg, Associate Director, 907-271-6328

The Alaska Operations Offices consists of 48 employees located in the Juneau and Anchorage Federal Buildings, plus place-based office staff in Soldotna at the Kenai River Center. The Alaska Offices are a key link for providing leadership, coordination, and liaison with the state of Alaska's environmental, resource, and health agencies, tribes, Alaska Congressional Delegation, and other federal, state, and local organizations. We provide multi-programmatic integration within Alaska while carrying out traditional program activities such as: inspections, permitting, technical assistance, grants management, outreach, Federal Facility Superfund site management, emergency response, homeland security, ecosystem/geographic management and tribal consultation. Particular areas of focus currently include statewide natural resource extraction activities including Oil & Gas and Mining sectors, as well as an emphasis on adaptation and mitigation measures for addressing Climate Change impacts.

10. Idaho Operations Office

Jim Wernitz, Director, 208-378-5743

EPA has an Operations Office (23 staff) in Boise, and two smaller offices in Coeur d'Alene (three staff) and Pocatello (one person). In addition, the EPA Criminal Investigation Division has three investigators based in Boise. The EPA Offices in Idaho provide leadership and local linkages to the Idaho DEQ, Health and Welfare, state and federal agriculture departments, fish and wildlife agencies, transportation agencies, land management agencies, tribes, congressional delegation staff, governor's office, local governments, nonprofit groups, and citizens. IOO staff also implements non-delegated programs, such as the Clean Water Act NPDES program, and conducts oversight on delegated programs. We also help the Region to successfully integrate traditional program implementation within Idaho, with emphasis on inspections, permitting, technical assistance, legal support, grants management, outreach, Superfund site management, emergency response, tribal consultation, and civil/criminal investigations. IOO takes the lead on developing and negotiating the Performance Partnership Agreement with the Idaho DEQ. IOO's Director is the Executive Sponsor for Region 10's agriculture sector, and the Region 10 Mercury Strategy

11. Oregon Operations Office (OOO)

Contact: Anthony Barber, Director, 503-326-3250

OOO is located in Portland and plays the key role in managing EPA's relationship with the state, tribes, other federal agencies, and local governments in Oregon, especially with ODEQ, working to make sure relationships are on-track. In addition to being the face of EPA in Oregon, OOO also acts as "eyes and ears" for the Region 10 Executive Team, especially the RA and DRA. OOO has a Director and 27 staff from 14 of the Region's units.

OOO is engaged across many programs, but with special emphasis on certain areas. These include state-EPA water program issues (e.g. water quality standards development), watershed protection and enhancement, forestry practices, and the Portland Harbor Superfund cleanup. The OOO Director services as the Executive Sponsor for Columbia River Basin Initiatives and Team. Like other Operations Offices, OOO shares in the accomplishments, successes, and challenges across the scope of activities of the other offices and programs within the Region.

12. Washington Operations Office

Contact: Tom Eaton, Director, 360-753-8086

EPA has an Operation Office in Lacey, Washington (17 staff) co-located with the state environmental agency - the Department of Ecology. EPA's office in Lacey provides leadership and local linkage to the Department of Ecology, the Department of Health, the Puget Sound Partnership, the Department of Agriculture, the Department of Natural Resources, the Northwest Indian Fisheries Commission, and federal offices for NOAA, USFW, NRCS, and the Forest Service.

WOO staff conduct field work and oversight work for delegated federal programs in the state of Washington. Underground Storage Tank, NPDES, EPCRA, and RCRA inspections are conducted and oversight reviews are done for Clean Water Act, RCRA, and Air delegated programs. WOO takes the lead in negotiating the Performance Partnership Agreement with Washington. The Office Director is the Executive Sponsor for EPA's work in Puget Sound, serving as Chair of the Puget Sound Federal Caucus on behalf of the Regional Administrator

APPENDICES

- A. Region 10 2007-2011 Strategy**
- B. Region 10 Organizational Structure**
- C. Region 10 Office Director Biosketches**
- D. Region 10 Office of Environmental Assessment
2007 – 2008 Science Report**



2007-2011 Strategy for EPA Region 10

Serving Alaska, Idaho, Oregon, and Washington



Here is a brief summary of the strategy we have developed to focus our efforts for the coming years. This strategy was developed in consideration of the Administrator's four priorities; the EPA National Strategy; employee input received through an environmental survey; stakeholder perspectives of our state, tribal, federal and local partners; and the Region 10 mission, vision and values.

Support the Core

Work to make and implement resource and programmatic decisions that ensure the integrity of our core programs. Currently identified core program focus areas are:

- Stormwater permitting and compliance,
- Concentrated Animal Feeding Operations (CAFO), Permitting, Compliance and State Oversight,
- Homeland Security,
- Mining Operations Financial Assurance,
- Wetlands Compliance (Clean Water Act 404),
- Agricultural Burning in Idaho, and
- Particulate Matter (PM 2.5) Reduction.

Clean Affordable Energy and Climate Change

- Develop and implement a regional approach to address climate change,
- Participate in the West Coast Collaborative, a public private partnership to reduce diesel emission, and
- Apply EPA authorities related to oil and gas to maximize environmentally safe exploration, development, and production in Alaska.

Enhancing Tribal Environments

Work with Tribal Governments to protect and restore the natural resources on which tribal communities rely for their physical, cultural and economic well-being. Priorities are:

- Assistance for capacity building and an improved approach to Indian General Assistance Program grants;
- Communication and consultation processes that more effectively inform Tribes of decisions and activities;
- Working with the Regional Tribal Operations Committee so that they provide tribal perspectives in the development of regional directives;
- Developing standard operating procedures for Region 10 to ensure compliance with the Historic Preservation Act, Section 106;
- Air quality implementation of the Federal Air Rules for Reservations (FARR);
- Solid waste management including cleaning, closing and upgrading nine open dumps in Indian Country and other tribal lands; and
- Water quality to protect subsistence resources.

Protecting and Restoring Watersheds

Continue to place strong emphasis on our important watershed protection and restoration work. These projects involve a wide cross-section of Region 10 offices and public and private efforts. Specific watershed projects include:

- Puget Sound - working with our state, federal and tribal partners to restore Puget Sound to a healthy state by 2020.
- Columbia River - building an integrated program, with state, nonprofits, and Tribal partners, to reduce the concentration of toxins in fish, sediment and water
- Coeur d'Alene - further reduce elevated blood lead levels in children and improve water quality
- Mercury – A Watershed Contaminant - developing a strategy by April 2008 to implement the EPA 'Mercury Roadmap' within Region 10.

Actions to address water quality problems in the Snake, Klamath, Boise, Portneuf and Willamette rivers; and other watersheds in the region are also underway.

Sustainability and Strategic Partnerships

Promote sustainable practices and foster strategic partnerships that allow us to meet our environmental, social and economic needs without compromising the ability of future generations to meet their needs. Highlights include:

- Government partnerships to develop a beef cattle Memorandum of Understanding, an updated Source Control Agreement for the Duwamish Waterway, and continuous improvement to the Performance Partnership Agreement (PPA) process in each state.
- Resource Conservation Challenge (RCC) to implement sustainable partnerships with the private sector and/or universities to increase the amount of materials recycled.
- Smart growth activities to identify the scope, opportunities and partners for creating a regional Smart Growth network for Puget Sound.
- Sustainability Education to inform EPA employees and our partners, focusing on efforts which give us the best return for the investment.

A Stronger EPA

Ensure a diverse, talented and highly skilled work force in Region 10. Specific areas of focus will include:

- 360° Feedback for All Managers,
- Employee Performance, Hiring and Promotion,
- Succession Planning, Targeted Recruitment,
- Employee Development Opportunities,
- Improve Internal Communication, and
- Environmental Justice.

Our Vision:

A healthy, sustainable environment for all.

Our Mission:

To protect and restore the environment of the Pacific Northwest and Alaska for present and future generations.

We will use science to make sound decisions to:

- Protect and restore ecosystems and ensure healthy airsheds and watersheds;
- Prevent pollution through source reduction;
- Reduce the generation of land, air, and water pollutants;
- Cleanup contaminated sites;
- Enforce federal environmental laws; and
- Conserve our valuable resources.

We are accountable for achieving our mission. Our success as stewards of the public trust will be measured by meaningful and lasting environmental results.

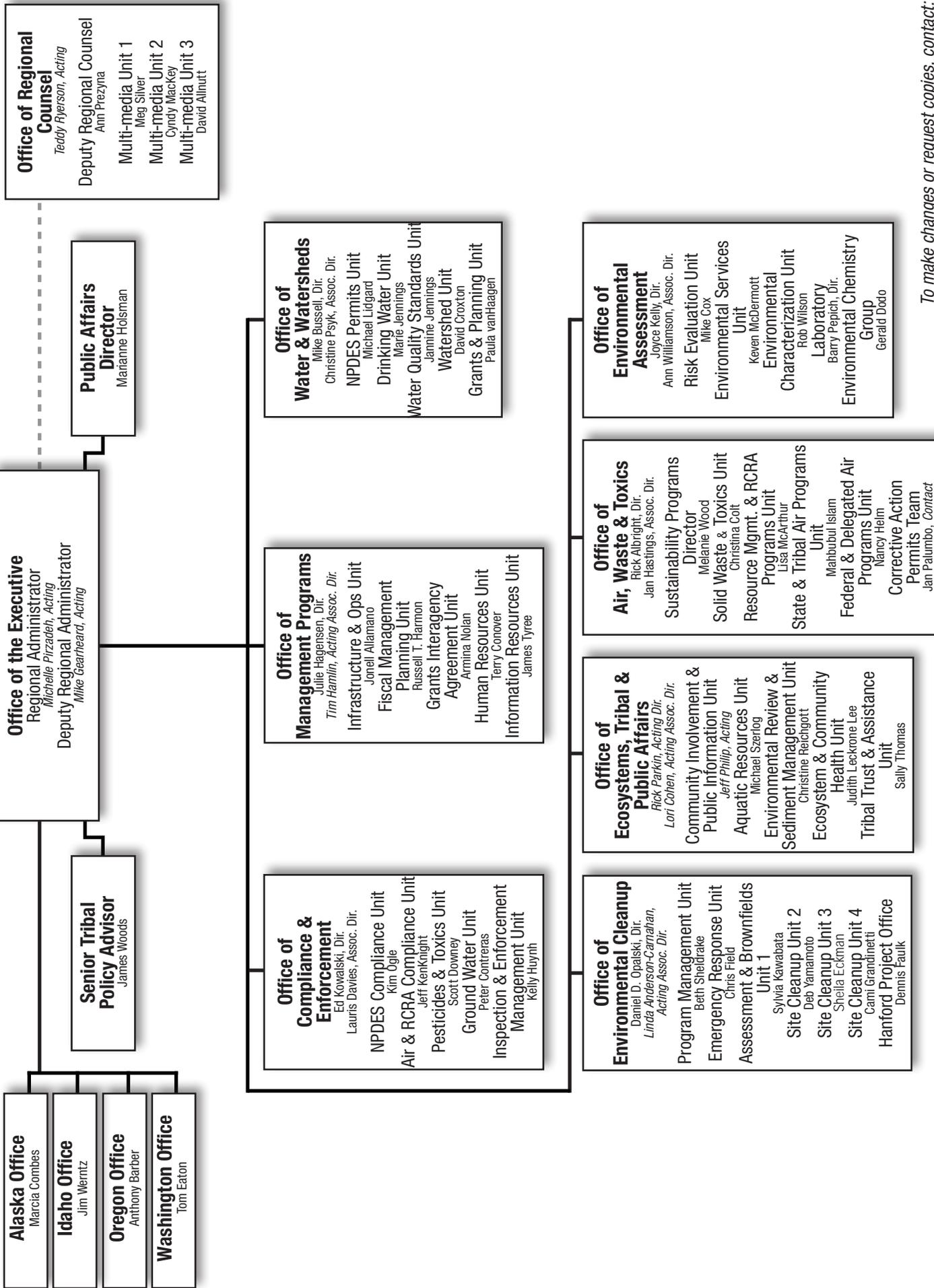
Our Values:

- **Making a Difference through People and Teamwork.** We support each other and the people who work with us by working cooperatively and collaboratively. We build bridges between organizations. Our regional team will be competent and culturally diverse.
- **Communication and Dialogue.** We talk with and listen to our customers about our values and our respective expectations for the Region's programs. We celebrate our successes and learn from our mistakes.
- **Expect Excellence.** We set and meet high standards of quality. We take pride in the fact that we are public servants and hold the public trust.
- **Professionalism and Respect.** We always treat our colleagues at EPA, representatives of other governmental entities, stakeholders, and the regulated community with professionalism and respect. We address conflict in a constructive and professional manner.
- **Honesty and Integrity.** We deal forthrightly with each other and the public. We meet our commitments.
- **Willing to Take Risks.** We are willing to take risks, while making environmentally sound decisions based on science, statutes and regulations.



Region 10 Organizational Structure

May 10, 2009



To make changes or request copies, contact:
Eleanor Price, OMP-162, price.eleanor@epa.gov or 553-0227

**Organizational Phone List
EPA Region 10**

Main Number in Seattle (206) 553-1200 or Toll Free 1-800-424-4EPA

May 10, 2009

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Mike Gearheard, Acting Deputy RA
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Public Affairs Director

Marianne Holsman
(206) 553-1237

Senior Tribal Policy Advisor

James Woods
(206) 553-6358

Alaska Office

Marcia Combes, Director
(907) 271-6555

Idaho Office

Jim Wertz, Director
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Oregon Office

Anthony Barber, Director
(503) 326-6890

Washington Office

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Air & RCRA Compliance Unit

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Watershed Unit

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Grants & Planning Unit

Paula vanHaagen
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APPENDIX B.

Michelle Pirzadeh



Michelle Pirzadeh,
Acting Regional Administrator

Acting Regional Administrator (RA)

Michelle Pirzadeh is currently the Acting Regional Administrator for EPA Region 10. As RA, Michelle is responsible for a staff of 650 employees and an annual budget of \$500 million. Region 10 oversees the implementation of the federal environmental rules and regulations in the states of Washington, Oregon, Idaho, and Alaska, including 271 tribal governments in the Pacific Northwest and Alaska. In addition to Acting RA, Michelle has worked for EPA Region 10 in numerous capacities over the last 26 years, including the Deputy Regional Administrator (DRA) since April 2008.

Before serving the Region as DRA, Michelle was the Director of Region 10's Office of Ecosystems, Tribal & Public Affairs (ETPA). Michelle became ETPA's first Director in 2004, guiding its formation and implementation, and charting its strategic direction. ETPA's work takes place in all four Region 10 states and touches virtually every major program within the Agency, including Water, Air, Waste, Toxics, Superfund, and Tribal Environments.

As Director of ETPA, Michelle had direct responsibility for the following programs: Public Affairs (Press, Congressional and International Affairs); Tribal (affecting 271 Federally-recognized Tribes); Wetlands Protection; Sediments Management and Ocean Disposal; NEPA Review; Environmental Justice; Community Involvement; and Community-Based Environmental Programs (e.g., Regional Geographic Initiative, Children's Health, Environmental Education, National Estuary Program).

Before moving to ETPA, Michelle served as Associate Director of Region 10's Office of Environmental Cleanup for five years, overseeing both administrative and programmatic operations of the Superfund, Brownfields and Emergency Response programs. She spent 10 years in the Region's Community Involvement Program, assisting all of the Region's programs in the communications and public meeting dimensions of their work.

Michelle has a Bachelor of Arts degree from the University of Washington in communications. She is an avid cook, gardener, and boater. She resides in Edmonds, Washington along with her husband Dave and her yellow lab Fleetwood.

Dan Opalski



Dan Opalski,
Acting Deputy Regional Administrator

Dan is currently the Acting Deputy Regional Administrator for EPA Region 10. Before serving as DRA, Dan was Director of the Region 10 Office of Environmental Cleanup, responsible for direction and management of CERCLA (Superfund) clean-up work and the Brownfields program throughout Washington, Oregon, Idaho, and Alaska. His responsibilities encompassed regional programs under the Oil Pollution Act and portions of the Emergency Planning and Community Right to Know Act, as well as planning, prevention, and response efforts as part of Homeland Security.

In previous positions with the EPA, Dan has served as Region 10's Oregon Operations Office Director, engaging in a full spectrum of environmental programs and issues from Superfund to animal feeding operations to salmon recovery. While in EPA Region 9 (San Francisco), he was responsible for facilitating cleanup and reuse of closing military bases. His experience includes addressing contaminated sites to make land available for airports, seaports, family housing, college campuses, and homeless assistance shelters. He has worked with parties ranging from small businesses to Fortune 500 companies; federal, state and local governments agencies and elected officials; tribal governments; and non-governmental advocacy groups and associations.

Julie Hagensen



Julie Hagensen, Assistant Regional Administrator for the U.S. Environmental Protection Agency, Region 10, has held a variety of staff and management position during her 27-year tenure at EPA. She's been a Presidential Management Intern, Chief of Policy Planning and Evaluation, Director of EPA's Washington Operations Office, Acting Deputy Regional Administrator and since 2001 has been Assistant Regional Administrator for Management Programs.

In her current position, Julie is responsible for management of an 800 million dollar Regional budget, grants administration, civil rights, human resources, facilities management, information technology, and strategic planning. EPA Region 10 covers the Pacific Northwest States of Washington, Oregon, Idaho, and Alaska.

Julie Hagensen holds a Bachelor of Arts degree from Washington State University and a Masters degree in Public Administration from the University of Washington. In 2008 she was honored with the prestigious Presidential Meritorious Rank Award for her outstanding service.

Mike Bussell



Mike Bussell, Director Office of Water & Watersheds for the past nine months. OWW is an office of 90 people responsible for implementation of a variety of Clean Water Act and Safe Drinking Water Act Programs. These include administration of the NPDES permitting Drinking Water, Water Quality standards and TMDLs programs. OWW also administers a wide range of financial assistance programs including the state and tribal Section 106 grants, the Section 319 non point source program, National Estuary Programs, State Revolving Funds and special appropriations. In FY'10 OWW awarded nearly 400 million in financial assistance, including 200 million under the ARRA.

Mike has over 30 years experience in the Regional Office. He has held management positions in all media programs. Prior to accepting the OWW directorship, he was tasked with creating and leading the Region's Office of Compliance and Enforcement. Mike holds a BS Degree from Huxley College and has two years of graduate study at the UW Graduate School of Public Affairs, including a one year Henry M. Jackson Environment and Natural Resources Management Fellowship.

Rick Albright



Richard (Rick) Albright, Director
Office of Air, Waste & Toxics

Rick has been the Director of Region 10's Office of Air, Waste & Toxics for 5 years. His office works closely with the EPA Region 10 states (Alaska, Idaho, Oregon and Washington) and tribes to administer laws and other activities relating to air quality, hazardous materials management, cleanup of contaminated sites at active facilities, solid waste management, pollution prevention activities and the reporting of the use or emissions of hazardous chemicals.

Prior to his current assignment, Rick spent three years as the Director of Region 10's Office of Waste and Chemicals Management, which oversaw activities related to the RCRA, TSCA and TRI programs. From 1997 until 2000, Rick worked in Alaska as the Director of Region 10's Alaska Operations Office. His responsibilities in Alaska focused on ensuring that EPA worked in partnership with the state and tribes in administering numerous environmental laws relating to hazardous waste, solid waste, drinking water, pesticides, clean air, clean water and toxic substances. EPA provides over \$50 million each year to efforts to protect Alaska's environment. The majority of this money is spent on construction of water and sewer infrastructure in rural Alaskan communities.

Rick Albright – continued

Before going to Alaska, Rick worked at the EPA Region 10 office in Seattle for 12 years. While there, he spent over 10 years working in the Office of Water, and 1-1/2 years in the Superfund program.

Before joining EPA, Rick worked for 6 years as a research biologist for the Washington State Department of Fish and Wildlife, and for 2 years as a staff biologist in the School of Fisheries at the University of Washington.

Rick is a graduate of the University of Washington, with a bachelor's degree in zoology (1975) and a master's degree in fisheries (1982).

Joyce C. Kelly, Director
Office of Environmental Assessment

Joyce became the Director of the Office of Environmental Assessment (OEA) in 2007. OEA provides scientific and technical expertise to all programs in the Region, as well as to EPA Region 10 states (Alaska, Idaho, Oregon and Washington) and Tribes. Experts responsible for characterizing the environment as well as assessing risks to people and ecosystems are located within OEA. The Office includes the Regional Laboratory and staff with expertise in hydrogeological assessments, air modeling, aquatic monitoring and quality assurance. OEA is also the lead for the Region 10 Clean Energy and Climate Change Strategic Endeavor, which includes a Climate Change Strategy with measures from all regional program offices.

Since beginning with EPA her freshman year at the University of Washington, Joyce has served in a number of staff and management positions within the regional office. She did field work; including collecting sediment and surface water samples, computer programming, sample handling audits, and planning, policy and program evaluations. She also worked for the Washington Department of Ecology under an IPA. Before her current assignment, Joyce was the Director of the Office for Environmental Management and Information, which included Regional Chief Information Officer responsibilities, Information Technology, strategic planning for Region 10 and environmental data management. Prior to the OEMI assignment, Joyce was Director of the Office of Environmental Justice and Civil Rights.

Joyce's bachelor's degree is in Marketing and her master's degree is in Organization and Management. She has completed 80% of course work necessary for a Ph.D. in Business with an emphasis on Organization and Management.



Lori Cohen
Acting Director, Office of Environmental Cleanup
US EPA Region 10

Ms. Cohen is the Acting Director of the Office of Environmental Cleanup, US Environmental Protection Agency, Region 10, Seattle, Washington.

She has held this position since September 2009. Ms. Cohen has responsibilities for oversight of the assessment and cleanup of contaminated sites in Alaska, Idaho, Oregon and Washington, including:

- * Emergency Preparedness and Emergency Response
- * Site Assessment and Superfund Site Cleanup
- * Regulatory Enforcement – SPCC, CAA 122R Programs
- * Brownfields Redevelopment,
- * Management of Grants to States, Tribes, Local Governments, and Communities

Ms. Cohen has been with the EPA since 1978. Her career with the agency began at EPA Headquarters and, in 1983, she transferred to the Seattle Office.

Ms. Cohen has considerable experience in the Superfund Program. For approximately ten years, she was responsible for directing investigations and cleanup at several high profile Superfund sites in Region 10. From 1995-1999, Ms. Cohen developed and managed the Brownfields Program for the regional office. She then held a Unit Manager position in the Superfund Program from 1999 to 2004, with oversight responsibilities for clean up of sites in Washington and Oregon. From 2004- 2008, Ms. Cohen served as the Associate Director for the Office of Environmental Cleanup. One of her areas of expertise is in the investigation and cleanup of sediment sites in Puget Sound.

From March 2008-September 2009, Ms. Cohen served as the Acting Associate Director in EPA Region 10's Office of Ecosystems, Tribal and Public Affairs. In this capacity, she managed our Public Affairs Team and provided oversight to the wetlands, community involvement, ecosystems and community health, international and Tribal programs.

Marcia Combes



Marcia Combes, Director
EPA Alaska Operations Office

Marcia Combes has been the Director of EPA Region 10's Alaska Operations Offices (Anchorage, Juneau, and Soldotna) since January of 2000. In Alaska, EPA works in partnership with the State and other Federal agencies in administering numerous environmental laws relating to hazardous waste, solid waste, drinking water, clean air, clean water, toxic substances, environmental impact assessment, and emergency response. EPA also works extensively with over 130 tribes implementing an environmental capacity development program. Additionally, the Alaska Operations Office maintains a significant focus on resource extraction projects, including mining and oil and gas activities across the state, from project scoping through production. EPA R10 has identified Climate Change as a high priority and is actively working with stakeholders in Alaska to develop a strategy for addressing

some of the unique challenges posed in Alaska.

Marcia has been in Alaska since 1983 and with EPA in the Alaska Operations Office since 1988. Her work with the agency began as a stay-in-school student, spearheading various projects and working in the field as an inspector before moving into the Superfund cleanup program where she served as a project manager at both DoD Federal facilities and private sites for nearly 10 years. Marcia also spent two years in the Anchorage Mayor's office under the Mystrom Administration working on environmental issues, and one year in Seattle at Region 10 Headquarters working in the Office of Ecosystems and Communities.

Marcia is a 4th generation Nebraskan, with a Chemistry degree from Creighton University (1983), and a Civil Engineering degree from University of Alaska, Anchorage (1990). She has a well-known passion for fresh air, the outdoors, and adventure.

James H. Wertz



Jim Wertz, Director
EPA Idaho Operations Office

Professional Experience:

Jim is the Director of EPA's Idaho Operations Office, which is located in Boise. He has more than twenty years of EPA experience, with expertise in water programs, community infrastructure issues, and in developing innovations in environmental management.

Education: Masters/Environmental Management (Duke);
BA/Biology & Environmental Studies (Grinnell)

Tom Eaton



Tom Eaton, Director
EPA Washington Operations Office

Tom serves as the Regional Administrator's primary contact in the state of Washington and manages an office with a staff of 16 covering most of EPA's major environmental programs. Tom currently serves as Region 10's executive lead for Puget Sound, chairs the Federal Caucus for Puget Sound and serves as one of the three federal representatives on the Ecosystem Coordination Board.

Prior to joining EPA in 2000, Tom worked at the Washington state Department of Ecology for 20 years, serving as an Assistant to the Director, managing the state's Hazardous Waste Program and supervising a field office in the Water Quality Program. Tom has a B.S. from Purdue University and is a registered professional engineer.

Tony Barber



Anthony (Tony) Barber, Director
EPA Oregon Operations Office (OOO)

Tony has been the Director of Region 10's Oregon Operations Office since September 2008. OOO is located in Portland, Oregon and plays the key roll in managing EPA's relationship with the states, tribes, other federal agencies and local governments in Oregon. He also serves as the executive sponsor for efforts to reduce toxic contaminants in the Columbia River Basin.

Prior to his current assignment, Tony served for 5 years in Region 10's Office of Environmental Cleanup as an EPA On-Scene Coordinator (OSC) and 5 additional years as the Emergency Response and Counter-Terrorism Team Leader for the Region's OSCs. He has responded to dozens of spills and other incidents including chemicals, radioactive materials, oil, and medical wastes. He helped to lead responses to several national-scale emergencies and has worked on EPA projects across the nation and in Saipan, Canada and Trinidad. During this 10 years Tony supervised CERCLA and OPA environmental cleanups and their associated project managers across the 4 states of Alaska, Idaho, Oregon and Washington.

Tony began his EPA career working in the Region 10 Office of Air Quality performing inspections and assisting with case development. Since then he has worked in several areas of inspection and enforcement within EPA, including CWA, CAA, EPCRA, CERCLA, TSCA and RCRA. For four years he served as the technical and engineering lead for EPA's team who obtained the largest Clean Water Act settlement in history (as of 2004).

Prior to joining EPA Tony served for 7 years in the U.S. Navy's nuclear propulsion program. He also worked for 2 years in the Environmental Health and Safety Division at Fred Hutchinson Cancer Research Center.

Tony is a graduate of Edmonds Community College and the University of Washington. He holds an associate's degree in engineering (1995) bachelor's degree in chemical engineering (1998). He expects to complete his master's degree in intercultural studies at Grace College in 2010.

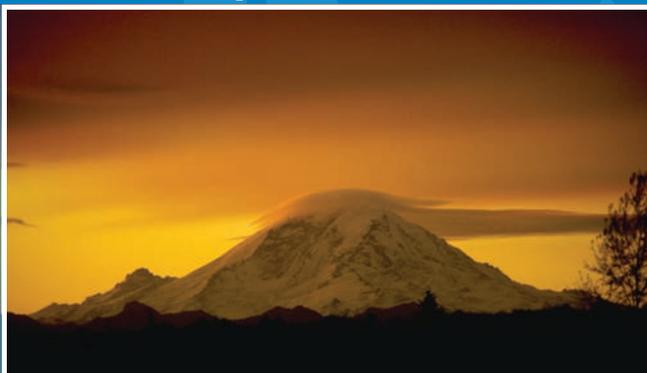
Rick Parkin, Acting Director
Office of Ecosystems, Tribal and Public Affairs

Ed Kowalski, Director
Office of Compliance and Enforcement



EPA 910-R-09-004 | May 2009

EPA Region 10 Office of Environmental Assessment Annual Report for 2007-2008



EPA Region 10 Office of Environmental Assessment
Annual Report for 2007-2008

Joyce Kelly, Director
Ann Williamson, Associate Director

OEA Mission Statement:

The mission of the Office of Environmental Assessment is to provide scientific/technical leadership, develop partnerships for providing scientific/technical information, assess the condition of the environment, and determine the compliance status of pollution sources.

Our Priority Focus:

- Support core media programs and National/Regional strategic work and endeavors.
- Ensure solid technical and scientific work is conducted in the Region and participate in National initiatives to advance innovative solutions to environmental problems.
- Play leadership role on important Regional initiatives including Climate Change, Puget Sound, Columbia River, and the Mercury strategy.

Highlights for 2007-2008

Addressing Climate Change in Region 10



OEA's Office Director leads the Executive Team that oversees the Region's Strategic Endeavor for Climate Change and Clean Energy. OEA is the home of the Region's new Climate Change Policy Advisor and the Region's climate change scientist. The Climate Change Policy Advisor previously led the development team for the Region's Climate Change Strategy. The Strategy identifies how the Region should focus its efforts to reduce greenhouse gas emissions and respond to the effects of climate change. This document is our first step in getting a handle on how Region 10 will need to change in response to climate change. We have identified what we can do in the short-term given the landscape of aggressive State and Tribal efforts and evolving National discussions. As we are all aware, many critical internal and external factors for our Region will be changing rapidly over the next several years,

so we expect the strategy will be updated at least once per year, or sooner if needed.

Working together, our Region 5 detailee under the Leadership and Professional Development Rotation Program (LPDRP) and OEA's climate change scientist started implementing our Office's part of Region 10's climate change strategy. Last summer and autumn, they worked with a group from the Office of Air, Waste, and Toxics to identify where the two Offices could collaborate on issues that need climate science input. This effort created opportunities to share information and get started on projects related to climate change. The Climate Change Policy Advisor has launched a new Region 10 Climate Change Network that will help monitor the Region's implementation of the Strategy, and identify new developments and factors that should be considered when the Strategy is updated.

Our LPDRP detailee also helped initiate an information-sharing network among the Regional Offices of other Federal agencies in the Pacific Northwest. Named the Climate Change Collaborative, or C3, its primary purpose is to strengthen and enhance federal coordination on climate change related issues, programs and research. This group, formed in June 2008, started with seven Federal agencies as members and has met four times since its inception. This collaboration fosters direct exchange of information and identifying opportunities for focusing efforts to get answers to important Regional questions about climate change impacts.

OEA's Water Quality Modeler Active on Many Fronts

Water quality models provide the scientific backbone for many of the most controversial TMDL and NPDES permitting actions in Region 10. The answers gleaned from these tools can result in decisions by EPA and/or our Region 10 States requiring multi-million dollar efforts to reduce pollution. They include requirements to upgrade municipal and industrial wastewater treatment systems and modify hydropower dams.

OEA's lead for water quality modeling joined OEA in 2000 after 12 years in the Region's Office of Water. One of his more interesting projects is an effort to address temperature impacts of three dams owned by Idaho Power Company on the temperature of the Snake River. The key question is whether construction of a temperature control structure at the dam would significantly improve downstream temperatures. The



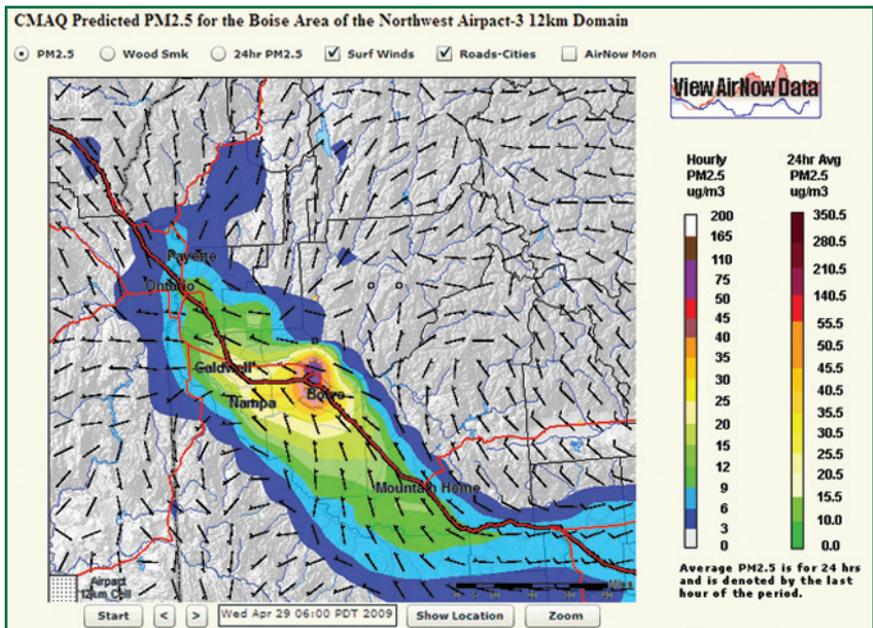
Lower Monumental Dam on the Snake River

stakes are high. The segment of the Snake River below the dam complex is spawning habitat for endangered fall Chinook salmon. And, the cost of a temperature control structure may exceed \$50 million.

Modeling is also prominent in efforts to improve dissolved oxygen in the Spokane River (Long Lake). In the Spokane River project, the results of model simulations to date are indicating that the cities along the River (Spokane, Coeur d'Alene, Liberty Lake, Post Falls, and Hayden) will need to install multi-million dollar upgrades to sewage treatment facilities to reduce phosphorus discharges in order to achieve water quality standards. The phosphorus discharge levels will be the lowest levels in the country.

Our water modeler periodically builds models and other analytical tools, but more of his time is spent reviewing the models developed by others (State agencies, consultants, and universities) to determine the suitability of a model for a particular regulatory decision. It is all about documentation, transparency, and the quality of the science.

OEA Air Modelers Collaborate on Efforts to Improve Over Water Air Quality Model



Sample of air modeling data screen from the internet.

Multiple federal agencies and universities are collaborating and/or leading several efforts to demonstrate the feasibility of using predicted mesoscale meteorological parameters to simulate the transport and dispersion of air pollutants in EPA-preferred air quality models. They are the Fish & Wildlife Service (FWS), National Park Service (NPS), Forest Service (FS), Mineral Management Service (MMS), University of Alaska at Fairbanks (UAF), and

EPA's Office of Air Quality Planning and Standards (OAQPS), Region 7 (R7) and Region 10 OEA. These efforts include (1) collecting over water hourly meteorological and wave data using instrumented buoys, (2) testing, evaluating and analyzing the Weather Research and Forecast (WRF) model output files that incorporates the collected hourly meteorological data, (3) writing, testing and evaluating a Formula Translation/Translator (FORTRAN) program (a high-level programming language, that reformats the Weather Research and Forecasting (WRF) model predicted hourly mesoscale meteorological parameters and calculates any missing parameters, and (4) developing, testing and evaluating a new over water air quality model using the reformatter program output file. The purpose of the first three efforts is to obtain acceptable hourly meteorological parameters in a format that is readable by an EPA-preferred air quality model. The fourth effort is to determine the adequacy of a new over water air quality model using predicted hourly meteorological parameters.

OEA is working with Shell Oil on the first effort. The one-year data collection program in the outer continental shelf (OCS) of the Beaufort Sea, north of Alaska, is expected to start in early Summer 2009. On the third effort, R7 has written a draft reformatter program which has been reviewed by FWS and OEA. The progress of the reformatter program was presented by OEA at the EPA 9th Modeling Conference in October 2008. The second and fourth efforts are in the very early stages and are led by MMS/UAF and OEA, respectively.

Two benefits will be realized by successful completion of these efforts. First, predicted hourly mesoscale meteorological parameters could be used in lieu of onsite or representative data in EPA-preferred air quality models (i.e., the elimination of data collection and schedule delays). Second, a new over water air quality model based on current science will be available to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) for stationary sources proposing to locate in the OCS of the U.S. or in open water.

OEA Finds Leadership Role for Advancing Multi-Increment Sampling Method

MIS stands for Multi-Increment Sampling. It is a method of sampling which combines statistical, physical, and laboratory sub-sampling methodologies to account for and minimize a number of field uncertainties and other sampling errors. While the system has been around for a number of years, it has received greater EPA attention in the last few years. The most common use of MIS is for soil and other bulk material sampling with the goal of obtaining the most representative sample possible for laboratory analysis.

The MIS method has been used in many areas nationally, and in Region 10, at a number of military bases, Superfund and RCRA sites, several with OEA encouragement. Examples of MIS application, with OEA support, include the Rhone-Poulenc site in Duwamish, WA; the Triangle Park and US Moorings sites in Portland, OR (upland sites within the Portland Harbor Superfund site). While EPA has included the method in some regulations (Method 8330B), the majority of the field research has been done by the US Army Cold Regions Research Laboratory. The method is also used by the Alaska

and Hawaii State agencies.

One of the key concepts for field application is defining a decision unit based on site's prior uses and potential future uses. Once the decision unit is established, the sample is a multi-increment from the desired depth interval(s) at many different locations within the unit. The approach results in a single data value based on a multitude of locations, within the decision unit (30+ increments). As a result, the amount of analytical work that has to be done is minimized from 30 samples down to one sample. Other details that require attention include factoring in the size of the sampling tools, the type of material to be sampled, the gradation of that soil (or need to screen different fractions), and preparing one highly representative sample from all those increments. That sample is further reworked by grinding the material to obtain a small grain size which can be fully homogenized and again sub-sampled prior to analysis in the lab.

Scientific/Technical Leadership:

- Learn, use, and develop state-of-the-art assessment methods to continuously improve the depth and accuracy of environmental conditions.
- Promote a system of peer review and data quality management to ensure the scientific/technical defensibility of our actions.
- Collaborate with other agencies and the public to identify and explore new scientific/technical issues, methods, and solutions to improve environmental protection.
- Provide scientific/ technical training, collaboration, and consultation within EPA and with our partners and the public.

MIS uses a combination of field and laboratory methods to obtain the most representative sample for the laboratory to analyze. It minimizes the expected error that occurs when we take a very small sample (one to five grams) for analysis to represent the typical volume of soil, or material, from an environmental site. For example, one six-inch zone over an area 50 feet by 50 feet would be 137,500 pounds, or 62,368,625 grams total. However, only a 5 gram sub-sample is normally analyzed. That is a minute fraction, unlikely to be representative of the large total mass of soil. It is, however, a common interpretation of soil sampling data. It is that uncertainty, which when combined with the usual discrepancies between "duplicate" soil samples, make it difficult to reach any consistent, defensible, logical conclusions based on commonly obtained data sets.

The MIS theory, recent research data, and examples of its use by State Agencies was presented at short courses at the July 2008 NARPM conference in Portland (July 2008), and the 2008 Risk Assessors National conference in Seattle (October 2008). In both cases, the presentations were well attended. These presentations promoted much lively discussion as to how the method would alter the present methods for sampling and risk assessment, comparison to using single points values is presently done, and the benefits and drawbacks of this method. Debates continue over the use of this method. Questions about the ability of the MIS method to work with ProUCL, which is a key risk assessment data analysis tool, remain as well.

OEA Hydro Brings Natural Attenuation Processes Training to Region

Natural attenuation processes are occurring at many hazardous waste cleanup sites and they can be used for site remediation. The challenge is determining how effective these processes are within an appropriate time frame for remediation. This remedial method has been used at many sites in Region 10. Within the last year, OEA staff brought two training courses to EPA Region 10; the first was to the National Association Remedial Project Managers (NARPM) meeting in Portland, Oregon, July 2008. This course, taught by two different instructors John Wilson, Ada-EPA ORD and Robert Borden, North Carolina State University, covered organic contaminants, mainly chlorinated solvents. In addition to defining the framework for this remedy, the course covered information on enhancing this natural process. The second training course occurred in November 2008 in the Seattle Regional Office. This workshop covered inorganic contaminants in ground water with discussion topics that included attenuation processes and the type of field and laboratory data that are needed to support site evaluation to determine remedy use. The instructors for this course were both from our EPA research laboratory in Ada, Oklahoma, Rick Wilkin and Steve Acree. OEA staff will follow up by providing technical support on Regional cleanup projects using these remedies.

OEA Staff Instrumental in Development of Regional Mercury Reduction Strategy

In accordance with the National EPA Mercury Roadmap, Region 10 recently completed the first Mercury Reduction Strategy at the Regional scale.

The concentration of mercury in fish tissue in some parts of Region 10 is very high, and the number of fish advisories to limit consumption is growing. Many people in the Pacific Northwest eat fish frequently, and we have some potentially highly exposed populations. For these reasons, a Regional team was formed to develop Region 10's first Mercury Reduction Strategy. The cross-program, interdisciplinary team, led by representatives from OEA and OW, began with a long list of activities that were either already underway or could be accomplished without significant additional resources. With enthusiastic support from numerous external partners, we whittled the list down to eight specific and realistic activities that will move us

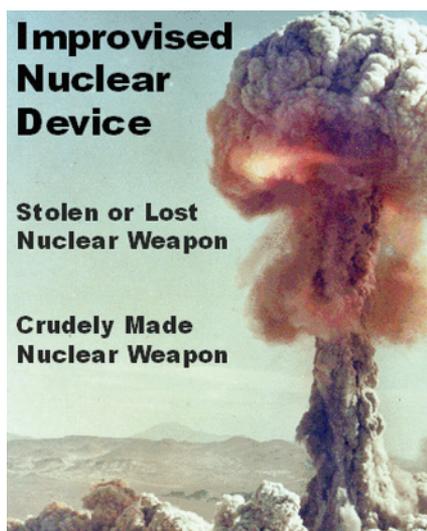


Mercury monitoring station in Idaho

toward our goal of reducing human exposure to mercury in Region 10.

The activities include monitoring support, methylation studies, deposition modeling, source inventory, development of a disposal/collection/education program, addressing unregulated air sources, outreach to Tribes, and sponsoring a technical exchange forum. Of the eight activities, either three or four will likely be led by OEA and three others will involve OEA in a supporting role. Before the strategy was even finalized, OEA set an impressive example for the Region when we hired an intern to begin the source inventory, and the Laboratory took the initiative to purchase the equipment needed to analyze methylated mercury, the most toxic and bioavailable form. The next step in the evolution of the Strategy is to finalize the plans for how we'll implement each activity-- the "who will do what by when" part.

OEA's Certified Health Physicist Aids in Planning for the Worst



Federal Protective Action Guidelines (PAGs) for nuclear explosions are being developed under the auspices of the White House Office of Science and Technology Policy (OSTP). These guidelines will provide state and local authorities with information to use in protecting the public in the event of terrorist use of a nuclear weapon in the United States. OEA's Certified Health Physicist (CHP) has been a significant contributor to the OSTP effort, providing technical input and drafting substantial pieces of the guidance. The most challenging aspect has been translating a technically complex disaster scenario into practical and concrete response recommendations. Our CHP has played an important role in the development of these documents, which set new policy for

the Federal Government, and he co-authored a peer-reviewed technical paper on the topic of nuclear explosion preparedness and response.

After the terrorist attacks of September 11, 2001, protecting the public from terrorist use of radioactive materials became a national priority. OEA's CHP provided key technical expertise during the Region 10 participation in National-level emergency response exercises to prepare for such events (TOPOFF 2 in 2003 and TOPOFF 4 in 2007). During this time, the Department of Homeland Security (DHS) led an interagency workgroup to develop recommendations and guidance for federal, state and local authorities in planning for Radiological Dispersal Device events ("dirty bombs") and well as nuclear explosions. Our CHP served as a Health Physics subject matter expert to support the National EPA participation in the DHS workgroup. A significant contribution by Region 10 to this effort was the development of the concept of "optimization" as a basis for cleanup. This alternative to numerical criteria was earlier introduced by Region 10 in 2000 in the context of the Federal Guidance for the General Public regarding radiation. The final guidance (Planning Guidance for Protection and

Recovery Following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) Incidents) was published in the Federal Register in July, 2008. The final guidance recognized the need for additional guidance to address unique problems immediately after a nuclear explosion, and lead to the current OSTP effort.

Region 10 Hosts National Training on Enhancing PRP Searches

In 2008, Region 10 hosted the National Training Conference on Potentially Responsible Party (PRP) Search Enhancement in Portland, OR. Civil Investigators, attorneys, enforcement specialists and others from EPA, along representatives from 11 different States and other three other Federal Agencies attended the conference. State agencies and others are finding value in identifying parties responsible for contamination at their sites; the only training available on this topic is by EPA. Region 10's Civil Investigator presented two different topics, facilitated and taught the Basic PRP Primer session. Staff from the Environmental Cleanup Program, Office of Regional Counsel and our FOIA officer all presented during the conference.

GIS Application Development for Aquatic Resources Unit Wetlands Determinations

EPA and the U.S. Army Corps of Engineers have jurisdiction over wetlands that are adjacent to traditional navigable waters. They use a fact-specific analysis to determine violations. For EPA Region 10, the Aquatic Resources Unit (ARU) has primary responsibility to make these determinations. ARU determined that geospatial tools were needed to conduct these analyses. Upon consultation with the Region's Environmental Information Team, it was suggested that another tool currently under development, NEPAassist, could meet ARU's requirements.



Screenshot of online NEPAassist application

Partnerships:

- Provide the best available scientific/technical support, including analysis and interpretation, to those who need it.
- Establish and improve scientific/technical networks, both internal and external to EPA.

NEPAassist is a slowly developing, but cutting-edge, Internet browser-based tool that allows the user to identify a specific project area that can then used to generate a map and an analysis report. The map is very customizable, allowing various layers to be toggled off and on, and zoomed in or out to the desired scale. The analytical report identifies how the project area spatially correlates to other key geographic features, such as wetland areas, regulated facilities, population data,

etc. The report parameters are built into the application, so all a user need do is hit a single button to generate a useful analysis that shows how a list of important pre-determined data sets spatially relate to the project area. The generated report also includes a copy of the user-defined map, providing the user a single end product with all the relevant spatial analysis for any project area. All that is required to run the application is a web browser, thus making sophisticated geospatial analysis available to everyone involved in this work. The application also allows projects and reports to be saved, so they can be easily shared amongst others without having to recreate everything from scratch.

The unique aspect of this project is providing all this capability without the need to have, or learn, GIS software. Consequently, it greatly expands the availability of sophisticated geospatial analysis and map viewing to everyone in ARU.

OEA Toxicologists Lead the Way in Developing Fish and Shellfish Consumption Rate Framework

Native Americans in EPA Region 10 States typically consume larger amounts of locally- harvested fish and shellfish than do other populations in Region 10, resulting in higher Tribal risk. Fish and shellfish contaminant risks associated with CERCLA and RCRA sites were of particular concern to EPA. No EPA or state guidance on how to conduct CERCLA/RCRA Tribal fish and shellfish consumption risk assessments was available, resulting in inconsistent risk assessments and internal staff disagreements. In 2003, EPA Region 10 Directors of the Offices of Environmental Assessment (OEA), Environmental Cleanup (ECL), Air, Waste and Toxics (AWT), and Ecosystems, Tribal and Public Affairs (ETPA) directed their staff to form a work group to develop an internally consistent tribal seafood consumption risk assessment

policy. Representatives from ECL, OEA, and OAWT were the lead staff addressing technical and policy issues, and additional staff expertise in OEA addressed ecological concerns supporting policy development. While Tribal fish and shellfish consumption risks are of concern throughout Region 10, the availability of quality Tribal seafood consumption data is largely limited to Puget Sound Tribes. Consequently, the work group focused on fish and shellfish consumption information for Puget Sound Tribes. The work group's efforts, along with extensive review by other OEA, ECL and AWT staff and management, resulted in several drafts of the "Framework for Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision



*Researchers prepare to collect fish tissue samples on the Lower Duwamish Waterway
photo by: Peter Heltzel, SAIC*

Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia” (“Framework”). In 2004, ECL’s Associate Director joined the work group in leading efforts to share drafts of the Framework with affected Tribes, obtain Tribal comments, and assist in the work group’s efforts to redraft the Framework in response to the comments received. Discussions with Tribes resulted in modifications that improved the Framework, even though the Framework is not fully endorsed by Puget Sound Tribes.

The Framework, which was released by EPA Region 10 as a “working document” in 2007, represents an internal Regional starting point for Tribal fish and shellfish consumption risk assessment policy. It is now being implemented at the Lower Duwamish Waterway Superfund Site and the Boeing Plant II and former Rhone-Poulenc RCRA sites along the Duwamish. The Framework is also affecting Tribal fish and shellfish consumption policy outside of EPA. The Lower Elwha S’Klallam Tribe recently used the Framework to propose a fish and shellfish consumption rate for cleanup decisions at the Rayonier Superfund site in Port Angeles. The Washington Department of Ecology, which is managing the clean-up, has endorsed the Tribe’s proposal. The Framework is expected to undergo further changes as new scientific and demographic information and policy choices emerge. Despite expected changes, EPA Region 10 now has a Tribal fish and shellfish consumption risk assessment policy for Puget Sound/ Strait of Georgia clean-up sites that addresses internal policy differences, provides a consistent starting point in developing site-specific exposure estimates, and facilitates negotiation and communication with clean-up site stakeholders.



OEA Boats Get Plenty of Use

During 2007-2008, OEA staff oversaw the completion of upgrades to Region 10’s boating capabilities. In addition to a new 20 ft. aluminum workboat, designed to serve as a diving platform if needed, and a new 17 ft. aluminum river boat, we procured a new electroshocking boat designed also for multi-purpose usages such as sediment and water sampling, fish collection, or other research needs. All of these boats were equipped with low emission, fuel efficient 4-stroke outboard engines. Our flagship research vessel, the 28 ft. Monitor, was also upgraded with a Tier-II emissions compliant engine.

Projects supported by these research vessels over the 2007-2008 timeframe included: Hood Canal Eel grass study; Duwamish River tours; Mid-Columbia River sampling; Superfund sites in Eagle Harbor, Portland, Ostrich Bay, and Lower Duwamish River; Texas A & M study in the Duwamish and Lake Union; Willamette River fish collection; and Henderson Inlet ecological study.

New Tool, Remotely Operated Vehicle, Enhances Dive Team Work



ROV (pictured on the left) sends images back to personnel topside (right)

The Remotely Operated Vehicle (ROV) is a small, portable, tethered, underwater submersible capable of providing video documentation, measurements, and sonar that aids in remote, underwater scientific surveys. Benefits of using cutting edge ROV technology include: more easily, quickly, and inexpensively providing environmental site surveys and investigations. Benefits are achieved in part by cutting down on the amount of SCUBA search dives, allowing better utilization of a diver's limited bottom time to perform other much needed mission objectives. The ROV also adds a safety aspect by providing an "extra set of eyes" as well as providing pre-dive reconnaissance and hazard scouting. The ROV also operates independently of divers especially when conditions are not suitable for diving such as with extreme depth, current, entanglement hazards or lack of required support personnel. The ROV comes with a topside display for viewing, as well as recording, capabilities for inspection records and evidence collection. The ROV has provided invaluable data for multiple marine projects such as benthic surveys, shoreline inventories/assessments, shellfish surveys and Superfund cap integrity analysis. Inspection/investigative purposes such as aquaculture inspections, CID investigations (scuttled ships), facility outfalls, and seafood processor inspections are also excellent candidates for the ROV. This tool has been put to good use collecting data for multiple projects supporting EPA's Puget Sound Initiative and, the ROV was used to characterize the benthic environment of the ocean-dumped dredged material site at the mouth of the Columbia River from the OSV BOLD.

OEA Staff Lead Efforts on Mid-Columbia River Toxics Monitoring Project

In EPA's 2006-2011 National Strategic Plan, the Columbia River Basin was elevated to one of our Nation's great water bodies. Past studies within the Basin have found significant levels of toxins in fish and the waters they inhabit. However, there is limited toxics data on the mid-Columbia, so a comprehensive sampling effort to evaluate problems in this section of the River was needed. This project is a partnership between EPA Region 10, ORD, Oregon DEQ, Portland State University, and others.



Sampling on the Columbia River

Forty (40) sites were selected using a probabilistic design along the Columbia River from Bonneville Dam in Oregon to the Grand Coulee Dam in Washington to represent this entire section of the River. Collecting data from sites selected in this manner allows us to characterize the entire mid-Columbia reach. Sampling was conducted during the summer of 2008 in Washington by EPA Region 10. In 2009, Oregon DEQ will conduct the sampling in Oregon using EPA funds.

EPA Region 10 and Oregon DEQ field crews will take measurements in the water column. Temperature was measured, and samples were taken and analyzed for mercury, dissolved oxygen, nutrients, chlorophyll content, turbidity and other parameters. We also collected selected fish species for tissue analysis of a variety of toxic contaminants for both human health and ecological endpoints. In addition, we collected samples that Portland State University will analyze for the presence of the planktonic larvae (veligers) of Quagga and Zebra mussels, both invasive species.

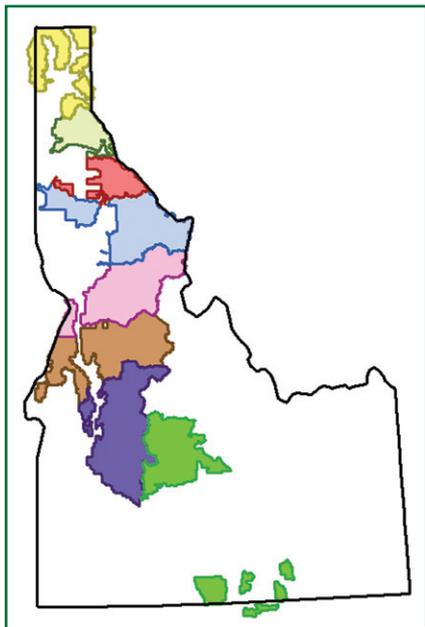
The laboratory analysis for this project is also a partnership. All of the human health fish tissue samples will be analyzed by Oregon DEQ. All of the ecological fish tissue samples will be analyzed by EPA ORD. The water chemistry samples from Washington were analyzed by the EPA Region 10 Laboratory and, the Oregon samples will be analyzed by the DEQ Lab.

The first year of field work was successful; all of the sites in the Washington portion of the reach were sampled by EPA Region 10. The water column measures have been analyzed by the EPA Region 10 Lab. During Winter 2008, lab analysis by Oregon DEQ and ORD will begin on the fish tissue samples. Summer 2009, Oregon DEQ will collect samples in the Oregon portion of the Mid-Columbia using EPA's boat and other assistance from EPA Region 10.

PCB Investigation in EPA Parking Garage and Equipment Room Results in Cleanup

For many years, OEA has used the Field Equipment Room for the storage of “clean” (uncontaminated) sampling materials such as packaged gauze pads, sample jars and disposable gloves. This room was located in the minus one level of the parking garage of the Park Place Building, home of EPA Region 10’s Regional Office. Discovery of PCB contamination in gauze pads obtained from this room triggered an investigation by OEA to determine the source of contamination. Initial findings revealed that dust containing trace amounts of PCBs had migrated into the equipment room over an extended period of time. Further investigation of the area showed a pattern of coincidental dust accumulation and PCBs that is greatest near the parking garage entrance/exit area and extends into the lower floors in decreasing amounts. Air monitoring of the equipment room and parking garage confirmed the presence of airborne PCBs. Additional wipe samples and observation could find no other likely sources, such as light ballasts or spills. Airborne dust originating from outside the building is a suspected source of contamination. OEA now maintains locked storage on the 9th floor for clean disposable sampling equipment.

OEA Landscape Ecologist Collaborates in Development of TMDL Targets



OEA’s Landscape Ecologist, has worked closely with technical staff at the Idaho Department of Environmental Quality (IDEQ) in developing Total Maximum Daily Load (TMDL) targets associated with non-point source temperature pollution. The work established a standardized baseline of technical products to be used during Temperature TMDL development, and the 5-year TMDL review process. Specifically, our Landscape Ecologist worked with IDEQ’s TMDL Specialist/ Forest Ecologist to incorporate spatial and temporal variability of landcover conditions, established by “natural disturbance” regimes. His work established TMDL support information for “forested” ecosystems in Idaho: (1) Clearwater National Forest, (3) Nez Perce National Forest, (3) Kaniksu National Forest, (4) Coeur d’Alene National Forest, (5) St. Joe National Forest, (6) Boise

National Forest, (7) Payette National Forest, and (8) Sawtooth National Forest (areas are highlighted to the right). OEA’s Landscape Ecologist utilized available information (for example, recently published Forest Plans and GIS datasets) developed by each respective forest.

Technical assessments for other areas of Idaho were developed by IDEQ staff (these areas are not highlighted in the image). In order to facilitate this effort, our Landscape Ecologist held a three-day workshop in Seattle to work out methodologies associated with this project, along with providing model and GIS training to IDEQ project staff.

OEA Scientists Work on Integrating Groundwater-Surface Water Interface

OEA scientists have been working on integrating the connection between groundwater and surface water, from sources and wells to the water column, with a focus on what is now widely termed the transition zone. The interface is important ecologically. It encompasses the biologically-active zone, the area where most benthic organisms live and where their larvae settle, grow, feed, and reproduce. It is a zone of active geochemical processes in the interface between generally anoxic ground water and oxygenated surface water. Project managers dealing with contaminants in groundwater and sediments use their understanding of this interface to determine questions of loading/flux, risk, remediation, and source control. It is a critical pathway to evaluate, so we can determine, for example, whether a new clean sediment cap will become contaminated by contaminants rising up through the cap.

Environmental Assessment:

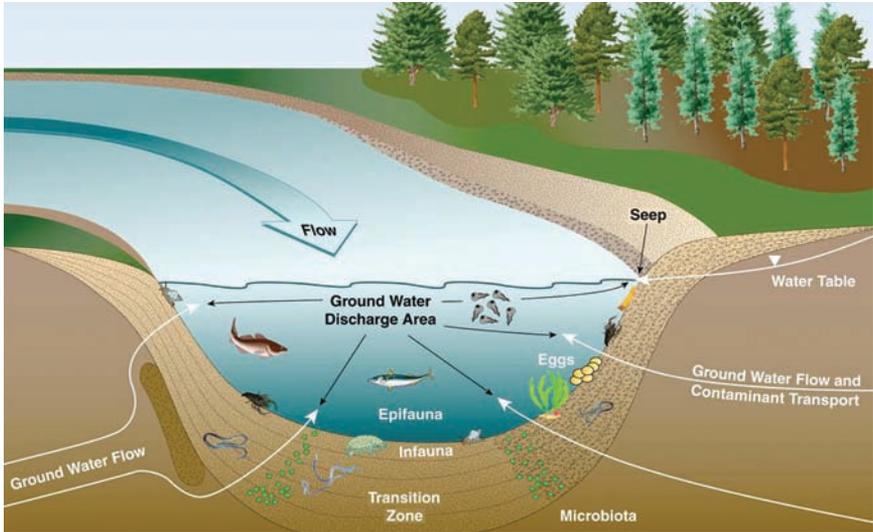
- Assess the condition of the environment, including the compliance status of pollution sources.
- Identify information gaps to direct future data acquisition activities.
- Provide information on meaningful and measurable environmental indicators that can be used to make informed management decisions.
- Provide comparative risk analyses and risk management options, for use in setting priorities.

This interface is the relevant connection that unifies upland, sediment, and surface-water evaluations, and the continuity of the hydrologic cycle. It brings together two complementary disciplines -- hydrogeology and risk assessment -- in a way that focuses on management decisions. Understanding the movement, dilution, degradation, absorption, desorption of contaminants in complex systems such as tidal estuaries with salt-wedge dynamics is challenging. Rising to this challenge, OEA staff has developed new applications of simple hydrogeological tools for deployment by divers under water (e.g., minipiezometers and seepage meters) so that exposures can be characterized.

Over approximately the last ten years, we have seen this work result in much more widespread interest on the interconnections between uplands and surface waters, including international conferences, training at National meetings, development of technical documents, and, most importantly the incorporation of transition zone characterization into risk assessments. Much of that can be summarized in the recent EPA EcoUpdate on this topic as well as related ORD publications. *See Figure 3 on the next page*

Figure 3

Conceptual Site Model Depicting Contaminant Transport via Ground-Water Flow, Followed by Discharge Through the Bedded Sediments in the Transition Zone into Overlying Surface-Water



Laboratory Busy Over Last Several Years

The Region 10 Laboratory in Manchester, Washington, is a critical component of OEA and figures prominently in the work of the Region. Each year, the Laboratory produces its own annual report which is available on-line at <http://yosemite.epa.gov/R10/LAB.NSF/Homepage/R10+Lab>. The highlights that follow, while representative of the important work performed at the Lab, are only a fraction of it.

Mobile Laboratory: The Region's microbiologists have developed, designed and currently operate a mobile microbiology laboratory that supports the Clean Water Act CAFO and NPDES programs. Their efforts support time critical analyses in cases where the data and inspection results are likely to go to Federal hearing. Expert witness testimony from laboratory analysts and public health experts has been provided to the Office of Regional Counsel. The Region's mobile laboratory is also used on a yearly basis to maintain an on-going monitoring program for testing recreational waters in underserved areas. These sites are chosen based on input from State, county and local authorities. The data is reported directly to the states, and includes a site survey, sampling and analyses conducted by the microbiology team.

Starting in Summer 2008, the mobile laboratory was tapped to assist the Oregon Operations Office (OOO) and Oregon Department of Environmental Quality (ODEQ) in the development of TMDL studies for the mid-coast and southern coast of Oregon. This work included two projects, one in August and the other in November of 2008. Staff provided analytical support for fecal coliform and *E. coli* testing during this period;

ODEQ collected the samples and conducted other analyses in support of the effort.

In addition, the microbiologists were involved in a cross-border study along the Columbia River to evaluate water quality and help in determining the cause of “river nose,” an ailment which plagues sailboarders and kitesailers in the Columbia River. This work involved intense but short duration use of the mobile laboratory to examine water samples for the presence of *Aeromonas*, *E. coli*, and enterococci. The Laboratory’s chemistry section provided analytical support to this project as well.

Microbial Source Tracking: This technological capability is our newest addition to the Laboratory. This technology was recently applied to projects that support TMDL development and address shellfish harvesting beach closures. It is very time consuming, requires technical expertise, and strict attention to sterile technique. To date, six Washington projects have benefited from this analysis including Oakland Bay, Drayton Harbor, Country Mobile Estates, Kitsap County Health District, Wenatchee Watershed, and the Okanogan Conservation District. Our clients have been Tribal Jurisdictions, County Health Districts, Washington State Department of Ecology, Washington State Department of Health, and NGO (Conservation Districts, Puget Sound Restoration Fund).

Drinking Water Certification Program: The Region’s Drinking Water Certification Program is a very important part of the Laboratory’s overall activities. Region 10 may be the only Region where the certification program capability resides in the EPA Lab. The Laboratory has a cadre of certification officers (COs) who are responsible for auditing the States’ drinking water certification programs and principal laboratories for drinking water parameters. The program: 1) monitors a State’s certification program through annual reports, triennial on-site reviews, etc., 2) conducts triennial audits of a State’s principal laboratories and, 3) offers technical assistance when needed by State Contracting Officers and the commercial and public laboratories in the States.

The Laboratory provides support to a number of high profile, on-going projects across the media programs in Region 10. Here is a cross-section of that work:

Bunker Hill Biomonitoring - Superfund. Every year, a variety of samples are sent to the Lab for analysis. Samples have included scat (many varieties), rodents, macroinvertebrates, mouse livers, and songbird blood. Approaches for homogenizing samples have been developed along with digestion programs, custom spiking levels, and analytical designs for the different matrices.

Arsenic speciation for seafood samples has taken significant effort to implement and optimize. In addition to installing the equipment, Lab staff worked with the instrument manufacturer to optimize the analysis timing. In addition, these staff have also developed aspects of “routine analysis” such as reporting limits, spiking levels, spike acceptance criteria, etc. to create high quality data packages. Some of the sites for which the analysis has been performed include Swinomish, Upper Columbia River, and Richmond Beach.

For the Upper Columbia River project, the Lab developed the capability to analyze for natural uranium in water and tissue samples.

For the Carver School project, the Lab performed lead analysis by x-ray fluorescence on paint chips. The paint chips, many of which were too small to analyze individually, were sorted by color and composition, and fragments were assembled in order to provide a measurement of lead concentration.

For the current Mid-Columbia River project, the Lab is analyzing for selenium in fish at levels significantly below current capability. A new technology (dynamic reaction cell) has been utilized to achieve the needed reductions.

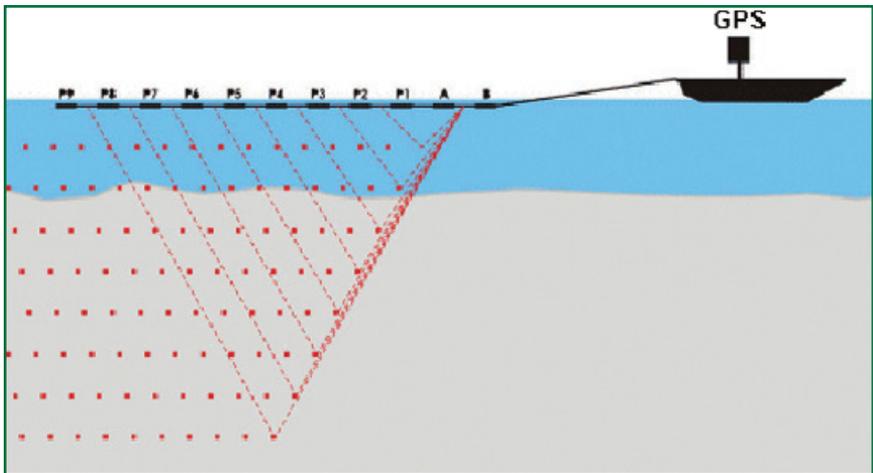
Site Characterization Made Easier Because of Continuous Resistivity Profiler

OEA has purchased a new geophysical instrument to help us with site characterization. This instrument is a Continuous Resistivity Profiler which produces an electric field and then measures how that field is perturbed by changes in ground conductivity. In the field, these changes can help us image the presence of a plume of contaminated ground water. This instrument was designed by Advanced Geosciences, Inc (AGI) in Austin, Texas in cooperation with the US Geological Survey. One of the first uses of this instrument was in Region 1 where a plume of partially degraded TCE was followed to its discharge point in a bay off of a naval facility. Our instrument constantly records its GPS location, the water depth, temperature and the readings of a multi-electrode array towed behind a boat. From this dataset, we can construct a picture of the distribution of resistivities to a depth of approximately 50 feet. We have been testing this instrument in the Lower Duwamish and Portland Harbor sites and, plan on using it to image the discharge locations of plumes leaving the Hanford site and entering the Columbia River. The instrument is flexible and later we plan to use it in upland surveys to help define the path of plumes of contaminated ground water. Right now, we are using it only in the marine mode, as a towed instrument, imaging sediments through the water column.



EPA scientist operating profiler

The image below conveys the general concept of the movable array collecting continuous data to produce a cross section of electrical conductivity readings in the subsurface.



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OEA Links

OEA Intranet Website:

<http://r10napps3.r10.epa.gov:9876/R10/INFOPAGE/oeainfo.nsf/7919D39DDA013F4D88256A5400754688/592B462BF1915CE1882573390063CE04?OpenDocument>

OEA Internet Website:

<http://yosemite.epa.gov/R10/OEA.NSF/webpage/Environmental+Assessment>

OEA Access to Technical Assistance

(i.e., menu of expertise, "Tec Tasks" database):

<http://204.47.216.153:9876/r10/infopage/oeainfo.nsf/4bb5d2c2196a420e8825650f00711e3b/fec236c804519659882570d800644316?OpenDocument>

OEA "In the Spotlight" Articles:

<http://204.47.216.153:9876/r10/infopage/oeainfo.nsf/7919d39dda013f4d88256a5400754688/c609d2245ab4b3e688257498005ccaafc?OpenDocument>

OEA's Regional Laboratory in Manchester, Washington:

<http://204.47.216.153:9876/R10/INFOPAGE/labinfo.nsf/4BB5D2C2196A420E8825650F00711E3B/9413673D8CEE653788256680007295DB?OpenDocument>

Region 10

Science Advisory Board study, “Science
Integration for Decision Making”
Interview Material for December 8, 2009

Presented by Region 10’s Executive Team

CASE STUDIES

1. Cook Inlet Effluent Limit Guidelines
2. Hells Canyon Complex FERC Re-license
and State CWA 401 Certification
3. Revision of Dioxin Guidelines for Dredged
Material Disposed in Puget Sound
4. Use of a Water Quality Model and Public
Involvement in the Development of the
Total Maximum Daily Load (TMDL) for
Spokane River
5. Validation of a Streamflow Duration
Assessment Method for the Pacific
Northwest

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CASE STUDY

Cook Inlet Effluent Limit Guidelines

Alaska's Cook Inlet is a large, high value tidal embayment heavily used for commercial, recreational and subsistence harvesting of fish and shellfish and oil and gas production. All oil and gas facilities regulated by the National Coastal subcategory effluent limitation guidelines (ELG), except for facilities in Cook Inlet, are prohibited from discharging drill cuttings, produced water, and other drilling wastes into waters of the United States. Based on the record for the 1996 Coastal effluent guidelines, EPA determined that onsite injection and other zero discharge options were not feasible throughout Cook Inlet, therefore Cook Inlet discharge requirements are equivalent to the effluent guidelines for operators in the Offshore Subcategory. During the last two permit reissuance cycles, EPA has been petitioned by Cook Inlet Tribal governments, tribal communities, Non-Governmental Organizations (NGO's), citizens and Commercial Fishing interests to review and eliminate the Cook Inlet exemption and require wastes be managed consistent with all other US coastal operations.

In the process of reissuing the Cook Inlet general permit R10 considered the factors identified in the ELG basis and determined there have been significant changes in disposal alternatives (injection or shore-based), available technologically and the price of oil. R10 considered public, stakeholder, and 10 federally recognized tribal governments input and evaluated traditional ecological knowledge, environmental changes, new ESA listing of Beluga whales and State of Alaska fish consumption advisory for mercury, a potential constituent of barite/drilling muds. Additionally, the Municipality of Anchorage, where half of the state population resides, has a 301h waiver and discharges primary treatment wastewater to Cook Inlet. R10 recommended reevaluation of the ELG by the Office of Science and Technology (OST). However, OST's preliminary economic analysis indicates that re-injection is not likely to be economically achievable for Cook Inlet dischargers. A more balanced integrated approach to decision making is needed to resolve the fundamental conflict where economics play the most significant role in the reevaluation process. A holistic assessment of the environmental, including traditional ecological knowledge, human health, species and ecosystem protection which incorporates the physical and social sciences into our decision-making is critical.

CASE STUDY

Hells Canyon Complex FERC Re-license and State CWA 401 Certification

The Hells Canyon Complex (HCC) consists of three dams (Brownlee, Oxbow, and Hells Canyon) on the Snake River and is owned by the Idaho Power Company (IPC). The license to operate the HCC expired in 2003 and the IPC is required to obtain a new license from the Federal Energy and Regulatory Commission (FERC). Prior to issuing a new license, FERC must obtain CWA 401 certifications from the State's of Idaho and Oregon that the proposed license will meet each State's water quality standards. Additionally, the State of Washington may object to the proposed license if it will violate Washington's water quality standards downstream of the HCC and request EPA to make recommendations to FERC to ensure the license will meet the State of Washington's standards.

Temperature water quality standards downstream of the HCC, which are designed to protect several salmon species (including ESA listed Snake River Fall Chinook, Steelhead, and Sockeye) is the primary subject of the CWA 401 review. The HCC holds and heats up water in the reservoirs behind the dams and causes the Snake River downstream of the HCC to be approximately 3°C warmer in the late summer and fall when adult salmon are migrating and spawning. In 2004, a Total Maximum Daily Load (TMDL) was completed, which called for IPC to reduce temperatures below the HCC by 2.7°C in late October to protect salmon spawning.

In 2009, IPC submitted a plan to the State's of Idaho and Oregon as part of its CWA 401 proposal to reduce temperatures below the HCC and meet temperature water quality standards. IPC's plan calls for implementation of watershed restoration projects upstream of the HCC over the course of the 40 year license term to lower temperatures and generally improve water quality upstream, which IPC asserts will translate to lower temperatures downstream of the HCC.

EPA has reviewed IPC's plan and has facilitated discussion between IPC, Idaho, Oregon, Washington, National Marine Fisheries Services (NMFS), and Fish and Wildlife Service (FWS). EPA has conducted a series of scientific assessments to aid in the various agency decision-making as part of this FERC license and associated CWA 401 certifications.

Key scientific assessments that EPA has conducted include: 1) evaluation and modeling of whether or not IPC's proposed plan will translate into temperature reductions downstream of the project sufficient to meet water quality standards; 2) evaluation and modeling of the potential temperature reductions downstream of the HCC that could occur if IPC were to install a temperature control structure (TCS) to release colder water; 3) the benefits (i.e., reduced adverse effects) that would occur to salmon species (in particular fall Chinook) if temperatures below the HCC were cooled by 3°C in the late summer and fall; and 4) analysis of improving water quality upstream of the HCC to eventually support re-introduction of fall Chinook salmon above the HCC to support the long term viability of the Snake River fall Chinook population.

EPA is using this scientific information to help ensure downstream temperature standards are met by either a) an upstream plan that is much larger in scale and focus than what IPC has currently proposed or b) the installation of a TCS.

CASE STUDY

Impediments to use of science: Revision of Dioxin Guidelines for Dredged Material Disposed in Puget Sound

Regional dioxin guidelines for dredged sediments are being revised because they do not reflect current understanding of exposures to and risk from consumption of dioxin-contaminated seafood. Agency risk estimates for both subsistence-level consumers and the general public indicate that seafood reflecting non-urban background sediment concentrations of dioxin in Puget Sound already pose an unacceptable excess cancer risk (greater than 1×10^{-5}). Considering that the risk thresholds associated with WA State Water Quality Standards are already exceeded by background conditions, the agency has chosen to set new numerical guidelines designed to reduce bioaccumulative risk to human and ecological receptors by assuring that dredged material disposal sites' concentrations are similar to background levels in non-urban Puget Sound.¹

Dredged Material Management Program (DMMP²) agencies have been working since 2007 to collect public input and additional scientific data to update the guidelines for acceptable dioxin levels in sediments bound for open water disposal. This has included conducting numerous public and technical workshops as well as conducting a comprehensive study of sediment dioxin in non-urban areas of Puget Sound.

Open water disposal of sediments is much cheaper than the alternative of upland disposal of sediments. Stakeholders from the dredging community fear that the revisions will severely affect dredging and the maritime economy because all dredging projects will require expensive dioxin testing and "unreasonable" background levels will become the standard for suitability determinations.

Environmental and tribal groups, on the other hand, are concerned that DMMP adopt appropriately conservative approach for dioxins given their high toxicity and known exposure to sensitive populations (e.g., subsistence consumers and ESA listed Orcas). The dioxin project has received a great deal of focused attention as it is generally recognized that the outcome will have significant implications for locations outside Puget Sound, and for other highly toxic and persistent bioaccumulative compounds such as PCBs.

This case study illustrates difficulties with merging policy and science. Scientists on opposite sides of the debate have reached different conclusions on the risk posed by open water disposal of dioxin-contaminated sediments and what is generally a workable approach to regulating persistent, bioaccumulative compounds of concern (COCs). The debate centers around if and how the "incremental risk" posed by a specific disposal site should be used to develop numerical guidelines for dioxin. Scientists opposing the Agency's approach have argued that the disposal sites represent a small area relative to Puget Sound and that allowing higher-than-background concentrations of dioxin in sediments at these sites would have no measurable influence on the overall risk from dioxin. The agency's scientists and regulators have argued that not enough is known about exposure and biomagnification of dioxin in Puget Sound food webs to make such conclusions with enough certainty. While it may be economically and politically expedient to set aside in-water areas where higher concentrations of bioaccumulative compounds are allowed, it would be difficult to justify such an approach as environmentally protective particularly in light of the challenges of monitoring the movement and effects of bioaccumulated contaminants.

¹ The proposed new guidelines for dioxin (no more than 10 ppt Toxic Equivalent – TEQ in a single analytical sample and no more than 4 ppt TEQ volume weighted mean of all samples in a project) are lower than previous guidelines which allowed dredged material to be placed at open water disposal sites as long as dioxin levels were below 15 ppt Toxic Equivalent (TEQ).

² DMMP factsheet, see http://www.dnr.wa.gov/Publications/aqr_dmmp_fact_sheet.pdf

CASE STUDY

Use of a Water Quality Model and Public Involvement in the Development of the Total Maximum Daily Load (TMDL) for Spokane River

A water quality model of the Spokane River provided the scientific basis a draft Total Maximum Daily Load (TMDL) released for public comment by the Washington Department of Ecology in September 2009. In support of the state, EPA Region 10 has provided funding and technical direction for the modeling work. The model was developed by Portland State University (PSU) using the CE-QUAL-W2 model framework. The model domain extends from the outlet of Lake Coeur d'Alene to Long Lake Dam, encompassing a mainstem river that includes both free-flowing reaches and impoundments. Low dissolved oxygen in Lake Spokane, formed by Long Lake Dam, is the primary focus of the TMDL.

The Spokane River model is a sophisticated analytical tool. CE-QUAL-W2 provides a 2-dimensional representation of the system, which is necessary for the evaluation of dissolved oxygen depletion in vertically stratified reservoirs like Lake Spokane. The CE-QUAL-W2 framework is designed to execute a dynamic (continuous) simulation of water quality. Dynamic models offer valuable information about seasonal variations in water quality, but they also require collection and analysis of a substantial amount of data and present significant technical challenges for the model developer. Extensive documentation and public involvement has illuminated the challenges and uncertainties inherent in a model of this kind.

The model also captures the simultaneous effects of multiple processes that influence the level of dissolved oxygen in a reservoir. These include natural influences such as wind and weather, influences related to the flow regime and impoundment of free-flowing reaches, and influences due to the discharge of wastewater from human activity in the basin. For wastewater, the model is used to estimate the oxygen-depleting effects of three pollutants discharged into the river: phosphorus, ammonia, and carbonaceous organic matter (CBOD).

An important element of TMDL development has been efforts to provide information and insight to stakeholders on the inherent challenges and uncertainties in water quality modeling. A key challenge has been to clarify the modeling methods or judgments that are strictly scientific in nature versus modeling methods that are influenced by policy considerations.

Once the model was developed and tested against real-world observations, it was "accepted" by the project team and used to make predictions for the TMDL. The prediction scenarios were carefully defined by the agency project team after numerous meetings to discuss the issues with stakeholders. The baseline scenario was an estimate of the natural condition. Then varying levels of pollution were analyzed, including the scenario that represents the proposed TMDL allocations.

For more information, see the TMDL webpage:

http://www.ecy.wa.gov/programs/wg/tmdl/spokaneriver/dissolved_oxygen/status.html

Or contact Ben Cope of EPA Region 10 at cope.ben@epa.gov.

Tom Eaton, Director
Washington Operations Office
11/23/09

CASE STUDY¹

Validation of a Streamflow Duration Assessment Method for the Pacific Northwest

Following the U.S. Supreme Court's 2006 *Rapanos* decision, the U.S. Army Corps of Engineers and EPA now place greater emphasis on determining the duration of streamflow in making jurisdictional determinations for purposes of the Clean Water Act.^{2,3} We have a project underway developing a field assessment tool to help distinguish between ephemeral, intermittent, and perennial streams; the primary driver behind development of this method is post-*Rapanos* guidance implementation and enforcement. This Streamflow Duration Assessment Method (Method), which was released as an interim version in March 2009, has been the subject of an ongoing two-year validation study, in cooperation with ORD/Western Ecology Division, testing the method at more than 170 sites in Oregon.⁴ That study aims to validate the streamflow duration classes—ephemeral, intermittent, perennial—provided by the Method in major hydrologic landscape regions across Oregon. Final data collection was completed in October 2009, and data analyses are underway; we anticipate releasing a final version of the Method for Oregon, reflecting the study results, in winter 2010. The objective is to provide a scientifically supported, rapid assessment framework that is consistent, robust, repeatable, and defensible. We were recently awarded Region 10 RARE funding to expand the validation study to Washington and Idaho, to further improve the specificity and scientific underpinning of the Method. Because this method informs CWA jurisdictional determinations, it also can affect project development, mitigation, and enforcement decisions, which are core elements of the Section 404 regulatory program. Beyond providing for a scientifically robust method that is applicable across the Region/Western states, an additional study objective is to generate research to directly inform the program and policy arena on CWA jurisdictional issues.

¹ Prepared on behalf of Tony Barber by Tracie Nadeau, Region 10 Office of Ecosystems, Tribal and Public Affairs

² Downing, D, T-L. Nadeau, and R. Kwok, 2007. Technical and Scientific Challenges in Implementing *Rapanos*' "Water of the United States." *Natural Resources and Environment* 22(1): 42-45.

³ Nadeau, T-L. and M.C. Rains, 2007. Hydrological Connectivity Between Headwater Streams and Downstream Waters: How Science Can Inform Policy. *Journal of the American Water Resources Association* 43(1): 118-133.

⁴ <http://yosemite.epa.gov/R10/ecocomm.nsf/wetlands/oregonstreamflow>