



Tribal Environmental Health Summit
“Building Collaborative Community Networks”
Salish Kootenai College
June 23 - 24, 2014

Meeting Agenda

Monday, June 23, 2014

5:00 – 6:30 Dinner at the KwaTaqNuk (Alexander Room)

7:00 – 8:30 Tour of Flathead Lake on KwaTaqNuk’s “Shaddow”

Tuesday, June 24, 2014

7:45 – 8:30 Registration – Foyer of the Arlee-Charlo Theatre
Posters in the Hibbard Room

8:30 – 9:00 Official Welcomes:
SKC President Depoe
Confederated Salish and Kootenai Tribal Council Representative
Blessing by elder – Tony Incashola, Salish Culture Committee
Honor drum song

9:00 – 10:30 **Session 1:** SKC EPA Center of Expertise (COE) - SKC/NAU NIH NARCH
Moderator: Doug Stevens, SKC

- 1) *SKC Native Environmental Health Research (NEHR) Network
An Overview.*
Doug Stevens, Salish Kootenai College
- 2) *Working Effectively With Tribal Colleges – Lessons Learned From A Tribal
Perspective.*
Fred Corey, Director, Micmac Environmental Lab, Micmac Tribe, ME
- 3) *Micmac Pilot Studies – A Tribal College Student Perspective.*
Trey Saddler, Salish Kootenai College
- 4) *Navajo Pilot and Future Studies.*
Jani Ingram, Northern Arizona University, AZ

10:30 – 10:50 **Morning Break**
Coffee/Tea in Foyer
Posters in Hibbard Room

- 10:50 – 12:50 **Session 2:** Models of Tribal Community Engaged Research
 Moderator: Symma Finn, NIEHS
- 1) *Indoor Air Quality Interventions with American Indian Populations: Community Capacity Building Towards Public Health Intervention Development for Indigenous Communities.*
 Annie Belcourt, University Montana, Missoula, MT
 - 2) *Tribal Waters: A Resource For Health And A Source Of Health Disparities.*
 Myra Lefthand, Community Health Educator, Crow/N. Cheyenne Hospital, Mari Eggers, Montana State University, MT
 - 3) *Evolution of a Robust Tribal-University Research Partnership to Investigate Tribal Exposures and Build Scientific Capacity.*
 Barbara Harper, Oregon State University/Confederated Tribes of the Umatilla Reservation, OR
 - 4) *Indigenous Community Health Indicators for Use in Evaluating Non-Physical Aspects of Health and Wellbeing.*
 Larry Campbell & Jamie Donatuto. Swinomish Tribe, WA
- 12:50 – 1:40 **Lunch – Camas Room, McDonald Health Center**
- 1:40 – 3:40 **Session 3:** Exposure Case Studies in Tribal Environmental Health
 Moderator: Caren Robinson, OCSPP, EPA
- 1) *A Community-Based Approach to Chemical Exposures at the Aamjiwnaang First Nation.*
 Diana Cryderman, Bay Mills Community College, MI
 - 2) *Fish Consumption and Risk Awareness Among Tribal Childbearing Age Women.*
 Sandra Kuntz, Montana State University, MT
 - 3) *Tar Creek Legacy: Lowering Lead Levels in Children.*
 Rebecca Jim, LEAD Agency, OK
 - 4) *EPA's 2014 Flame Retardant Assessments - A Case For Using Tribal-Relevant Exposure as a Default.*
 Dianne Barton, National Tribal Toxics Council/Columbia River Intertribal Fish Commission, OR
- 3:40 – 4:00 **Afternoon Break**
 Coffee/Tea in Foyer
 Posters in Hibbard Room

4:00 – 5:20

Session 4: Discussions and Feedback
Moderator: Patti Tyler, EPA

- 1) Linda Birnbaum,
Director, National Institute of Environmental Health Sciences
- 2) Oscar Morales,
Associate Assistant Administrator, Office of Chemical Safety and Pollution
Prevention, US Environmental Protection
- 3) Mose Herne,
Acting Deputy Director, Division of Behavioral Health, Indian Health
Services
- 4) Moderated discussion on key issues, collaboration, capacity and training
needs

5:20

Closing Remarks

Doug Stevens
Salish Kootenai College

5:30

Adjourn



Tribal Environmental Health Summit SKC June 24, 2014

Abstracts

THE NATIVE ENVIRONMENTAL HEALTH RESEARCH (NEHR) NETWORK AN OVERVIEW

Doug Stevens, Department of Life Sciences, Salish Kootenai College, Pablo, MT

Salish Kootenai College Department of Life Sciences (SKC LS Dept) offers the only 4-year, molecular-based biological science degree of any tribal college (BS-LS). There are 2 tracks – Cellular Biology and Environmental Health. Undergraduate student research is an integral part of both tracks. The Native Environmental Health Research (NEHR) Network is an outcome of sustained efforts by the SKC LS Dept to develop engaging, community-focused research for LS and other tribal college students. The NEHR Network will: a) link research resources of tribal colleges and universities (TCUs), and Native-serving mainstream institutions (NSMIs) with tribes in order to address pressing environmental health issues; b) offer Native American students at these institutions (TUCs and NSMIs) meaningful, community-engaged research experiences that will provide powerful, personal ownership (“buy-in”) to improve student retention and degree attainment; c) develop inter-institutional educational opportunities to increase tribal environmental health literacy; and d) develop a “virtual” Center of Expertise (COE) that can offer expertise and assistance to tribes in areas such as, culturally-appropriate risk assessment and targeted environmental health training, etc. Through EPA’s support of the development of the COE, 2 pilot projects were completed to demonstrate the proof of principle of this approach. The first, in which SKC LS faculty and students worked directly with the Aroostook Band of Micmacs (Maine) on an assessment of mercury exposure within the Micmac community, and the second, where students and faculty of Northern Arizona University (NAU) worked Navajo Nation (AZ) to begin to assess the role of sheep in exposure of Navajo members to uranium. These COE pilot projects formed the basis for the establishment of the COE/NEHR Network as an NIH Native American Research Center of Health (NARCH). Through this NARCH, these two research projects will be continued and their scope expanded. As the NEHR Network continues to evolve, the COE outreach and utility to tribes will also be strengthened.

WORKING EFFECTIVELY WITH TRIBAL COLLEGES LESSONS LEARNED FROM A TRIBAL PERSPECTIVE

Corey, F., Environmental Dept., Aroostook Band of Micmacs, Presque Isle, ME

The Aroostook Band of Micmacs is a small federally-recognized Tribe located in far northern Maine. In the early 2000's, the Tribe became interested in partnering with universities and institutes of higher education to provide an opportunity for Tribal scientists to become knowledgeable with regard to contemporary environmental and natural resource management research, and to explore how this research could assist the Tribe with restoration and protection of important Tribal natural resources for sustaining Tribal health and culture.

In the ensuing years, the Tribe explored several partnerships with large institutes of higher education in the northeast, but the partnerships were only marginally successful. In particular, some of the challenges to a successful Tribal/large university partnership were the differences in Tribal culture versus big university culture, limitations and barriers imposed by university contracting offices, the withering nature of the relationships as funding resources waned, and from previous experience, general Tribal government weariness of partnering with big universities.

In 2012 the Aroostook Band of Micmacs began a pilot project with Salish Kootenai College to evaluate Tribal environmental health concerns associated with mercury in fish tissue, and arsenic in drinking water. From the beginning, the relationship between the Tribe and the Tribal college was tempered in mutual respect, understanding, and a sense of shared goals and ideals. In addition to the shared cultural aspects, the shared dedication to Native American students, and the mutual understanding of unique Tribal natural resource concerns, this enabled the relationship between the Tribe and the Tribal college to flourish. Along with the ease of establishing a productive relationship between the Tribe and the Tribal college, from a Tribal perspective, there is also a sense of trust, and long-term commitment and partnership, regardless of potential future interruptions in project funding.

MICMAC PILOT STUDIES – A TRIBAL COLLEGE STUDENT PERSPECTIVE

Saddler, T.¹, Stevens, D.¹, Smiley, W.¹, Stiffarm, A.¹, Littlewolf, C.², Lambert, L.³, Kuntz, S.⁴
¹Dept. Life Sciences, Salish Kootenai College, Pablo, MT; ²Flathead Indian Reservation, MT, ³e-Learning, Salish Kootenai College, Pablo, MT; ⁴College of Nursing, Montana State University, Bozeman, MT.

The purpose of this study was to (a) develop a community-based research pilot project to address the mercury exposure concerns of the Micmac tribal community; (b) proof of concept for using tribal college (TCU) students as culturally competent environmental health researchers in tribal communities; and (c) evaluate enhanced engagement of students in their undergraduate research. Methylmercury has been linked to neurodevelopmental deficits in young children and children exposed *in utero*, as well as cardiovascular disease in adults. Due to its tendency to

bioaccumulate in fish, communities that depend on fish as a major part of their diet may be at risk from methylmercury exposure. The Aroostook Band of Micmacs in northern Maine are a tribe that rely heavily on fish as part of their traditional diet. Due to the levels of contaminants in their traditional fish (*Salvelinus fontinalis*, eastern brook trout), there has been community-wide concern about the safety of this culturally significant food.

56 volunteer female tribal members of childbearing age [18 - 45] from the Micmac tribe submitted hair samples tested for mercury analysis. The first 3 cm from the scalp were analyzed using EPA method 7473 and represented an integrated exposure over the most recent 3-month period before the time of collection. They also completed a dietary survey in order to correlate the types and amount of fish that the tribal members believed they were eating to their actual hair mercury levels. The results of the hair mercury analysis demonstrated that none of the women tested were above the established EPA level of concern (1000 ppb Hg), but it should also be noted that the small sample size may not necessarily be representative of the total tribal population (>1100 members), or a subsistence life style. An analysis of a representative sample of locally caught fish is still pending.

This study demonstrated the viability of directing community-engaged research from a TCU with communities located at distance from the college. This process allowed Native American Life Sciences students from SKC to engage with the Micmac Tribal Council and tribal members. These students were able to interact the tribal peoples on reservations other than in their own geographical area and to rapidly establish trust with the community. Students became personally connected with the research they were performing, as the samples being tested were no longer just associated to a random number, but instead from the student's point of view, were actually tied in to a living breathing Native American tribe with whom they could relate.

NAVAJO PILOT AND FUTURE STUDIES

Jani Ingram, Dept. of Chemistry and Biochemistry, Northern Arizona University, Flagstaff, AZ

The research is an investigation of uranium contamination of sheep on the Navajo Nation from abandoned uranium mines in past mining community. Navajo rely on sheep as part of their traditional diet. This research seeks to quantitate uranium exposure and accumulation with respect to grazing on or near abandoned uranium mine sites. The sheep tissue samples were analyzed using inductively coupled plasma mass spectrometry (ICPMS). Sheep exposed to uranium near the mine sites are compared to a control group that graze in areas that were not mined. A preliminary study was done by our research group which examined one sheep and one lamb from Cameron (mining) area, and one sheep from Leupp (control). The preliminary study showed that the sheep from Cameron had higher levels of uranium compared to the sheep from Leupp by as much as a factor of 10. The current sheep study is building on the preliminary study. The request was made from the community of Cameron to study the sheep for uranium.

INDOOR AIR QUALITY INTERVENTIONS WITH AMERICAN INDIAN POPULATIONS: COMMUNITY CAPACITY BUILDING TOWARDS PUBLIC HEALTH INTERVENTION DEVELOPMENT FOR INDIGENOUS COMMUNITIES

Belcourt, A¹, Ward, T². and Noonan, C².

¹Department of Pharmacy/Community Public Health, University of Montana, Missoula, MT;

²Center for Environmental Health, University of Montana, Missoula, MT.

Indoor air quality and biomass smoke within indigenous communities is an emerging topic of significant public health concern. Wood stove use is highly prevalent within many reservation communities and biomass smoke associated with cooking and heating has been associated with chronic health problems. Studies conducted in rural and Native American communities examining indoor levels of fine particulate matter (PM_{2.5}) have frequently found levels that exceeded current health-based air quality standards. Native elderly populations are particularly susceptible to reduced lung function or chronic conditions such as asthma, COPD, and bronchitis.

Research conducted by our team has demonstrated that improving the efficacy of household level interventions (e.g., air filtration units) can reduce indoor exposures to biomass smoke and therefore lead to improved health outcomes. The findings from these intervention and qualitative input from wood stove experts, suggests that education interventions related to demonstrated best-practices in wood stove operation and fuel efficiency can translate to low-cost and sustainable strategies for reducing indoor biomass combustion exposures.

This recently funded project is guided by community-based participatory research principles in order to create more effective and culturally centered intervention methods to improve indoor air quality. The household level intervention is coupled with a community level intervention that was developed and initiated by tribal stakeholders. This presentation will provide information about environmental concerns within indigenous communities and describe the initial work to culturally adapt the approaches and initial intervention planning. The presentation will seek to advance knowledge regarding community-based efforts to increase the translational public health impact of indoor air quality educational materials and interventions.

TRIBAL WATERS: A RESOURCE FOR HEALTH AND A SOURCE OF HEALTH DISPARITIES

Lefthand, M.,^{1,2,3} **Eggers, M.**,⁴ John T. Doyle, J.,^{2,3,5,6} Young, S.,^{2,3,4} Kindness, L.,^{2,3,6} Good Luck, B.,^{2,3,7} McCormick, A.,^{2,8} Eric Dietrich, E.,⁴ Felicia, D.,^{3,9} and Camper, A.⁴

¹Crow/Northern Cheyenne Indian Health Service Hospital, ²Crow Environmental Health Steering Committee, ³Crow Tribal member, ⁴Montana State University Bozeman, MT ⁵Little Big Horn College, ⁶Apsaalooke Water and Wastewater Authority, ⁷Crow Legislator, ⁸Messengers for Health, ⁹Crow Tribe.

Lack of access to safe drinking water has been shown to be an environmental health disparity for some rural, poor and minority communities in the United States. Although 15% of the U.S. population relies on private wells, the federal government does not generally regulate the quality of home well water. A recent US Geological Survey study found that 23% of private wells tested nationwide had one or more contaminants at concentrations exceeding human health benchmarks. However, in the absence of data on well water consumption, the health risks have not been assessed. The Crow Environmental Health Steering Committee and their academic partners conducted a community-engaged, cumulative risk assessment of exposure to well water contaminants on the Crow Reservation in Montana. Well water testing and surveys were used to collect data on well water contaminant concentrations, water treatment methods, well water consumption, and well and septic system protection and maintenance practices. Key informant interviews documented family strategies for coping with poor quality well water. Uranium, manganese and nitrate were the inorganic contaminants most frequently exceeding US EPA standards. The percent of home wells exceeding the cumulative risk level of concern considering only these three inorganic contaminants varied from 11.1% to 58.3% depending on river valley. Exposure to contaminated well water exacerbates the community's existing health disparities due to the confluence of the area's geology, extensive agriculture, lack of public environmental health education, jurisdictional complexities of reservations, vulnerable health status and especially, families' limited financial resources for mitigating poor quality well water.

EVOLUTION OF A ROBUST TRIBAL-UNIVERSITY RESEARCH PARTNERSHIP TO INVESTIGATE TRIBAL EXPOSURES AND ENVIRONMENTAL HEALTH

Harper, B.^{1,2}, Anna Harding, A², Harris, S¹, and Diana Rohlman D.²

¹Dept. of Science and Engineering, Confederated Tribes of the Umatilla Indian Reservation, Pendleton, OR; ²School of Biological and Population Health Sciences, College of Public Health and Human Sciences, Oregon State University, Corvallis, OR.

Many years ago the CTUIR recognized that Native American lifestyles are so closely entwined with their natural environment and traditional cultural practices that this creates complex exposure pathways that are not well described and subsequently overlooked by environmental managers. Describing these exposure pathways was an early and on-going focus of the CTUIR's

research and contributions to the field of tribal risk assessment. Collaboration between scientists at the CTUIR Department of Science and Engineering and Oregon State University (OSU) began during that period and has steadily increased since then.

More recently, OSU and CTUIR scientists have begun to collect information on environmental exposures that are relevant for the people of the CTUIR. The CTUIR is using this information to reduce environmental exposures and formulate effective and culturally appropriate risk reduction and health promotion strategies. The natural environment is an essential component of traditional cultural practices, social connectedness, identity, and health and well-being. In addition to posing risks to human physiological health, environmental contamination can also disrupt the practice of important cultural activities, particularly when tribes are told to further limit their cultural practices in order to avoid excessive contamination. In focus group discussions a healthy natural environment was identified as an essential component of a healthy community, and a holistic view of good health for individuals and the community was expressed, including environmental, physical, mental, spiritual, and social components.

We highlight noteworthy outcomes from the CTUIR-OSU partnership, including: (1) a data sharing agreement between CTUIR-OSU; (2) a symposium developing cultural capacity among university researchers; (3) research exploring Tribal exposure to polycyclic aromatic hydrocarbons; (4) training Tribal members in air sampling techniques; and (5) employing passive sampling devices as surrogates for sampling directly in First Foods. Future projects address exposure to contaminants through indoor air exposures from wood-burning stoves and consumption of traditionally smoked foods, supporting tribal advances in analytical capability, and exploring environmental triggers of asthma. The CTUIR has built a unique field station with state of the art chemical analytical instrumentation and research greenhouses, and OSU will provide advice as we move toward accreditation of the analytical component. This partnership also seeks to support Tribal STEM students through the distance learning capability of the CTUIR field station, and to increase university scientist cultural sensitivity and awareness through focus groups, seminars and data exchange.

INDIGENOUS COMMUNITY HEALTH INDICATORS FOR USE IN EVALUATING NON-PHYSICAL ASPECTS OF HEALTH AND WELLBEING

Campbell, L.¹ and Donatuto, J.²

¹Tribal Historic Preservation, Swinomish Indian Tribal Community; ²Office of Planning, Swinomish Indian Tribal Community

How health is defined and assessed is a priority concern for Indigenous peoples due to considerable health risks faced from impacts to homelands and, sadly, because what is “at risk” is often determined without their input or approval. Many assessments fail to include explicit Indigenous health definitions and omit basic methodological guidance, thus compromising the quality and consistency of results. In response, we present a set of Indigenous Health Indicators (IHIs) as a more responsive framework for health assessments from the perspective of

Indigenous communities. The IHIs reflect non-physiological health concerns (community connection, natural resources security, cultural use, education, self-determination, well-being) and use constructed scales (e.g., Likert scales) to allow for community-based concerns and priorities to be clearly demonstrated and included in current assessment frameworks. In particular, the multi-scale IHIs help to articulate important community health priorities that are often considered “intangible” and therefore omitted from conventional risk assessment frameworks. We provide results from trials of the IHIs with northwest U.S. Coast Salish communities. We conclude that the IHIs, albeit preliminary, offer a starting point for including a range of important, community-based social and cultural health concerns as part of risk, health, climate change vulnerability and ecosystem service assessments in a way that is understood by community members and decision makers, and can be disseminated without releasing proprietary knowledge.

A COMMUNITY-BASED APPROACH TO CHEMICAL EXPOSURES TO THE AAMJIWNAANG NATION

Cryderman, D.¹ Letourneau, L.¹ Miller, F.² Johnston, S.³ Basu, N.¹

¹Dept. of Environmental Health Sciences University of Michigan, Ann Arbor; ²University of Michigan Autism and Communication Disorders Center; ³Aamjiwnaang First Nation Environmental Dept.

The Aamjiwnaang First Nation is an Ojibwe Tribe surrounded by an international petrochemical epicenter known as Canada’s “Chemical Valley”. The Reserve is located on the Southern border of Sarnia, ONT at the junction of Lake Huron and the St. Clair River, a Great Lakes Area of Concern. Situated in a 25 km radius from the Reserve are 58 facilities. Such placement of industrialized depicts an environmental justice issue seen among minority communities across North America. Though the potential for chemical exposures in the region has been known for some time, and although Aboriginal Peoples are at risk of being disproportionately exposed to environmental contaminants, little research has been done in the area. The project was initiated in partnership with the Aamjiwnaang First Nation Health and Environment Committee and was aimed to further understanding of chemical contamination and exposures on the Reserve.

Metals contamination of stream ecosystems on Reserve and within “Chemical Valley” was investigated. Seasonal water levels of aluminum, arsenic, cadmium, cobalt, copper, lead, manganese, nickel, and zinc were analyzed and screened for potential health impacts to freshwater invertebrates. Mercury concentrations of sediments and soils were also assessed. On-Reserve stream sites were compared to sites in communities within the surrounding bi-national “Chemical Valley” region, as well as to a reference community. Notably, aluminum, arsenic, cadmium, lead, and zinc on Reserve all averaged above those levels seen at the reference community. Many sites were above screening levels for aluminum, and few were above these levels for manganese. The Reserve had higher mercury concentrations than the reference community with one site on Talfourd Creek, a stream which flows through the Reserve,

exceeding benchmark sediment levels for freshwater invertebrate health and soil levels for invertebrate and plant health.

Human mercury exposures were assessed through hair, urine, and blood biomarkers in mother-child pairs (n=43). Multiple additional chemical exposures were assessed among Aamjiwnaang members. Blood, serum, and urine were used as biomarkers of metals, perfluorinated compounds, polycyclic aromatic hydrocarbons, organochlorine pesticides, polychlorinated biphenyls, and polybrominated biphenyl ethers exposures. Among these, potential chemicals of concern include cadmium, antimony, molybdenum, vanadium, dichlorodiphenyltrichloroethane, hexachlorocyclohexane, multiple perfluorinated compounds, and multiple PCBs, as distributions of these chemical biomarkers were elevated in Aamjiwnaang mothers or children compared to the general public. In general, hair and blood levels, which mark exposure to methyl mercury, were lower than the general public. Urinary mercury, used to document exposures to inorganic mercury, is of potential concern.

The project served as an initial assessment of multiple chemical contamination and exposures for the Aamjiwnaang First Nation. The data will help fill gaps in the literature, since First Nations Tribes are under-represented in environmental health research. In identifying key chemicals of interest, future studies can be molded to better serve the community. Additionally, dietary shifts and smoking tobacco have been recognized as lifestyle shifts that may have implications for community health and cultural practices.

FISH CONSUMPTION AND RISK AWARENESS AMONG TRIBAL CHILDBEARING AGE WOMEN

Kuntz, S.¹, Stevens, D.², Ward, A.³, Lambert, L.⁴, Grandchamp, M.⁵, Littlewolf, C.⁵, and Saddler, T.²

¹College of Nursing, Montana State University, Bozeman, MT; ²Dept. Life Sciences, Salish Kootenai College, Pablo, MT; ³Bozeman, MT ⁴e-Learning, Salish Kootenai College, Pablo, MT; ⁵Flathead Indian Reservation, MT

Purpose: The purpose of this study was to (a) develop a community-based participatory research project informed by local tribal knowledge and (b) gather and analyze awareness of fish consumption recommendations and advisories, risk awareness, risk communication preferences, and actual exposure to methylmercury among women of childbearing age.

Background: A delicate balance exists between the health benefits and the health risks of eating fish. Fish advisory messages disseminated through fishing license brochures often fail to reach tribal members who fish on home reservations without the need for a license. Little was known about the fish consumption patterns or potential methylmercury exposure among American Indian women living near the largest freshwater lake in the Northwest.

Method: Participants (N =183) were invited to this cross-sectional descriptive study through a tribal Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

program. An electronic fish consumption, risk awareness, and communication preferences survey was administered by a tribal research assistant. Hair samples were collected and analyzed using EPA method 7473 to determine exposure. A tribal community group advised the research team on ecological, cultural, spiritual, and economic issues throughout the study.

Results: Fish consumption was low with less than half of the sample indicating they ate purchased (48%) or locally caught fish (11%) in the month preceding the survey. Approximately 75% were unaware of state or tribal advisories and 72% lacked awareness of Food and Drug Administration (FDA) safe fish consumption recommendations of 6-12 ounces a week for childbearing women. The top two most trusted sources for health information were doctors and health professionals (73%, n =128) and WIC office personnel (61%, n = 109). Biomarker results indicate a non-actionable total mercury exposure level ranging from <0.05 to 0.936 ppm. Action level is set at 1 ppm by the EPA.

Implications: While actual exposure to methylmercury was below actionable levels, advisory and healthy fish consumption awareness were also low thereby increasing the potential risk for inadequate omega-3 fatty acids necessary for neurological development of the fetus and child among American Indians living on one northwest reservation. A balanced culturally significant risk/benefit communication message is needed. Next steps will depend on the tribal environmental health advisory committee but could entail developing an environmental literacy intervention model to address exposure to preventable environmental toxins that could impact children in American Indian communities.

EPA's 2014 FLAME RETARDANT ASSESSMENTS – A CASE FOR USING TRIBAL-RELEVANT EXPOSURE AS A DEFAULT

Barton, D.C.; National Tribal Toxics Council and Columbia River Inter-Tribal Fish Commission

In March 2013, EPA announced plans to conduct full risk assessments on four flame retardant chemicals (HBCD, TBB, TBPH, and TCEP) that are widely used in commerce but are reported to have persistent, bioaccumulative, and toxic (PBT) properties. Tribal members are disproportionately at risk to PBTs through unique cultural, ceremonial, and subsistence practices and lifelong exposure from place based communities. In addition, tribes have a unique political and legal status that sets them apart from other subpopulations and warrants particular consideration in risk and exposure assessments. This presentation will summarize a recent EPA exposure assessment where distinct tribal lifeways were not considered and will suggest that future assessments of PBT chemicals explicitly consider tribal exposure.

EPA's 2010 exposure assessment of polybrominated diphenyl ethers (PBDE) thoroughly reviews the widespread dispersion of PBDE congeners in the environment, bioaccumulation in aquatic and terrestrial animals, biomonitoring of human blood and breast milk, surface and soil concentration levels, and household/indoor air concentrations. The report quantifies central tendency intake estimates and body burdens of PBDEs and deduces that household dust is the

major source of exposure for the US general population. During analysis of highly exposed subpopulations and those with high body burdens, modeling exercises were not able to adequately explain the highest concentrations found. An evaluation of the assumptions that were used in this exposure assessment serves as an example of how a focus on central tendency exposures by federal risk assessors, overlooks reasonable risks to fish consuming tribal populations and thus misses the identification of significant exposure pathways and the need to establish corrective regulatory controls to better protect the health of tribal members as well as the general population.

EPA's assessment presents a thorough review of reported PBDE concentrations in fish tissue from a wide variety of sources. These references indicate that concentration of PBDEs in fish from open water environments, as tribal fisheries would be, are much higher (10-1000 ppb) than farmed fish or fish obtained from marketplaces (1-5 ppb). Recognizing the difficulty in choosing a nationally representative number, the authors used a sampling of fish from supermarkets in Dallas, TX for the dose assessment of exposure from fish (0.32 ppb for finfish and 5.7 ppb for shellfish). In addition, the assessment model used a fish consumption rate of 11.6 grams/day for finfish and 3.8 grams/day for shellfish. Tribal exposure to PBDEs are substantially underestimated using these assumptions. Fish consumption rates in the Pacific Northwest (for example) can be orders of magnitude higher than the general population, and fish is generally harvested from open water environments.

While significant information was gleaned from EPA's central tendency exposure assessment to PBDEs, such as the threat from indoor air quality, overlooking estimates of exposure to tribal populations from the consumption of first foods resulted in a lost opportunity to develop the technical case for instituting more stringent controls on release of PBDEs into the environment. As EPA moves to revise policies that address issues of environmental justice, consideration ought to be given to fully incorporating the impact of tribal exposures into study designs for the upcoming assessment of flame retardants in 2014.



Tribal Environmental Health Summit SKC June 24, 2014

Posters (submitted before 6/6/14):

Indoor Air Quality Among a Population of Tribal Elders

Belcourt, A.¹, Ward, T.². and Noonan, C.².

¹Department of Pharmacy/Community Public Health, University of Montana, Missoula, MT; ²Center for Environmental Health, University of Montana, Missoula, MT.

Art as Advocacy in Communities Affected by Environmental Degradation

Rebecca J.¹, Von Stackelberg, K.², Ann Backus, A.², Guzy, E.² and Wascovich, V.³

¹Local Environmental Action Demanded (LEAD), Quapaw, OK, ²Harvard School of Public Health NIEHS Center for Environmental Health Outreach Program, Boston, MA, ³Texas A&M University, College Station, TX.

Babies (lox^wte) and the Environment: Engaging a Tribal Community to Determine Priority Pediatric Environmental Health Issues.

Grandchamp, M.¹, Kuntz, S.², Lambert, L.³, Colomeda, E.³, Van Ness, R.³

¹CSKT Tribal Health, Pablo, MT; ²College of Nursing, Montana State University, Bozeman, MT; ³Salish Kootenai College, Pablo, MT;

The Navajo Birth Cohort Study: Community/Research/Tribal and Federal Partnership to Determine the Relationship of Uranium Exposure, Birth Outcomes and Development.

Lewis, J., University of New Mexico Health Science Center, Albuquerque, NM

Uranium Exposure of Sheep Near Abandoned Mines

Lister, A., Ingram, J. Rock, T., Dept Chemistry and Biochemistry, Northern Arizona University, Flagstaff, AZ

Extra poster boards will be available for last minute submissions



Tribal Environmental Health Summit SKC June 24, 2014

Presenters and Moderators (alphabetical order)



**Dianne
Barton**

Dianne is the Water Quality Coordinator at the Columbia River Inter-Tribal Fish Commission (CRITFC) where she provides technical expertise related to water quality, environmental toxics, regulatory processes, and fate and transport of contaminants. The Columbia River Inter-Tribal Fish Commission (CRITFC) is a technical support and coordinating agency for its member tribes' fisheries management. The ancestral homeland of the CRITFC tribes covers one-fourth of the entire Columbia River Basin. She also is the Chairman of the National Tribal Toxics Council (NTTC) which is an EPA Tribal partnership group that advocates for tribal interests in toxic policy decisions. Key issues for the NTTC include advocacy for programs to minimize the disproportionate exposure of tribal members to toxic chemicals, increasing tribal capacity to monitor and assess foods and resources for toxic chemicals, and enhancing tribal consultation and coordination on national chemical risk management and pollution prevention policies and chemical regulation. Previously, Dianne was a Distinguished Member of Technical Staff at Sandia National Laboratories in Albuquerque, New Mexico.



**Annie
Belcourt**

Dr. Belcourt-Dittloff (Otter Woman) is an American Indian Assistant Professor at the University of Montana's Pharmacy Practice and School of Public and Community Health Sciences Departments (enrolled tribal member of the Three Affiliated Tribes: Tribal affiliation Blackfeet, Chippewa, Mandan & Hidatsa). Her doctorate is in clinical psychology and her research and clinical practice priorities include mental health disparities, trauma, posttraumatic stress reactions, risk, resiliency, research ethics, and psychiatric disorder within American Indian communities



Linda
Birnbaum

Linda S. Birnbaum, Ph.D., is Director of the National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH), and the National Toxicology Program. A board certified toxicologist, Birnbaum has served as a federal scientist for nearly 34 years. Birnbaum has received many awards and recognitions, including the Women in Toxicology Elsevier Mentoring Award, the Society of Toxicology Public Communications Award, EPA's Health Science Achievement Award and Diversity Leadership Award, the National Center for Women's 2012 Health Policy Hero Award, Breast Cancer Fund Heroes Award, and 14 Science and Technology Achievement Awards, which reflect the recommendations of EPA's external Science Advisory Board, for specific publications. Birnbaum is a former president of the Society of Toxicology, the largest professional organization of toxicologists in the world; former chair of the Division of Toxicology at the American Society of Pharmacology and Therapeutics; and former vice president of the American Aging Association. She is the author of more than 700 peer-reviewed publications, book chapters, and reports. She is also an adjunct professor at several universities, including the University of North Carolina at Chapel Hill and Duke University. A native of New Jersey, Dr. Birnbaum received her M.S. and Ph.D. in microbiology from the University of Illinois at Urbana-Champaign



Larry
Campbell

Larry is the Tribal Historical Preservation Officer for the Swinomish Indian Tribal Community in the Cultural Resource Office. This work entails being involved in the regulatory aspects of cultural and archaeological resources in the usual and accustomed areas of the Swinomish Indian Tribal Community. Other duties and job descriptions include: Intergovernmental Relations/Cultural Resource Planner in the Office of Community Planning and Economic Development. He has been involved for over 30 years in Swinomish Indian Tribal Community governmental committees, intergovernmental affairs, public relations, community development, spiritual traditions and cultural activities. For the past 25 years, the greater part of Larry's work has involved the interrelationships between tribal, local, regional, national, and international governmental programs. He has presented numerous times on inter-governmental relations, cultural, spiritual and historical issues.



Fred
Corey

Fred has served as Environmental Director for the Aroostook Band of Micmacs (northern Maine) since 1996, and is responsible for the development and management of all Tribal environmental programs. In addition to his work with the Aroostook Band of Micmacs, Fred has served on the National Tribal Environmental Council's Superfund Working Group, has served as co-chair of EPA's Forum on State and Tribal Toxics Action (FOSTTA) Tribal Affairs Project, and currently serves as chairman of EPA's Tribal Pesticide Program Council (TPPC), and as vice-chairman of EPA's National Tribal Toxics Council (NTTC). Fred's professional interests include environmental chemistry, Tribal risk assessment, and Tribal environmental law.



Diana
Cryderman

Diana earned a PhD in Toxicology from the University of Michigan (2013). She is a member of the Sault Ste. Marie Band of Chippewa Indians. Diana has served as a science instructor at Bay Mills Community College (BMCC), located on Lake Superior's southern shore, since 2012. Diana has since become chair of the science department and is working to expand upon BMCC's Associates of General Sciences to offer an Associates in natural or life sciences.



Jamie
Donatuto

Jamie Donatuto received her PhD from the Institute of Resources, Environmental and Sustainability at the University of British Columbia in 2008. Her thesis, "When Seafood Feeds The Spirit Yet Poisons The Body: Developing Health Indicators For Risk Assessment In A Native American Fishing Community," focused on how to evaluate community-based indigenous health impacts when local natural resources are polluted. Dr. Donatuto is an employee of the Swinomish Indian Tribal Community, La Conner, WA (14 years). In addition to her research on indigenous health indicators, Jamie works with Coast Salish Tribes and First Nations on projects such as toxics trends monitoring, Superfund cleanup challenges, and climate change impacts and adaptation measures.



Mari
Eggers

Mari taught biology, ecology and environmental science at Little Big Horn College (LBHC) on the Crow Reservation, MT, where she and her family lived for 13 years. Since 2006, she, her LBHC students and her colleagues on the Crow Environmental Health Steering Committee (CEHSC) have been conducting a community-based risk assessment of exposure to waterborne contaminants, and have been collaborating with the local Water Authority to mitigate some of these risks. The CEHSC and Mari are now working to address fecal contamination of a culturally important spring, and beginning a new project to understand and plan for the impacts of climate change on local water resources and community health. She also coordinates an NIH funded minority graduate scholarship program for MSU. She has an M.A. from Stanford University, and an M.S. in ecology and a PhD in Environmental Health from Montana State University.



Symma
Finn

Symma has worked at NIH since 2009. In 2011 she joined the NIEHS Division of Extramural Research and Training (DERT) after concluding an American Association for the Advancement of Science (AAAS) Policy Fellowship in the NIH Office of Science Policy/Office of Biotechnology Activities. Symma administers social and behavioral research and develops new areas of interest in communications and environmental health literacy. She is overseeing communication and outreach and community resilience activities for the Deepwater Horizon Research Consortium, and is involved in the Breast Cancer and the Environment Research Program, Partnerships for Environmental Public

Health, and in other programs that deal with health disparities, environmental justice, and communications. A particular interest is in Native American research and addressing historical and emerging environmental health disparities on tribal lands.



Barbara
Harper

Barbara received her PhD from the University of Texas at Austin and has been a toxicologist and risk assessor in the Department of Science and Engineering at the Confederated Tribes of the Umatilla Indian Reservation for about 10 years. She is responsible for coordinating the CTUIR Hanford project work, including risk assessment review and performance, nuclear waste analysis and disposal plans, regulatory review, and NRDA. She also holds a research faculty appointment at Oregon State University and is coordinating several projects on environmental health and tribal rights and resources. She and has worked in academia, and in a state environmental regulatory agency, in a national lab, and as a consultant. She has served on EPA's chartered Science Advisory Board. She is a diplomat of the American Board of Toxicology (DABT), and has 30+ peer reviewed articles, 45+ chapters and reports, and 100+ presentations at professional meetings.



Mose
Herne

Mr. Mose Herne is a member of the Akwesasne Mohawk Nation (Turtle Clan) and is the Director of Planning, Evaluation, and Research in the Office of Public Health Support, Indian Health Service. Mr. Herne was previously the Health Science Administrator, acting Deputy Director, and acting Director of the Division of Behavioral Health in the Office of Clinical and Preventive Services, IHS. Mr. Herne has a broad range of public health and clinical and research experience, including Public Health Director for the Franklin County Health Department in New York State, clinical behavioral health positions with the Veterans Health Administration and IHS Urban Indian Health Programs in Massachusetts, research analyst positions with the Boston Environmental Hazards Center and the Harold Goodglass Aphasia Research Center, and adjunct faculty positions with Boston University and Fitchburg State College. Mr. Herne completed his undergraduate work in psychology and neurobiology at Clarkson University, his Master's degree in Neuroscience at Brandeis University, a Master's degree in Public Health and his doctoral training in environmental health and behavioral neurotoxicology, both at the Boston University School of Public Health (where he is a PhD candidate). His research interests include social and physical environmental determinants of health among environmental justice communities.



Jani
Ingram

Jani is an Associate Professor of Chemistry and Biochemistry at Northern Arizona University. She received her PhD in Chemistry from the University of Arizona. Jani investigates environmental contaminants with respect to their impact on health, specifically uranium and arsenic. She has published over 40 peer-reviewed articles. She is a member of the Navajo Nation (born to the Náneesht' ézhi clan) and is involved in outreach activities for Native American students in undergraduate research. She is the Director of the NIH Bridges to Baccalaureate program as well as serving as the Director of the Training Program for the Native American Cancer Prevention Program.



Rebecca
Jim

Rebecca Jim, is a retired Oklahoma Public School Indian Counselor who later became the executive director of a citizen's organization, Local Environmental Action Demanded, LEAD Agency bringing awareness and actions around the Tar Creek Superfund site and other environmental issues in northeast Oklahoma. Ms Jim reached out to researchers at the Harvard School of Public Health eighteen years ago, seeking answers to the questions residents raised. The latest question concerned mercury in local fish resulting in the completion of the NIH funded Grand Lake Watershed Mercury Study in partnership with Harvard School of Public Health and Oklahoma University Health Sciences Center. She is a member of the Cherokee Nation. She earned a B.A.- Behavioral Sciences, Southern Colorado State College 1972, and M.A.- Education, Counseling, Northeastern State University 1976.



Sandra
Kuntz

Sandra W. Kuntz, PhD, APRN, PHCNS-BC is an associate professor at Montana State University, College of Nursing on the Missoula-Kalispell Campus. Her research focuses on environmental health, including methylmercury risk and exposure in human populations, health disparities, and community-based participatory approaches in rural and Native American communities, primarily on the Flathead and Fort Peck reservations. Dr. Kuntz is a member of the United States Environmental Health Protection Agency, Child Health Protection Advisory Committee (2012-2014; 2014-2016) and the subcommittee on the Prevention of Harmful Pre-conception and Prenatal Exposures.

No
Photo

Myra
Lefthand

Myra has been working with communities in Health Education and Health Promotion for over 12 years. She is a founding member of the Crow Environmental Health Steering Committee. Her passion for learning and connecting with people has led her to work with several communities throughout the Crow reservation and across multiple cultures. Myra has a Master of Social Work from University of Utah, Salt Lake City, UT. She is most proud of her family and active participation in the culture ways of the Apsaalooke people.



Oscar
Morales

Oscar Morales has been a senior executive the U.S. Environmental Protection Agency (EPA) for over two decades and is currently the Associate Assistant Administrator for the Office of Chemical Safety and Pollution Prevention. As the AAA/OCSPP, he is the Senior Information Officer and Senior Resource Official overseeing the coordination of all budget and HR processes and the IT infrastructure for OSCPP and is responsible for coordinating Regional, State and Tribal activities including working with the National Tribal Operations Committee. He sits on numerous agency governance boards including the Working Capital Fund Board, National Partnership Council, Human Resource Council, Quality Information Council and the Grants Management Council and is the Deputy Civil Rights Official for the AA-ship. Prior to coming to OCSPP, he was an IT director in the Office of Environmental Information where managed the Agency's FOIA, Privacy Act, Paperwork Reduction Act, National Records Management Program, Data Standards, Metadata Strategies, Enterprise Content Management System, CBI and Security policies and, as part of the State-EPA Exchange Network, maintained the Systems of Registries and Repositories. Also, he constructed *Regulations.gov*, the first ever federal-wide electronic docket management system used by over 150 federal agencies and departments. Mr. Morales has Bachelors from the University of Missouri in Philosophy and Political Science, an MBA from Wharton and a Masters in Political Science from Texas Tech University, extensive graduate work in Statistics, Political Science and Policy at the University of Michigan at Ann Arbor and has been an adjunct professor at numerous local universities and colleges.



Caren
Robinson

Caren received a BA in Political Science from Western Michigan University, Kalamazoo (1983) and a Masters Degree in Public Policy from the University of Michigan, Ann Arbor (1986). She currently works as the National Indian Program Coordinator for the Office of Chemical Safety and Pollution Prevention (OCSPP), in the Immediate Office of the Assistant Administrator at the EPA. She has been with the Agency since 1986, beginning her career in the Assistant Administrator for Water's Policy Office and is well versed in the Agency's policies, laws and administrative processes related to tribal programs. Caren has been involved with the Agency's Indian program for over 27 years and has a deep knowledge and commitment to its successful implementation. Before starting her position in OCSPP in 1997, Caren spent the previous three years in the American Indian Environmental Office. In that capacity, Caren served as the national point of contact for the Agency's National Tribal Operations Committee -- a body which meets with EPA's Administrator and Senior Management on a regular basis providing tribal input into Agency's decision making. She also led the Agency's effort to develop a national training curriculum on working with tribal governments effectively.



Trey
Saddler

Trey Saddler is an enrolled member of the Chippewa Cree tribe of Montana and is a Senior in the BS Life Sciences (Environmental Health) Program at Salish Kootenai College. He has worked with Dr. Stevens on several projects investigating mercury levels in various biological samples including hair, seals, and fish. During the summer of 2013 he was an undergraduate intern at the National Institute of Environmental Health Sciences (NIEHS) in North Carolina where he worked with Dr. Darlene Dixon in the Molecular Pathogenesis Department. He is also a 2013 recipient of the EPA Greater Research Opportunities (GRO) Scholarship. He will be working with the EPA the summer of 2014 in Seattle with the Office of Water & Watersheds. After graduating from SKC, Trey would like to attend graduate school in an environmental-related field.



Doug
Stevens

Doug received a PhD in Toxicology from Washington State University (1989). He has been at Salish Kootenai College (SKC) since 2000. Doug is the past Head of SKC's Department of Life Sciences, and Director of both the SKC Environmental Chemistry Lab (SKC-ECL) and the Native Environmental Health Research (NEHR) Network/Center of Expertise (COE). He has been responsible for the development of the SKC BS (Life Sciences) - the first fully accredited, molecular-based, 4-yr program offered at a tribal college. The focus of the undergraduate student research at SKC-ECL has been the movement of heavy metals (Hg, Se & As) through the food web and into traditional diets. The ultimate purpose of this research is to evaluate the benefits and risks that may be posed by these foods. Doug was the recipient of the 2011 Society for the Advancement of Chicanos and Native Americans (SACNAS) Community and Tribal College Mentor of the Year Award.



Patti
Tyler

Patti is the Science Advisor and Science Liaison to EPA's Office of Research and Development in EPA's regional office in Denver, Colorado. She is a longstanding member of EPA's Tribal Science Council and collaborates with tribes to identify and address priority science issues of national significance for inclusion in EPA's strategic planning and budget processes. Currently, she is planning a meeting in which EPA, other federal agencies and tribal nations will share efforts that are being established to reduce the impacts of climate change on tribal communities. Patti has had the pleasure of working for EPA for 23 years and has diverse technical expertise, leadership skills and accomplishments and finds great pleasure with environmental problem solving through establishing collaborative partnerships. She has 20 years of field and laboratory experience and 10 years as an adjunct faculty member teaching a wetlands ecology course at Shoals Marine Laboratory. Patti received both her B.S and M.S. in Botany from Arizona State University.



Tribal Environmental Health Summit SKC June 24, 2014

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