



Bemidji Area Assessment of Tribal Environmental Health Services

Great Lakes Inter-Tribal Epidemiology Center
2013

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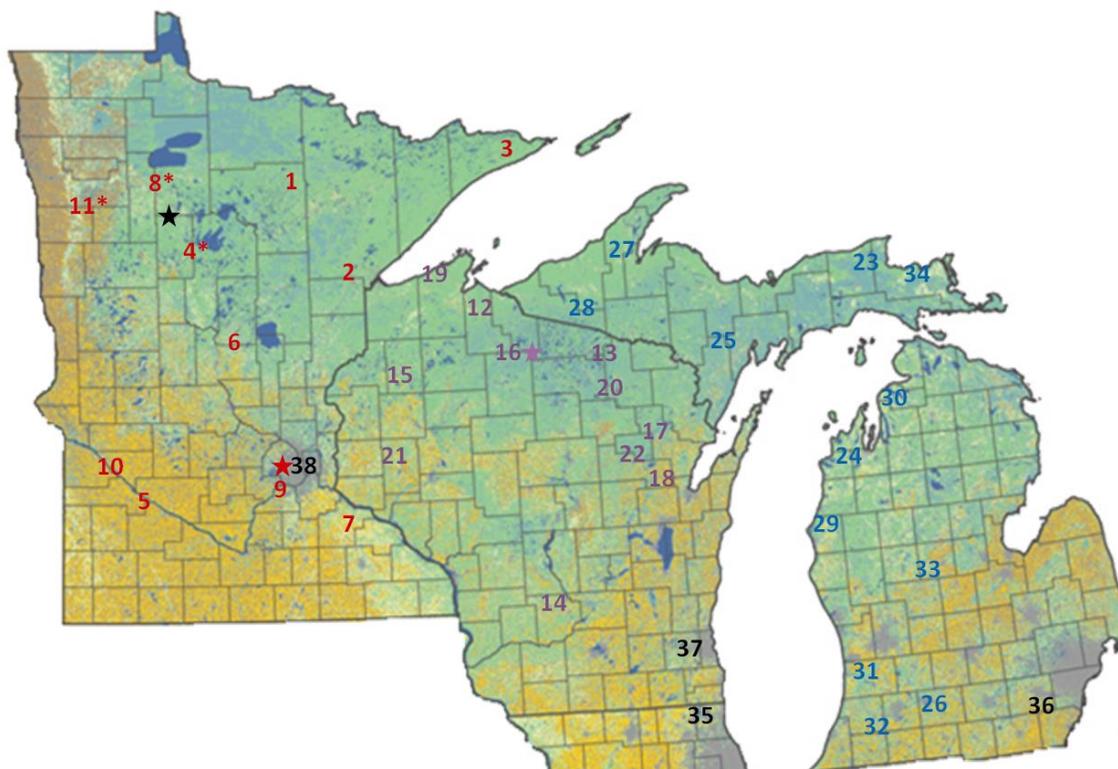
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Bemidji Area Service Area



1. Bois Forte Band
2. Fond du Lac Tribe
3. Grand Portage Band
4. Greater Leech Lake Band of Ojibwe*
5. Lower Sioux Indian Community
6. Mille Lacs Band
7. Prairie Island Sioux Tribe
8. Red Lake Nation *
9. Shakopee Mdewakanton Tribe
10. Upper Sioux Community
11. White Earth Tribe*
12. Bad River Tribe
13. Forest County Potawatomi
14. Ho-Chunk Nation
15. Lac Courte Oreilles Tribe
16. Lac du Flambeau Tribe
17. Menominee Nation
18. Oneida Nation
19. Red Cliff Tribe
20. Sokaogon Chippewa Tribe
21. St Croix Tribe
22. Stockbridge-Munsee Tribe
23. Bay Mills Indian Community
24. Grand Traverse Band of Ottawa/Chippewa

25. Hannahville Indian Community
 26. Huron Potawatomi (Nottawaseppi)
 27. Keweenaw Bay Indian Community
 28. Lac Vieux Desert Tribe
 29. Little River Band of Ottawa Indians
 30. Little Traverse Bay Bands of Odawa Indians
 31. Match-e-be-nash-she-wish Band
 32. Pokagon Band of Potawatomi Indians
 33. Saginaw Chippewa Indian Community
 34. Sault Ste Marie Tribe
 35. American Indian Health Service, Chicago
 36. American Indian Health and Family Services of Southeast Michigan
 37. Gerald Ignace Health Center
 38. Minneapolis Indian Health Board
- * Indian Health Service Direct Service Unit located at this Tribe
- ★ Great Lakes Inter-Tribal Epidemiology Center, Main Office
 - ★ Great Lakes Inter-Tribal Epidemiology Center, Remote Office
 - ★ Bemidji Area Office, Indian Health Service



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Executive Summary

In 2012, the Great Lakes Inter-Tribal Epidemiology Center (GLITEC) conducted an assessment of environmental health priorities and resources among the 34 Tribes in the Bemidji Area, an Indian Health Service area that covers Michigan, Minnesota, and Wisconsin. This is part of a larger effort by GLITEC to start addressing environmental health in addition to the established focus areas of behavioral health, maternal and child health, and chronic disease.

The assessment had three parts: a review of Tribal websites to see what environmental services or resources were identified, a survey completed by Tribal health directors and environmental staff, and key informant interviews. We received 29 surveys from health directors and environmental staff and conducted 16 key informant interviews with staff from the Environmental Protection Agency (EPA), Great Lakes Indian Fish and Wildlife Commission (GLIFWC), and staff from the Department of Natural Resources and Departments of Health in Michigan, Minnesota, and Wisconsin. Due to unique cultural beliefs surrounding the environment in many American Indian communities, the definition of environmental health in a Tribal context is broadened to also include environmental protection.

Highlights from the results include:

Website Review

- Over two-thirds of Tribes listed some type of environmental health/protection activity on their website
- The Environmental Protection Agency has identified over 125 Superfund hazardous waste sites in the Bemidji Area

Survey Results

- The top priority areas for Tribes include drinking water quality, indoor air quality, disaster health and safety, food safety, and home safety
- Resources that are important to protect for cultural preservation and spiritual well-being include black ash and birch trees; plants for traditional medicine; clan animals including marten, fish, bear, and deer; and traditional foods including wild rice, cranberries, corn, elk, moose, and walleye

Key Informant Interview Results

- Current environmental health/protection activities carried out by various agencies include mercury maps showing which lakes have fish advisories, climate change maps, air and water monitoring, flood damage control, and fish restoration
- The top three environmental health/protection issues projected to impact Tribes in the next ten years include: mining, climate change, and safe fish

Based on these results, several strategies may be useful for GLITEC to pursue to increase data collection and tracking to begin to monitor environmental health threats and to link exposures to health outcomes. An advisory committee made up of key partners from the Bemidji region will be convened to provide guidance on specific strategies GLITEC should pursue and to enhance collaboration throughout the region.



Background

The Great Lakes Inter-Tribal Epidemiology Center (GLITEC) is one of twelve Tribal Epidemiology Centers funded by the Indian Health Service (IHS) to collect data and enhance capacity in Tribal communities. It serves the Bemidji Area, which includes the 34 Tribes in Michigan, Minnesota, and Wisconsin, and urban Indians in Milwaukee, Minneapolis, Detroit, and Chicago. Since 1996, GLITEC has worked with Tribes on maternal and child health, behavioral health, chronic disease, and commercial tobacco use. In the 2011 cooperative agreement with IHS, GLITEC included exploring environmental health as an objective in their five year work plan. The Rocky Mountain Tribal Epidemiology Center was the first Tribal Epidemiology Center to add an environmental health component after tribes expressed concerns about an increase in cancer possibly resulting from exposure to toxins and contaminants in the environment (See Appendix 6). Due to unique cultural beliefs surrounding the environment in many American Indian communities, the definition of environmental health in a Tribal context is broadened to also include environmental protection (protecting natural resources and preventing environmental degradation).

Figure 1. Environmental health activities at Great Lakes Inter-Tribal Epidemiology Center



*NCEH stands for National Center for Environmental Health at the Centers for Disease Control and Prevention.

**ATSDR stands for Agency for Toxic Substances Disease Registry. See Appendix 1 for a full list of acronyms.

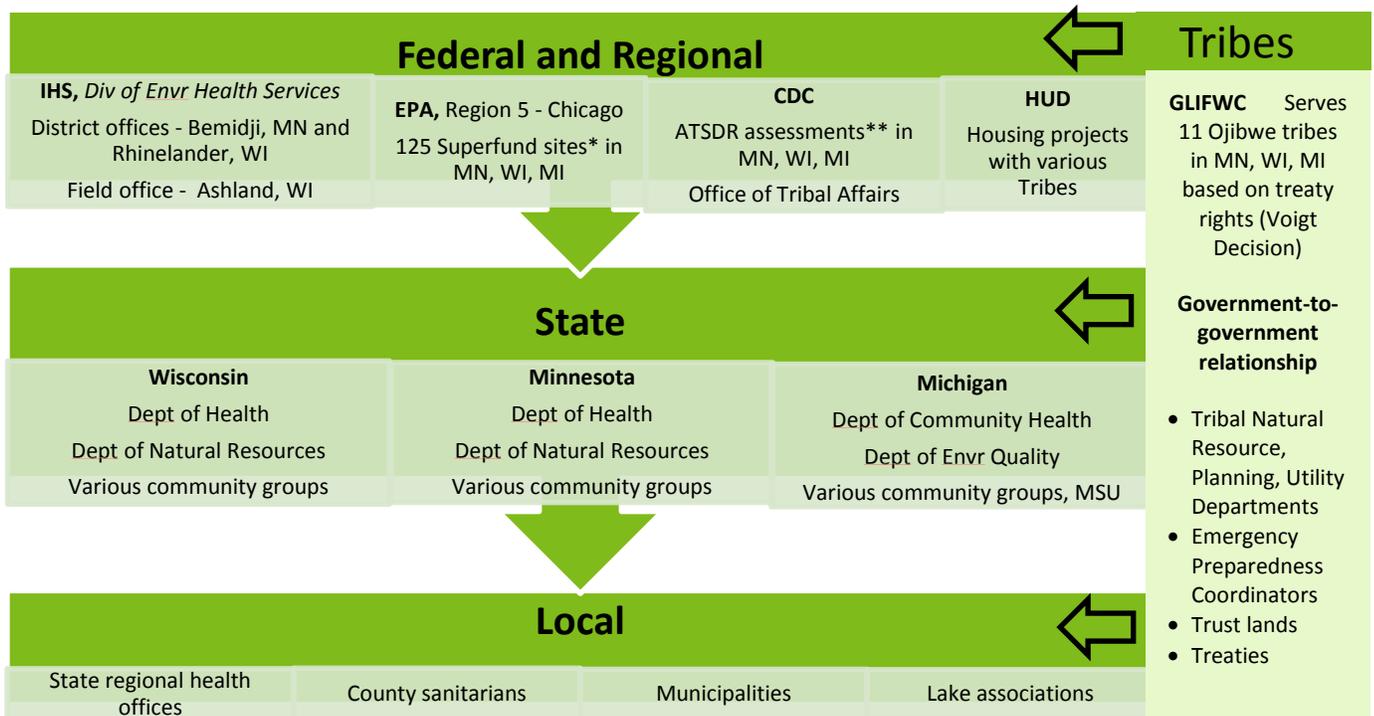
Bemidji Area organizations working on environmental health

There are a variety of agencies working on environmental health issues in the Bemidji Area that interface with Tribes (see Figure 2). At the federal level, the Environmental Protection Agency, Centers for Disease Control and Prevention, and Department of Housing and Urban Development all work with Tribes. The Indian Health Service has a trust responsibility to ensure the provision of environmental health services to Tribes, either through direct service provision or through 638 (self-determination) contracts. At the state level, Departments of Health and Natural Resources along with various nonprofit groups and universities are involved in environmental health. At the local level, Tribes may contract or collaborate with counties, municipalities, or associations. Due to their status as sovereign nations,



Tribes interact with each level of government on a government-to-government basis. Some Tribes have their own Department of Natural Resources, Emergency Preparedness Coordinators, and Planning and Utility Departments that work on environmental health and protection issues. In addition, the Great Lakes Indian Fish and Wildlife Commission was established from in 1984 to serve 11 Ojibwe Tribes in the Bemidji Area to enforce hunting and fishing treaty rights and promote conservation and understanding of Ojibwe culture in the lands covered by the treaties (see Figure 3).

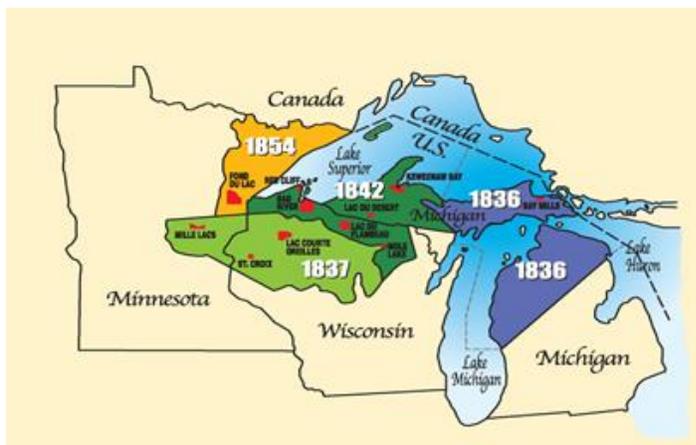
Figure 2. Agencies working on environmental health in the Bemidji Area



* See Appendix 2 for a full list of Superfund sites in the Bemidji Area

** See Appendix 3 for a list of ATSDR Public Health Assessments in the Bemidji Area

Figure3. Tribal lands served by Great Lakes Indian Fish and Wildlife Commission



Note: Dates represent the year treaties were signed that established hunting, fishing, and gathering rights to 11 Ojibwe Tribes in the Bemidji Area.

Source: www.glifwc.org



Cultural Role of the Environment

Due to physical location, cultural beliefs, and traditional food sources, many Tribal communities have a much closer relationship to the environment than other communities. Any potential threats to the environment (water, air, land, plants, fish, and wildlife) therefore will likely have a greater impact on Tribal communities. In addition, many Tribes in the Bemidji Area view health through a holistic perspective that includes physical, mental, spiritual, and emotional health. Many Tribes view the environment as relatives rather than resources, and many Tribal origin stories include certain animals as co-creators of the universe. The traditional diet of Bemidji Area Tribes included locally sourced foods, including wild rice, walleye and other fish, cranberries, and corn. A higher consumption of these foods can lead to increased health threats if there is contamination present. In addition, there is increasing recognition that promoting cultural beliefs and practices, including a close relationship with the natural environment, can help to both prevent and treat illness*.

Table 1. Cultural role of the environment in Tribal Communities

Element of the Environment	Relevance to Tribal Communities	Impact on Health
Animals (wolves, etc.)	Co-creators of the universe (for the Ojibwe)	<ul style="list-style-type: none"> • Spiritual well being • Cultural identity • Culture is prevention/treatment*
Traditional foods Fish, deer, elk Wild rice Corn Cranberries	<ul style="list-style-type: none"> • Many Tribal members have a higher consumption of these foods than the general public • Used at ceremonies • Part of a healthy lifestyle, before Tribes were separated from their land and new foods were introduced 	<ul style="list-style-type: none"> • Poor air and water quality can lead to unsafe fish and plants. A higher consumption of these foods can lead to health concerns (e.g. <i>mercury poisoning</i>). • The shift away from traditional foods has contributed to higher rates of <i>obesity and diabetes</i>.
Land, water, plants, and animals	Viewed as relatives, not resources. The stakes are higher if there are potential threats to any part of the environment.	<ul style="list-style-type: none"> • Poor water quality and environmental contamination can lead to health concerns (e.g. <i>mercury poisoning</i>) • Spiritual well being • Cultural identity • Culture is prevention/treatment*
Clan animals (wolf, bear, deer, marten, etc.)	Integral to the identity and cultural role of Tribal members	<ul style="list-style-type: none"> • Spiritual well being • Cultural identity • Culture is prevention/treatment*

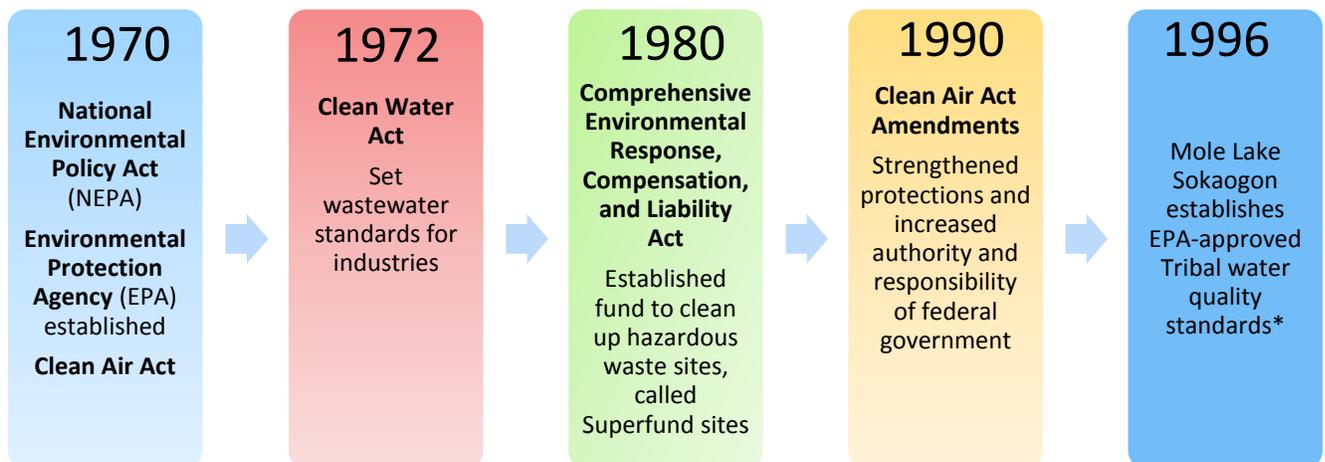
*See Lucero, E. (2011). From tradition to evidence: decolonization of the evidence-based practice system and 2001 Surgeon General Report *Mental Health: Culture, Race and Ethnicity*.



Relevant Legislation

A variety of laws dating back to 1970 have established the current regulatory climate for environmental issues impacting Tribes. The Environmental Protection Agency was created out of the National Environmental Policy Act and is charged with enforcing the Clean Water Act and Clean Air Act. The Clean Water Act sets wastewater standards for industries. In 1980, the Comprehensive Environmental Response Compensation Liability Act established a fund to clean up hazardous waste sites called Superfund Sites (see Appendix 2). In 1990, Clean Air Act amendments were enacted to strengthen environmental protections and increase the authority and responsibility of the federal government. Tribal-specific environmental regulations are more recent. In 1996, Mole Lake Sokaogon was the first Bemidji Tribe to establish their own water quality standards.

Figure 4. Environmental health legislation



Sources: www.epa.gov/lawsregs/laws/cwa.html, www.epa.gov/air/caa, www.epa.gov/superfund

*See http://water.epa.gov/scitech/swguidance/standards/upload/2006_07_31_tribes_sokaogon.pdf

Environmental Health Indicators and Existing Data

Data related to environmental health exposures and outcomes are rather limited for American Indians in the Bemidji Area. State Departments of Health have some data on asthma prevalence, health care utilization for asthma, and elevated blood lead levels in children, and existing data shows that these outcomes are worse for American Indians than for all adults in each state. Healthy People 2020, the national health plan that seeks to reduce health disparities, uses two environmental quality indicators: 1) Air Quality Index exceeding 100 and 2) number of children aged 3-11 years exposed to secondhand smoke. However, these data are not readily available for American Indians. The County Health Rankings, an annual county-level data source, uses the following environmental health indicators: air pollution, food environment, and adult smoking. Tribes can look at the counties that cover their Tribal lands to compare these indicators to other counties in the Bemidji Area.



Table 2. Environmental health indicators

Indicator	Data Source	MI	MN	WI
Air Quality Index (AQI) exceeding 100	Air Quality System (AQS), EPA	Not available at state or Tribal level	Not available at state or Tribal level	Not available at state or Tribal level
Children aged 3 to 11 years exposed to secondhand smoke	NHANES, CDC, NCHS			
Asthma prevalence	Burden of Asthma Report*	Not available for AIAN	12.6% AIAN 7.6% all adults 8.2% white adults	14.7% AIAN 9.2% all adults 8.7% white adults
Health care utilization for asthma	Burden of Asthma Report*	Not available for AIAN	Not available for AIAN	AIAN had lowest use of appropriate medications for asthma (2007, 2008)
Elevated blood lead level	Department of Health	Not available for AIAN	Not available for AIAN	.83% of AIAN children .6% white children
Air pollution-particulate matter days Air pollution-ozone days Access to recreational facilities Limited access to healthy food Fast food restaurants Adult smoking rate	County Health Rankings*	Go to County Health Rankings website* and select: <ul style="list-style-type: none"> • State • Measures • Health Factors → Physical Environment • Health Behaviors → Adult Smoking 		

*See Appendix 8, rates apply to adults on Medicaid

Methods

The assessment included three components: a review of the 34 Tribal websites and the Environmental Protection Agency’s website to scan for existing environmental health activities and hazardous waste sites, a survey completed by Tribal Health Directors and Tribal environmental staff distributed in person at the Michigan Tribal Health Directors meeting in July 2012 and via Survey Monkey, and key informant interviews conducted by phone and in person with staff from Indian Health Service, the Environmental Protection Agency, Great Lakes Indian Fish and Wildlife Commission, state and Tribal Departments of Natural Resources, and state Departments of Health. All activities were completed over the summer of 2012.



Results

Website Review

Based on a review of Tribal websites, over two thirds (68%) of Bemidji Area Tribes listed environmental health and protection activities, including testing drinking water, wastewater and solid waste management, addressing mold, asbestos, and radon, conducting food service inspections, vector disease control, hazardous material sampling, and water reclamation. A review of the Environmental Protection Agency website revealed that there are over 125 hazardous waste sites in the Bemidji Area called Superfund sites (see Appendix 2 for a complete list of Superfund sites in the Bemidji Area).

Note: Although not all Tribes listed activities on their website, IHS provides environmental health services through direct service or 638 contract to all Tribes.

Surveys

There were 29 survey respondents, with a 100% (12/12) response rate from Michigan Tribal Health Directors. This is likely because paper surveys were passed out at the July 2012 Michigan Tribal Health Directors meeting. Minnesota had the lowest response rate, with just 3 respondents (see Table 3). Out of 34 Tribes covered by the Bemidji Area, staff from 21 Tribes responded, for a Tribal response rate of 62%. The majority of respondents were Tribal Health Directors (n=13), followed by environmental health officers, either Tribal staff or IHS staff (n=8) (see Figure 5). Other respondent roles included natural resource staff, clinic manager, safety officer, sanitarian, and IHS program manager. One Tribal Health Director is also a Tribal leader.

Respondents were asked to mark which environmental health issues their Tribe is currently addressing (see Figure 6). The top four issues were water quality, disaster health and safety, air quality, and home safety. Each of these topic areas was broken down into subtopics (see Figures 7-10).

Table 3. Survey respondents by state or agency

State or agency	Number of respondents	Total Number of Tribes in State
Minnesota	3	11
Wisconsin	9	11
Michigan	12	12
Indian Health Service, Bemidji	5	
Total # of respondents	29	
Total # of distinct Tribes	21	34

Note: Some respondents from Minnesota and Wisconsin were from the same Tribe. Although there were 24 Tribal respondents, they represented 21 distinct Tribes.



Figure 5. Role of survey respondents

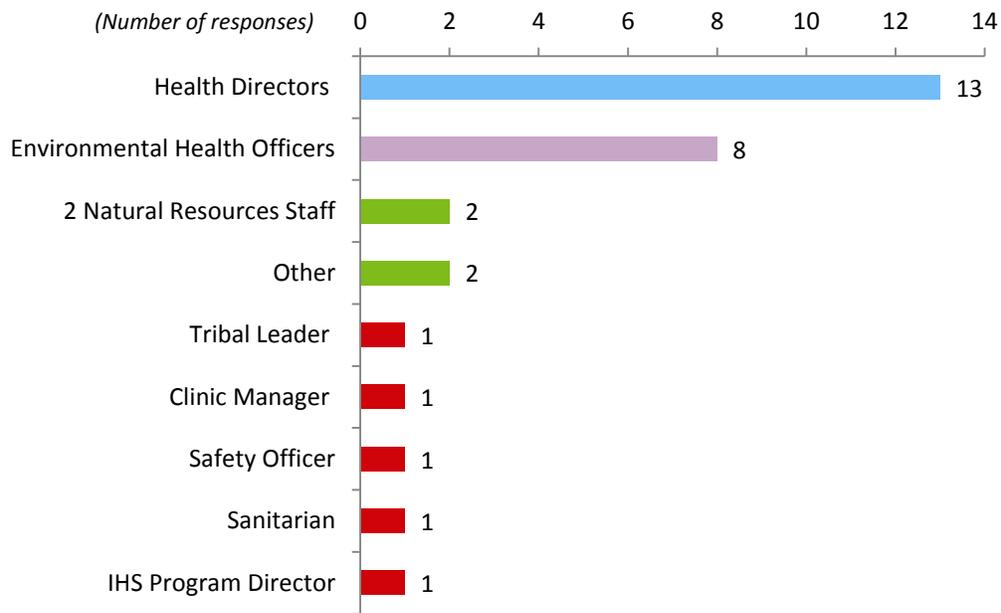


Figure 6. Current environmental health issues addressed by Bemidji Tribes

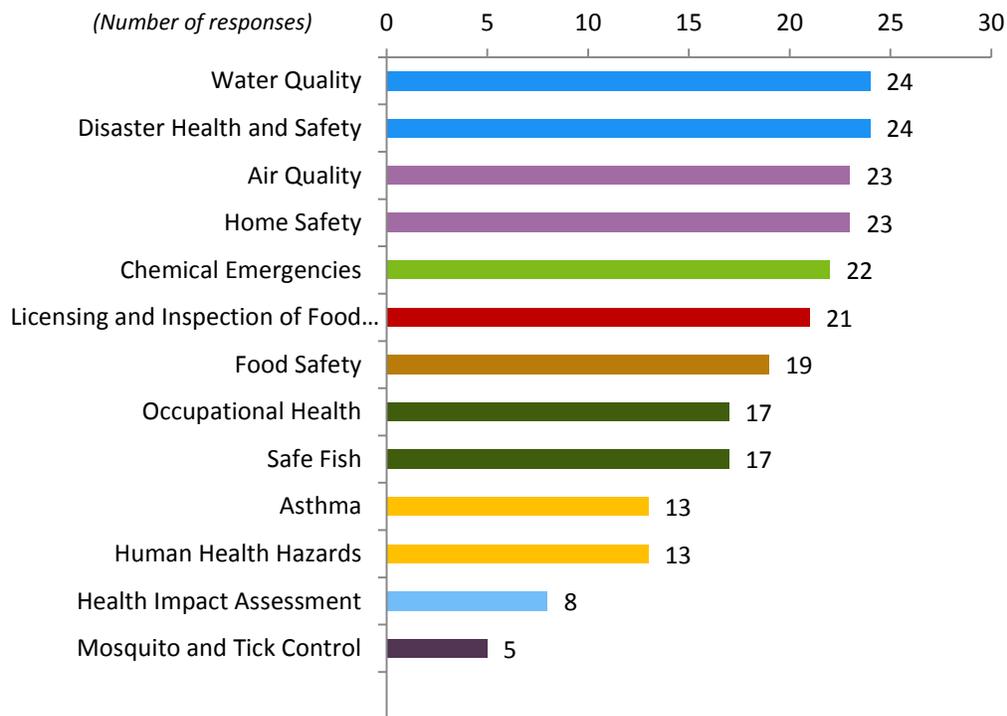
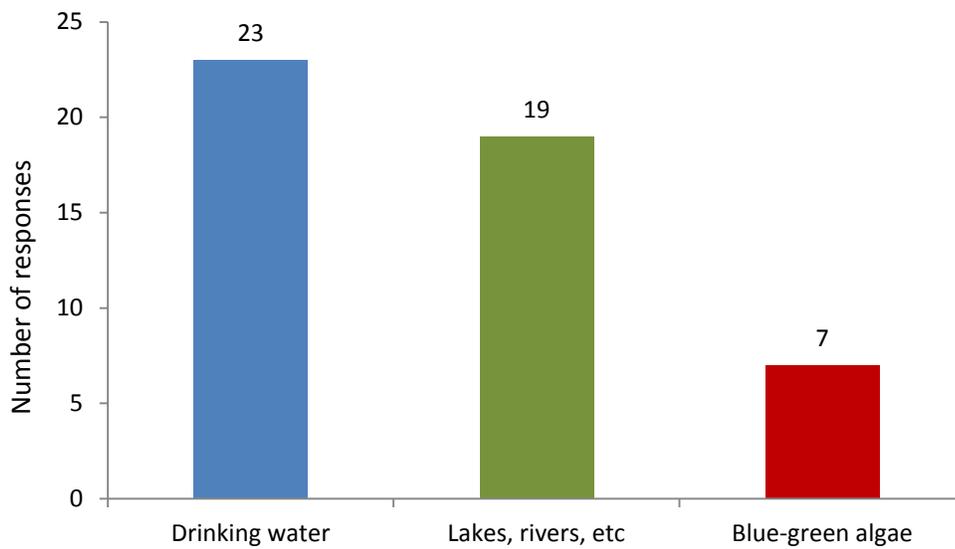


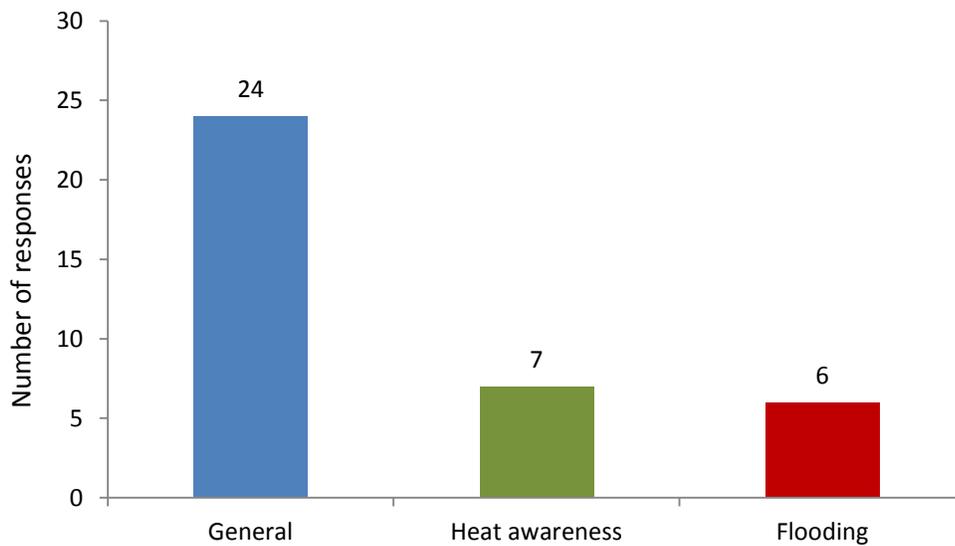


Figure 7. Water quality topics addressed by survey respondents



Note: 24 total respondents work on one or more water quality topics, see Appendix 2 for survey

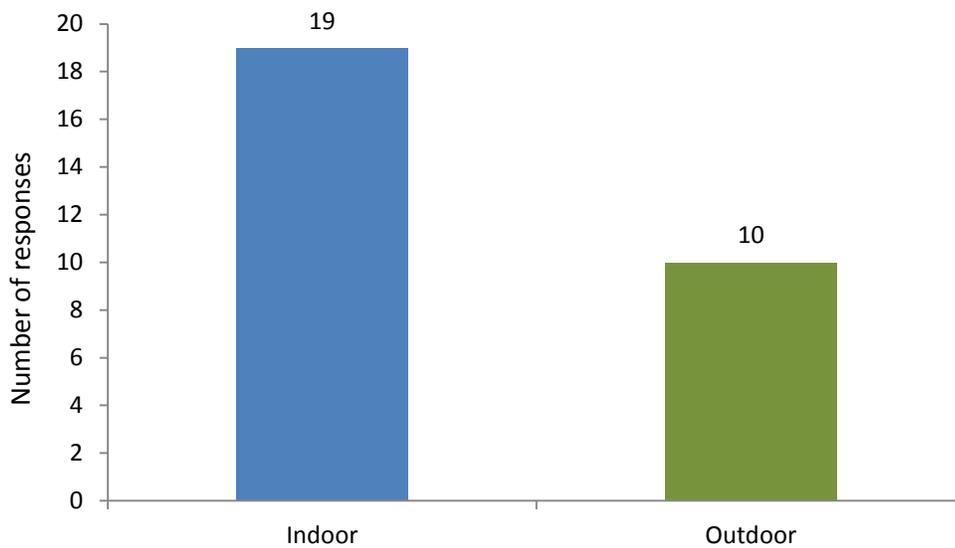
Figure 8. Disaster health and safety topics addressed by survey respondents



Note: 24 total respondents work on one or more disaster health and safety topics, see Appendix 2 for survey

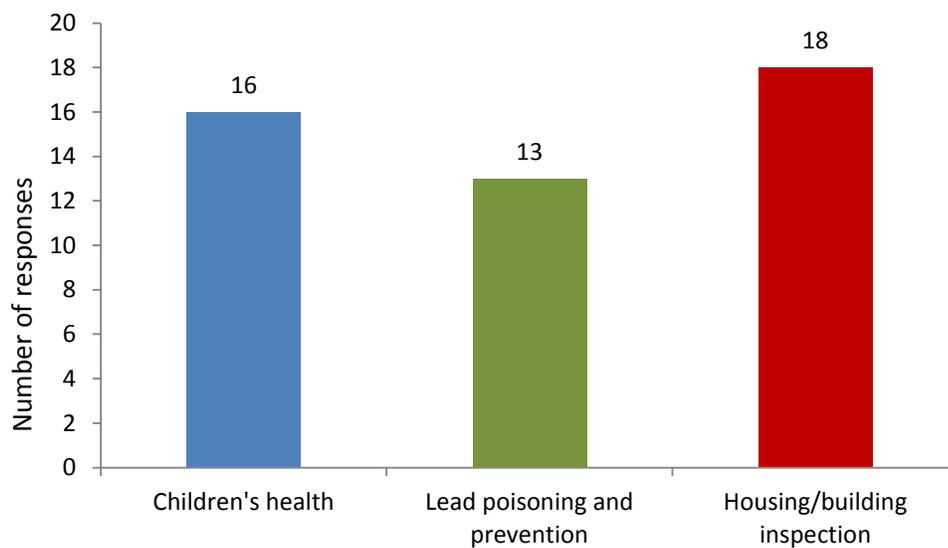


Figure 9. Air quality topics addressed by survey respondents



Note: 23 total respondents work on one or more air quality topic, see Appendix 2 for survey

Figure 10. Home safety topics addressed by survey respondents



Note: 23 total respondents work on one or more home safety topics, see Appendix 2 for survey

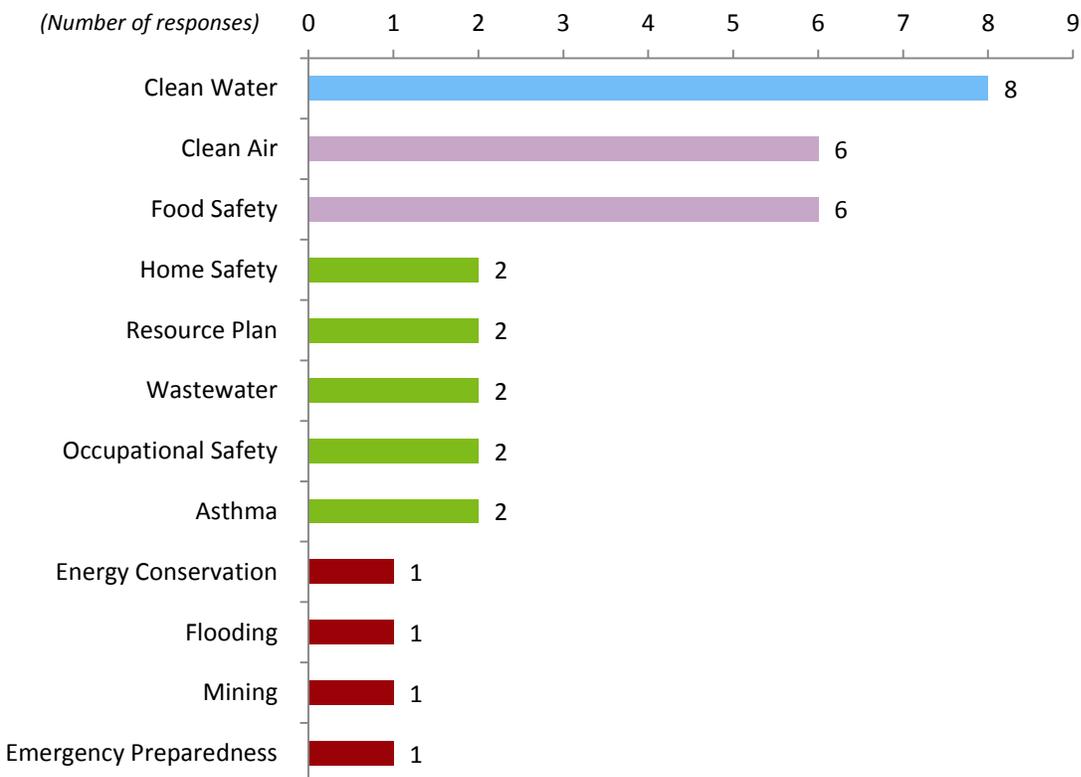


We also asked respondents how they define environmental health and to identify two environmental health priorities. Some themes that emerged from their responses included clean water and air, preservation, monitoring, and safety (see Table 4). The top three priorities identified were clean water, clean air, and food safety (see Figure 11).

Table 4. Definition of environmental health

Theme	Water, air	Preservation	Ecosystem	Monitoring	Hazards	Safety
Sample Definition	Drinkable water, breathable air	Preserving all resources	Health of the land and environment that we live in, including air, water	Monitoring the urban and rural environment and how it impacts one's pursuit of good health	Comprehensive program to eliminate or prevent environmental hazards from affecting the health of the people	Providing a safe and healthy environment

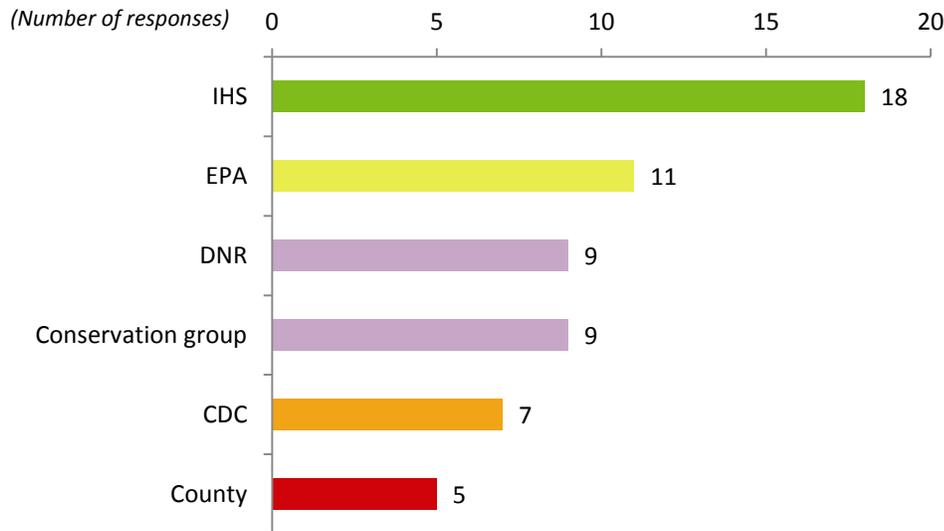
Figure 11. Environmental health priorities of survey respondents





Respondents were asked what environmental health agencies they collaborate with and how frequently they collaborate. The only environmental health agency the majority of Tribes report working with very often was Indian Health Service. The next most common response was the Environmental Protection Agency, followed by state Department of Natural Resources, conservation groups, the Centers for Disease Control and Prevention, and county sanitarians.

Figure 12. Environmental agencies Tribes collaborate with frequently



In order to better understand how cultural beliefs and histories impact each Tribe’s relationship with the environment, we asked survey respondents, if they were comfortable doing so, to identify resources and landmarks that are important to protect for their cultural significance.

Table 5. Resources and landmarks that are important to preserve and protect

Trees	Traditional foods	Clan animals	Waterways	Other
Black Ash	Fish	Marten	Kalamazoo River	Wolves
Birch	Bear	Deer	Pine Creek	(part of Ojibwe creation story)
Plants and trees for traditional medicine	Deer Elk Moose Wild rice Cranberries	Bear Fish		



Key Informant Interviews

Respondents

We interviewed a total of 16 people for the key informant interviews (see Table 5). We attempted to talk to staff representing a state agency and at least one Tribe in each state. We also spoke with staff representing various federal agencies, including Indian Health Service and the Environmental Protection Agency. In order to learn more about what role a Tribal epidemiology center can play in addressing environmental health, we spoke with the Rocky Mountain Tribal Environmental Health Center, since they were the first Tribal epidemiology center to undertake environmental health activities (see Appendix 4). Based on feedback from key informant interviews, we identified the various roles and activities that stakeholders conduct related to environmental health at the Tribal, federal, and state levels (see Table 6).

Table 6. Key informant interview respondents

State or agency	Number of Respondents
Minnesota	3
<ul style="list-style-type: none"> • Leech Lake DNR • State DNR • State DHS 	
Wisconsin	6
<ul style="list-style-type: none"> • Bad River DNR • Tribal Council member* • State DHS-BEOH • State DNR 	1 (1) 2 2
Michigan	1
<ul style="list-style-type: none"> • State DCH 	
Indian Health Service, Bemidji	2
Environmental Protection Agency, Region 5, Chicago	2
Great Lakes Indian Fish and Wildlife Commission	2
Rocky Mountain Tribal Epidemiology Center	1
Total # of respondents	16
Total # of distinct tribes represented	3

*The Tribal Council Member was also a representative of GLIFWC



Table 7. Agency role in addressing environmental health

Tribal Agencies	Federal Agencies	State Agencies
<p>GLIFWC</p> <ul style="list-style-type: none"> Mercury maps (toxicity of fish by lake) Water monitoring Harvesting of deer, walleye, and rice Environmental impact of mining <p>Bad River DNR</p> <ul style="list-style-type: none"> Set own water quality standards Forestry, septic, fisheries, Historic Preservation, realty, wardens, wildlife, Wild Rice Committee <p>Leech Lake DNR</p> <ul style="list-style-type: none"> Composting with casino Air quality monitoring 	<p>IHS</p> <ul style="list-style-type: none"> Survey facilities (institutions) Investigations Monitoring Technical assistance <p>EPA</p> <ul style="list-style-type: none"> Implements Clean Water Act Implements Safe Drinking Water Act Review Tribe’s emergency plans required by the Emergency Planning and Community Right-to-Know Act (EPCRA) Conduct Hazardous Materials exercises Offer First Level Responders course 	<p>DNR</p> <ul style="list-style-type: none"> Advise on public water systems (construction methods for wells and other water system components) Plan review engineers assist with water systems Drinking water rule managers assist with concerns regarding drinking water quality and monitoring <p>DHS</p> <ul style="list-style-type: none"> Asthma support and education <p>UW</p> <ul style="list-style-type: none"> Climate Change maps

Past, Present, and Future Environmental Health Concerns

Based on key informant interview responses, we learned more about environmental health concerns from the past, present, and future (See Table 7 and Figure 11). Various Tribes reported toxins from paper mills, timber soaking facilities, oil spills, and Superfund sites in the past, which may be affecting current environmental and health conditions. Some interviewees expressed concerns that their Tribe has higher than average cancer rates, and this may be due to past exposures. When asked what the major environmental issues will be in the next ten years, the most common response was mining, followed by climate change and safe fish. Other responses included: forest fires, wolf hunt, oil pipelines, mosquito and tick control, water quality, heat awareness, flooding, endocrine disruptors and obesity, and protecting traditional food sources.

Key informant interviewees were also asked to identify what needs Tribes have to address environmental health concerns. Response themes included training, more staff, improved infrastructure, and improved communication between agencies (see Table 8).



Table 8. Past, present, and future environmental concerns

Environmental Concerns		
Past	Present	Future
<ul style="list-style-type: none"> • Paper mill sludge • Dioxin PCB from timber soaking facility • Superfund sites • Crude oil spills 	<ul style="list-style-type: none"> • Higher than average cancer rates and other illness • Disaster health and safety • Water quality concerns • Air quality concerns • Chemical emergencies 	<ul style="list-style-type: none"> • Mining (impact on fish and wild rice) • Climate change (flooding, drought, fish habitat) • Safe fish

Figure 13. Future environmental health concerns (by number of responses)

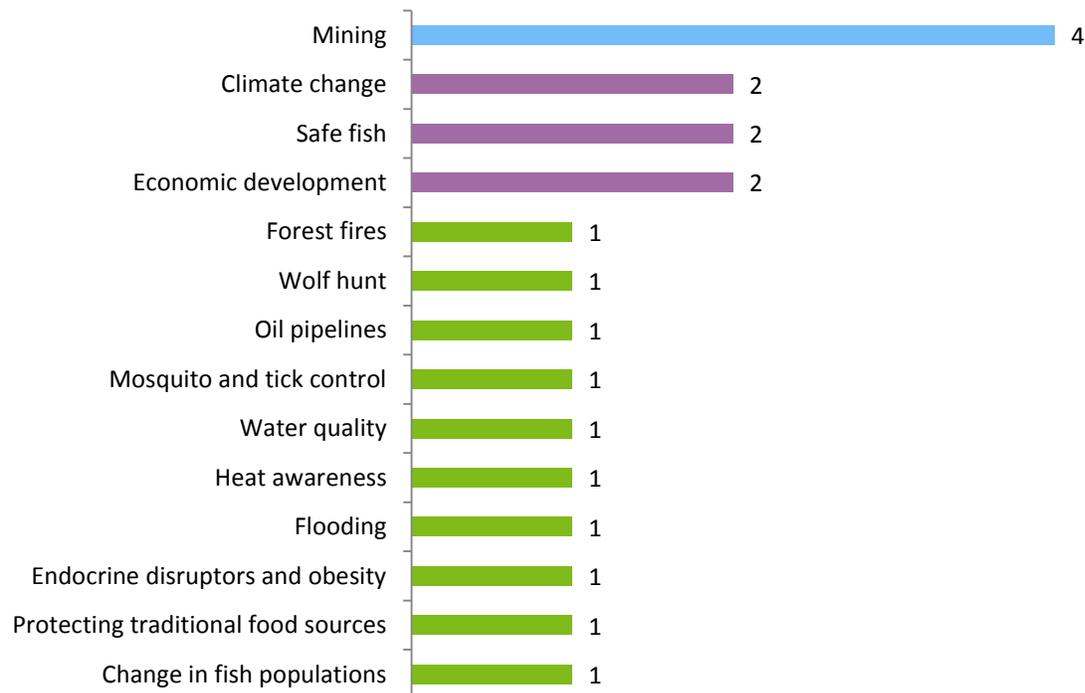


Table 9. Tribal needs to address environmental health concerns

Training	Staff	Infrastructure	Improved communication
Educational support for Tribal youth to work in environmental health	To conduct baseline studies and provide support to GLIFWC and the DNR	Improve internet access to enhance access to information	e.g. between EPA and Tribes



Limitations

The information we gathered was subject to some limitations. Because paper surveys were passed out at the Michigan Tribal Health Directors meeting, we had a 100% response rate (12/12) from Michigan Tribal Health Directors, compared to 3 respondents from Minnesota and 9 respondents from Wisconsin (with some respondents from the same Tribe from Minnesota and Michigan). Due to existing connections and office location, more key informant interviews were conducted with environmental health and protection staff from Wisconsin than from Michigan or Minnesota. We attempted to minimize any potential response bias due to the uneven response rate by state by using a variety of methods, including website review, paper and electronic surveys, and key informant interviews.

Recommendations

Based on interviews and discussions with various stakeholders, most of the people we spoke with agree that although there are a variety of resources available to address certain aspects of environmental health, what is missing is a link from environmental exposures to health outcomes at the Tribal level. In addition, although some agencies share information and resources, collaboration and communication between agencies could be improved. Therefore, Great Lakes Inter-Tribal Epidemiology Center could pursue the following strategies to address environmental health among Tribes in the Bemidji Area:

1. Establish a disease tracking mechanism linked to environmental exposures in Tribal communities. This could involve adapting the CDC's Environmental Public Health Tracking Program for Tribes (see Appendix 6).
2. Assist in conducting epidemiological investigations when there is a specific concern related to environmental contaminants or health outcome that arises.
3. Establish itself as a partner in Tribal environmental health by working with Indian Health Service, the Environmental Protection Agency, and the Bureau of Indian Affairs to speak at upcoming conferences and workshops, conduct trainings for Tribes, and engage in research collaborations. The EPA, for instance, has expressed interest in conducting research on children's health related to environmental exposures in Tribal communities.
4. Add environmental health indicators (e.g. asthma and blood lead levels) to Community Health Profiles to the extent possible (e.g. statewide prevalence for American Indians).
5. Compile and disseminate Tribal Best Practices in Environmental Health (see Appendix 8).

The results of this assessment will be shared with various partners, and GLITEC will convene an advisory committee of Tribal staff and partner agency staff to help inform next steps.



Appendix 1- Acronyms

Acronym	Full Name
AIAN	American Indian or Alaskan Native
AQI	Air Quality Index
AQS	Air Quality Standards
ATSDR	Agency for Toxic Substances and Disease Registry
CDC	Centers for Disease Control and Prevention
DEHS	Division of Environmental Health Services at Indian Health Service
DHS	Department of Health Services
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
GLIFWC	Great Lakes Indian Fish and Wildlife Commission
GLITC	Great Lakes Inter-Tribal Council
GLITEC	Great Lakes Inter-Tribal Epidemiology Center
HUD	Department of Housing and Urban Development
IHS	Indian Health Service
MSU	Michigan State University
NCEH	National Center for Environmental Health at Centers for Disease Control and Prevention
NCHS	National Center for Health Statistics
NEPA	National Environmental Protection Act
NHANES	National Health and Nutrition Examination Survey
UW	University of Wisconsin-Madison
VITF	Voigt Inter-Tribal Task Force



Appendix 2 – Survey Instrument

Please note your role: _ Health Director_ Natural Resources staff _Tribal leadership __ Other

1. Does your Tribe have staff or services to address environmental issues?
 __Yes __ No __ Don't Know

2. Please note if your Tribe addresses any of the following environmental issues:

Service	Check if yes	If Yes, please explain
Air quality	<input type="checkbox"/> Indoor <input type="checkbox"/> Outdoor	
Asthma	<input type="checkbox"/>	
Chemical Emergencies	<input type="checkbox"/> General <input type="checkbox"/> Mercury <input type="checkbox"/> Radiation	
Home safety	<input type="checkbox"/> Children's Health <input type="checkbox"/> Lead Poisoning & Prevention <input type="checkbox"/> Housing/Building Inspection	
Disaster Health and Safety	<input type="checkbox"/> General <input type="checkbox"/> Heat Awareness <input type="checkbox"/> Flooding	
Safe Fish	<input type="checkbox"/>	
Food Safety	<input type="checkbox"/>	
Health Impact Assessment	<input type="checkbox"/>	Topic _____
Human Health Hazards	<input type="checkbox"/>	
Licensing & Inspection of Food & Recreational Establishments	<input type="checkbox"/>	
Mosquito and Tick Control	<input type="checkbox"/>	
Occupational Health	<input type="checkbox"/>	
Water quality	<input type="checkbox"/> Drinking water <input type="checkbox"/> Lakes, rivers, etc <input type="checkbox"/> Blue-Green Algae	
Other _____		

3. In your view, what is “environmental health” and what are two environmental health priorities?

Environmental health is...



Priority 1 _____

Priority 2 _____

4. Please note if your Tribe works with the following agencies to address environmental health

Agency	How often do you collaborate?					Don't Know
	Never	Sometimes	Frequently	4	5	
<i>County sanitarian or health department</i>	1	2	3	4	5	DK
State Department of Natural Resources [DNR] Please note which state: __MN __WI __MI	1	2	3	4	5	DK
Environmental Protection Agency [EPA] Please note which office: __Green Bay, WI __Chicago, IL __other	1	2	3	4	5	DK
Centers for Disease Control and Prevention [CDC]	1	2	3	4	5	DK
Indian Health Service [IHS] Division of Environmental Health Services Please note which office: __Rhinelander, WI __Bemidji, MN	1	2	3	4	5	DK
<i>Land and water conservation group</i> Agency Name _____	1	2	3	4	5	DK
<i>Other</i> _____	1	2	3	4	5	DK

5. If your Tribe/Community does work with any of the agencies listed in Question 4, how would you describe the experience and/or outcome?

Name of environmental agency worked with:

Experience/outcome of working with this agency:

6. How would you describe the role of the IHS Division of Environmental Health Services?

7. How often are environmental staff/services used by Tribal health staff?

Never		Sometimes		Frequently
1	2	3	4	5



8. How would you describe the role of the environmental staff/services provided to your Tribe?

9. In your experience, what is an example of when the Tribal clinic or health department worked with the environmental staff/services to approach a concern or engage in prevention?

10. Are there sacred sites, natural landmarks, plants, animals, or other natural resources that are important to preserve and protect in your Tribal community? (circle one)

Yes No Don't Know

If you are comfortable doing so, can you share a little bit about their cultural or religious significance?

11. What recommendations do you have for GLITEC as they explore expanding services to address environmental health? Is there anyone else from your Tribe we should talk to?



Appendix 3 – Key Informant Interview Guide

TRIBAL ENVIRONMENTAL HEALTH RESOURCES SCAN – BEMIDJI AREA

KEY INFORMANT INTERVIEW GUIDE

Introduction

The Great Lakes Inter-Tribal Epidemiology Center (GLITEC) is preparing to expand environmental health epidemiologic and educational resources to Bemidji Area Tribal communities in order to address important environmental factors that impact health policy and service delivery activities. Please respond to the questions below to help us better understand environmental health resources in the Bemidji Area.

Please note your agency: Indian Health Service Environmental Protection Agency Other

12. Briefly describe your role in addressing environmental health

How have you worked with Tribal communities to address environmental health?

13. If you receive a request for assistance from a Tribal community, how do you proceed?

14. What are the major environmental health issues that Tribal communities face?

15. From your perspective, what are the major needs in Tribal communities to effectively address environmental health?

16. In the next ten years, what do you think will be the major environmental health issues impacting Tribes? (**Note these in the table on p.2*)



17. What resources will Tribes need to address these issues?

Environmental Health Issues

- Air quality** __ Indoor __ Outdoor
- Asthma**
- Chemical Emergencies** __ General __ Mercury __ Radiation
- Home safety** __ Children’s Health __ Lead Poisoning & Prevention __ Housing/Building Inspection
- Disaster Health and Safety** __ General __ Heat Awareness __ Flooding
- Safe Fish**
- Food Safety**
- Health Impact Assessment** Topic _____
- Human Health Hazards**
- Licensing & Inspection** (of food establishments and recreational facilities)
- Mosquito and Tick Control**
- Occupational Health**
- Water quality** __ Drinking water __ Lakes, rivers, etc __ Blue-Green Algae
- Other**

18. In your view, what is “environmental health” and what are two environmental health priorities in the region you serve?

Environmental health is...

Priority 1 _____

Priority 2 _____

19. What recommendations do you have for GLITEC as they explore expanding services to address environmental health? Is there anyone else from your agency we should talk to?



Appendix 4 –

Superfund Sites in Bemidji Area States and Urban Areas

Chicago

Site Name

Carnotite Reduction Co.
Celotex Corp. Superfund Site
Crawford Generating Station
Dutch Boy Superfund Site
Economy Plating
Fansteel — see Vulcan-Louisville / Fansteel Superfund Site
Fisk Generating Station
Lindsay Light Superfund Sites
Loewenthal Metals Site
Manufactured Gas Plant Sites (Peoples Gas and North Shore Gas)
Midwest Generation - Crawford Station and Fisk Station Sites
North Shore Gas
Peoples Gas
Peoples Gas Crawford Station
Vulcan-Louisville / Fansteel Superfund Site

Michigan

Site Name

City

Adam's Plating	Lansing
Aircraft Components (D & L Sales)	Benton Harbor
Albion-Sheridan Township Landfill	Albion
Allied Paper, Inc./Portage Creek/Kalamazoo River	Kalamazoo
American Anodco, Inc.	Ionia
Auto Ion Chemicals, Inc.	Kalamazoo
Barrels, Inc.	Lansing
Bendix Corp./Allied Automotive	St. Joseph
Bofors Nobel, Inc.	Muskegon
Burrows Sanitation	Hartford
Butterworth #2 Landfill	Grand Rapids
Cannelton Industries, Inc.	Sault Sainte Marie
Chem Central	Wyoming Township
Clare Water Supply	Clare
Duell & Gardner Landfill	Dalton Township
Electrovoice	Buchanan
Forest Waste Products	Otisville



G&H Landfill	Utica
Grand Traverse Overall Supply Co.	Greilickville
Gatiot County Golf Course	St. Louis
Gratiot County Landfill	St. Louis
H. Brown Co., Inc.	Grand Rapids
Hedblum Industries	Oscoda
Hi-Mill Manufacturing Co.	Highland
Ionia City Landfill	Ionia
J & L Landfill	Rochester Hills
K&L Avenue Landfill	Oshtemo Township
Kaydon Corp.	Muskegon
Kentwood Landfill	Kentwood
Kysor Industrial Corp.	Cadillac
Liquid Disposal, Inc.	Utica
McGraw Edison Corp.	Albion
Metamora Landfill	Metamora
Michigan Disposal Service (Cork Street Landfill)	Kalamazoo
Motor Wheel, Inc.	Lansing
Muskegon Chemical Co.	Whitehall
North Bronson Industrial Area	Bronson
Nothenaire Plating	Cadillac
Organic Chemicals, Inc.	Grandville
Ott/Story/Cordova Chemical Co.	Dalton Township
Packaging Corp. of America	Filer City
Parsons Chemical Works, Inc.	Grand Ledge
Peerless Plating Co.	Muskegon
Petoskey Municipal Well Field	Petoskey
Rasmussen's Dump	Brighton
Rockwell International Corp. (Allegan Plant)	Allegan
Rose Township Dump	Rose Township
Roto-Finish Co., Inc.	Kalamazoo
SCA Independent Landfill	Muskegon Heights
Shiawassee River	Howell
South Macomb Disposal Authority (Landfills #9 and #9A)	Macomb Township
Southwest Ottawa County Landfill	Park Township
Sparta Landfill	Sparta Township
Spartan Chemical Co.	Wyoming
Springfield Township Dump	Davisburg
State Disposal Landfill, Inc.	Grand Rapids
Sturgis Municipal Wells	Sturgis
Tar Lake	Mancelona Township
Ten-Mile Drain	St. Clair Shores
Thermo-Chem, Inc.	Muskegon
Torch Lake	Houghton County



U.S. Aviex	Howard Township
Velsicol Chemical Corp. (Michigan)	St. Louis
Verona Well Field	Battle Creek
Wash King Laundry	Pleasant Plains Township
Waste Management of Michigan (Holland Lagoons)	Holland

Minnesota

<u>Site Name</u>	<u>City</u>
Arrowhead Refinery Co.	Hermantown
Baytown Township Ground Water Plume	Baytown Township
Burlington Northern (Brainerd/Baxter Plant)	Baxter, Brainerd
FMC Corp. (Fridley Plant)	Fridley
Freeway Sanitary Landfill	Burnsville
Fridley Commons Park Well Field	Fridley
General Mill/Henkel Corp.	Minneapolis
Joslyn Manufacturing & Supply Co.	Brooklyn Center
Koppers Coke	St. Paul
Kurt Manufacturing Co.	Fridley
Lehillier/Mankato Site	Lehillier
Long Prairie Ground Water Contamination	Long Prairie
MacGillis & Gibbs/Bell Lumber & Pole Co.	New Brighton
Naval Industrial Reserve Ordinance Plant	Fridley
New Brighton/Arden Hills/TCAAP (USARMY)	New Brighton
Nutting Truck & Caster Co.	Faribault
Oakdale Dump	Oakdale
Perham Arsenic Site	Perham
Reilly Tar & Chemical Corp. (St. Louis Park Plant)	St. Louis Park
Ritari Post & Pole	Sebeka
South Andover Site	Andover
South Minneapolis Residential Soil Contamination	Minneapolis
St. Louis River Site	St. Louis County
St. Regis Paper Co.	Cass Lake
Waite Park Wells	Waite Park

Wisconsin

<u>Site Name</u>	<u>City</u>
Algoma Municipal Landfill	Algoma
Amcast Industrial Corporation	Cedarburg
Ashland/Northern States Power Lakefront	Ashland
Better Brite Plating Chrome & Zinc Shops	DePere



City Disposal Corp. Landfill	Dunn
Delavan Municipal Well #4	Delavan
Eau Claire Municipal Well Field	Eau Claire
Hagen Farm	Stoughton
Hechimovich Sanitary Landfill	Williamstown
Hunts Disposal Landfill	Caledonia
Janesville Ash Beds	Janesville
Janesville Old Landfill	Janesville
Kohler Co. Landfill	Kohler
Lauer I Sanitary Landfill	Menomonee Falls
Lemberger Landfill, Inc.	Whitelaw
Lemberger Transport & Recycling	Franklin Township
Madison Metropolitan Sewerage District Lagoons	Bloomington
Master Disposal Service Landfill	Brookfield
Mid-State Disposal, Inc. Landfill	Cleveland Township
Moss-American Co, Inc. (Kerr-Mcgee Oil Co.)	Milwaukee
Muskego Sanitary Landfill	Muskego
N.W. Mauthe Co., Inc.	Appleton
National Presto Industries, Inc.	Eau Claire
Oconomowoc Electroplating Co., Inc.	Ashippun
Onalaska Municipal Landfill	Onalaska
Penta Wood Products	Daniels
Refuse Hideaway Landfill	Middleton
Ripon City Landfill	Fond Du Lac County
Sauk County Landfill	Excelsior
Schmalz Dump	Harrison
Scrap Processing Co., Inc.	Medford
Sheboygan Harbor & River	Sheboygan
Spickler Landfill	Spencer
Stoughton City Landfill	Stoughton
Tomah Armory	Tomah
Tomah Municipal Sanitary Landfill	Tomah
Waste Management of Wisconsin, Inc. (Brookfield Sanitary Landfill)	Brookfield
Wausau Ground Water Contamination	Wausau



Appendix 5 – Agency for Toxic Substance and Disease Registry (ATSDR) Public Health Assessments in the Bemidji Area

Michigan

1. Name of the Article: Technical Support Document for a Methylmercury Reference Dose as a Basis for Fish Consumption Screening Values (FCSVs)

Tribe Mentioned: Yes

Summary : "MDCH concludes that eating unlimited amounts of certain sport-caught fish from lakes in Michigan throughout the year could harm people's health. This is a public health hazard. Fish consumption advisories may be required for certain fish species at specific locations".

Website: <http://www.atsdr.cdc.gov/hac/pha/MethylmercuryReferenceTechnicalSupportDocumentforAMethylmercuryReferenceDoseasaBasisforFCSVs9-10-2009.pdf>

2. Name of the Article: Evaluation of Saginaw River Dioxin Exposures and Health Risks SAGINAW RIVER

County: CITY OF SAGINAW, SAGINAW COUNTY, MICHIGAN

Tribe Mentioned: Yes

Summary: "This health consultation evaluates the risk to human health from exposure to dioxin-like chemicals (DLC) found in Saginaw River fish, flood plain soils, and sediments".

Website: http://www.michigan.gov/documents/mdch/Saginaw_River_HC_Final_12908_1_223827_7.pdf

Minnesota

1. Name of the Article: ST. REGIS PAPER COMPANY SITE COMMUNITY HEALTH CONCERNS AND HEALTH OUTCOME DATA REVIEW CASS LAKE, CASS COUNTY, MINNESOTA

County: Cass County

Tribe Mentioned: Yes

Summary: .."The city of Cass Lake, located in Cass County, Minnesota, is the largest community within the LLBO reservation and has a population of 860, of whom 64% are American Indian, 30% are white, and 5% are two or more races, according to the 2000 U.S. Census. During the years the plant was operating (1957-1985) residents living close to the plant likely experienced long term exposure to site chemicals at levels lower than occupational exposures. Storage of freshly treated wood products adjacent to homes and the periodic burning of waste materials exposed nearby residents to vapors and smoke that likely contained creosote.."

Website: <http://www.atsdr.cdc.gov/hac/pha/StRegisPaperCompany/StRegisPaperCompanyHC092507.pdf>

2. Name of Article: GROUNDWATER, SURFACE WATER, AND SEDIMENTS AT THE ST. REGIS SUPERFUND SITE CASS LAKE, CASS COUNTY, MINNESOTA EPA FACILITY ID: MND057

County: Cass County

Tribe Mentioned: Yes

Summary: "This report evaluates the findings related to contaminated groundwater, surface water, and sediments in the area of the St. Regis site. The purpose of this report is to provide a compilation and evaluation of the groundwater, surface water, and sediment sampling to date, as well as an assessment of the implications for public health"

Website : <http://www.health.state.mn.us/divs/eh/hazardous/sites/cass/stregis/stregisphatext.pdf>



Wisconsin

1. **Name of the Article:** Coal Tar Contamination Associated with a Former Manufactured Gas Plant

County: Ashland County

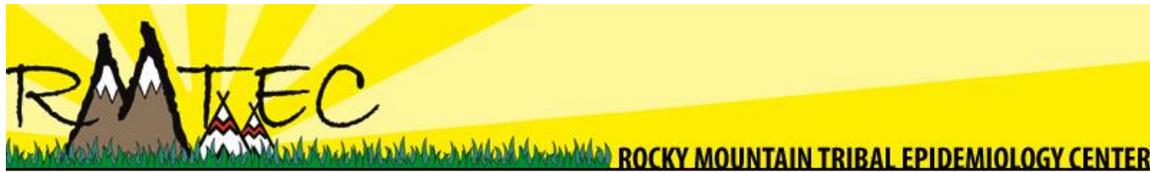
Tribe Mentioned: Yes (Ashland County has a population of 16,866; nearby communities include the Bad River Indian Reservation (1,400), and the towns of Sanborn (1,092), and White River (796). Across the Bay is the city of Washburn(2,303), in Bayfield County. Washburn is the largest city close to Ashland.

Summary : "The purpose of this public Health assessment is to evaluate contamination exposure concerns that are apparently associated with manufactured gas plant (MGP) operations historically conducted in Ashland, Wisconsin. The scope of the evaluation includes the human health implications of exposure to environmental contamination and the related community health issues. This document contains results of a review of three previous public health consultation and baseline sampling data of soil, groundwater, and offshore sediments related to the human health risk assessment. The prior public health consultations documented the evaluation of human health concerns associated with contamination in Chequamegon Bay sediments, the safety of sport fish caught from the bay, and air concerns during the investigation and cleanup of the site.

Website: <http://www.atsdr.cdc.gov/HAC/pha/pha.asp?docid=737&pg=1#sum>



Appendix 6 – Rocky Mountain Tribal Epidemiology Center



Environmental Health Initiative

The purpose of the environmental Health Initiative is to *fill the environmental health gap* in Montana and Wyoming Reservation Communities by building the capacity of the Montana and Wyoming Tribes, encouraging networking with key county, state and federal agencies in order to address health disparities and *reduce environmental hazardous exposure with adverse health outcomes*.

Phases of the Environmental Health Initiative Include:

Phase 1: Systematic assessment of environmental risk indicators and associated health outcomes at suspected high-risk areas, identified by Tribes.

Phase 2: Establishment of a framework for long-term surveillance of environmental health indicators and associated health outcomes, in order to establish baseline characteristics and direct policy initiatives. The surveillance will be based on Tribe-specific strategic plans, drafted in collaboration with the Tribes. This phase will also include training and capacity building for emergency preparedness, based on needs.

Phase 3: Follow-up on the results of surveillance of environmental measures in Phase 2 with recommendations for remediation measures, policy initiatives, legislative efforts, and exploration of funding opportunities to sustain activities.

Updates:

Phase 1: Tribal Leaders have raised concerns about several sites with environmental hazards on Reservation Communities in Montana and Wyoming and have asked RMTEC to implement “Community Impact Assessments” for these Reservation Communities. The health outcomes of these communities have been a constant concern to Tribal Leaders.

Phase 2: RMTEC implemented an Environmental Health Check-list for all Montana and Wyoming Tribes –Feb 2011 till date. A comprehensive Report is pending.

Phase 3: Update Pending

Source: <http://www.rmtec.org/EHI.php>



Appendix 7- EPA Tribal Water Quality Standards

Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Bad River Band of Lake Superior Tribe of Chippewa Indians of the Bad River Reservation

[Bad River Band of the Lake Superior Tribe of Chippewa Indians Water Quality Standards \(PDF\)](#)

(Effective September 21, 2011) Regulations establishing water quality standards for the Bad River Band of Lake Superior Tribe of Chippewa Indians of the Bad River Reservation.

Mole Lake Band of the Lake Superior Tribe of the Chippewa Indians, Sokaogon Chippewa Community

[Mole Lake Band of the Lake Superior Tribe of the Chippewa Indians, Sokaogon Chippewa Community Water Quality Standards \(PDF\)](#)

(Effective November 18, 2010) Regulations establishing water quality standards for the Sokaogon Chippewa Community.

The Fond du Lac Band of the Minnesota Chippewa Tribe

[The Fond du Lac Band of the Minnesota Chippewa Tribe Water Quality Standards \(PDF\)](#)

Grand Portage Band of the Minnesota Chippewa Tribe

[Grand Portage Band of the Minnesota Chippewa Tribe Water Quality Standards \(PDF\)](#)

(Effective July 10, 2012)

Lac du Flambeau Band of Lake Superior Chippewa Indians of the Lac du Flambeau Reservation

[Lac du Flambeau Water Quality Standards \(2010\) \(PDF\)](#)

(Effective September 17, 2010) EPA has not yet taken action on Section 105.F. (2)(D), sulfate criterion for the protection of wild rice. This section is not currently in effect for Clean Water Act purposes.

Source: <http://water.epa.gov/scitech/swguidance/standards/wqslibrary/tribes.cfm>



Appendix 8 - Resources

GENERAL

Great Lakes Indian Fish and Wildlife Commission Mercury Maps

www.glifwc.org/Mercury/mercury.html

Wisconsin Climate Change Initiative Maps

www.wicci.wisc.edu/publications/php

Wisconsin Department of Health Services
Health Impact Assessment Tools

<http://www.dhs.wisconsin.gov/hia/>

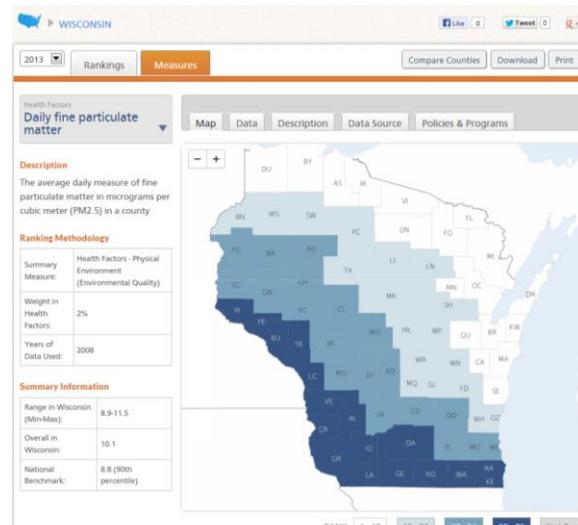
Environmental Public Health Tracking

<http://www.cdc.gov/nceh/tracking/>

DATA

County Health Rankings

<http://www.countyhealthrankings.org/>



Sample map from County Health Rankings

Minnesota Burden of Asthma Report

<http://www.health.state.mn.us/asthma/documents/asthmaepireport2012.pdf>

Wisconsin Burden of Asthma Report

<http://www.dhs.wisconsin.gov/eh/asthma/pdf/BurdenofAsthma2010Web.pdf>

Michigan Burden of Asthma Report

http://www.michigan.gov/mdch/0,4612,7-132-2940_2955_48758---,00.html

http://www.michigan.gov/documents/MI_Asthma_Surveillance_2004_96083_7.pdf

TRIBAL BEST PRACTICES

1) Green Teams

<http://www.heartlandcenters.slu.edu/ephli/finalprojects2011/08ArndtMegan.pdf>

2) Tribal Water Quality Standards

<http://water.epa.gov/scitech/swguidance/standards/wqslibrary/video.cfm>

3) Protocol for Assessing Community Excellence in Environmental Health

<http://www.naccho.org/topics/environmental/PACE-EH/index.cfm>



Appendix 9

GLITEC CONTACT & STAFF INFORMATION

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