Proceedings of the 2011 Tribal Environmental Training Conference

Portland, Maine
October 26-27, 2011

We welcome you to the 2011 New England Tribal/EPA Environmental Training Conference.

Twenty years have passed since Haudenosaunee Faithkeeper Chief Oren Lyons addressed delegates to the United Nations Organization on behalf of all Indians. At that time Lyons said: "We are the generation with the responsibilities, and the option to choose the path of life for the future of our children, or the life and path which defies the Laws of Regeneration. Even though you and I are in different boats - you in your boat, and we in our canoe, we share the same River of Life. What befalls me befalls you. And downstream in this River of Life, our children will pay for our selfishness, for our greed, and for our lack of vision."
(United Nations General Assembly Auditorium, United Nations Plaza, New York City, December 10, 1992).

This quote is reminiscent of Chief Seattle's famous quote: "What befalls the Earth befalls the children of the Earth. " Every person on Earth has more in common than they might first realize. We have the land in common, the water, and the air that we breathe. The importance of its health is a matter of life and death, yet there exists a struggle for tribes and communities to be able to maintain a quality of life ideal for human health and the health of the environment.

We appreciate the time you have taken from your busy day-to-day schedules to come together and to reconnect at the 2011 New England Tribal Environmental Training conference. This two-day tribal environmental training conference is intended to promote and enable partnerships, information exchange, and dialogue among the New England tribes and Federal environmental and natural resource agencies that serve the New England area.

With a panel of tribal Elders from Penobscot, Mikmaq, Passamaquoddy, Mashpee Wampanoag, and Narragansett; an evening keynote presentation by Jerry Pardilla (Penobscot) Executive Director of the National Tribal Environmental Council and a variety of training sessions, this conference is sure to have something to offer everyone.

We hope you enjoy your visit to the ancestral territories of the Wabanaki.

Kirk Francis
Chief
Penobscot Nation

Curtis Spaulding
Regional Administrator, Region 1
Environmental Protection Agency

Brenda Commander
Chief
Houlton Band of Maliseet Indians

October 26 and 27, 2011
New England Tribal Environmental Training Conference
(Hosted by Penobscot Nation and Houlton Band of Maliseets)

Wednesday, October 26, 2011 ~ Day One:

7:30	**Continental Breakfast and Registration (Massachusetts room)**
8:30	**Opening prayer by James Sappier and welcome from hosts.**
9:00	**Elders Panel: "One Earth, One Mother, One Environment". Elders from several tribes share their wisdom. / 10:30 BREAK**
10:45	**"Fate of Nitrogen in Fresh and Estuarine Waters" Matt Liebman, Environmental Biologist and Phil Colarusso, Environmental Biologist, EPA Region 1 Office of Ecosystem Protection, Oceans & Coastal Protection Unit.**
11:45	**Lunch and presentation by John Antonio, National Climate Change Coordinator for the Bureau of Indian Affairs: DOI Tribal Climate Change Initiative (New Hampshire room)**
1:15	**Tour of Windspire vertical turbine wind project at Long Wharf. Transportation provided by Mermaid Transportation. <u>Meet in Hotel Lobby.</u>** *"Designed for use where you live and work, Windspires are powering homes, small businesses, schools, museums, vineyards, and commercial buildings. Windspire® wind turbines generate power when wind blows against the vertical airfoils causing them to spin. This power is then converted to AC electricity and is immediately available to provide energy to your building" (from www. windspireenergy.com)*
2:45	**Tribal environmental programs: Mashpee Wampanoag, Wampanoag Tribe of Gay Head, Mashantucket Pequot Tribal Nation, and Narragansett Indian Tribe will share program overviews, successes, and challenges. (MA Room)**
4:00	**T-FERST Passamaquoddy of Pleasant Point Pilot Project presented by Steve Crawford, Environmental Director and Ken Bailey, USEPA Office of Science Policy.**
4:30	**Native Environmental Scholars Panel: Native scholars share their work and their hope for an environmentally-sound future. Suzanne Greenlaw (Maliseet), Erik Sappier (Penobscot), John Pell (Mashpee Wampanoag), and Danny Rodriguez, EPA Special Emphasis Coordinator. Panel moderator: John Daigle, Professor, University of Maine School of Forest Resources**
5:30	**Break until Traditional Foods Meal at 6:30**
6:30	**Traditional foods meal: Roasted venison, 3 Sisters Salad, roasted root vegetables, Maine mashed potatoes, and blueberry cobbler (NH room)**
7:00	**Keynote Presentation by Jerry Pardilla, Executive Director of the National Tribal Environmental Council, Albuquerque, New Mexico.**

Thursday, October 27, 2011~ Day Two:

7:30	**Continental Breakfast and Registration (Massachusetts room)**
8:30	**Opening Prayer by Jerry Pardilla. "Welcome the Day" song performed by Narragansett Tribal Elders, Janice Spears and Iona Vars.**
	Tribal environmental programs: Micmac, Maliseets, Penobscot, Passamaquoddy/Indian Township, and Passamaquoddy/Pleasant Point will share program overviews, successes, and challenges.
9:45	**Overview of Chelmsford Lab by Katrina Kipp, Ecosystem Assessment Unit and Ernie Waterman, Investigations and Analysis Unit, EPA New England Regional Laboratory.**
10:15	**Break**
10:30	**New England Federal Agencies Panel/ Federal Partners Project: Panel discussion on the re-establishment of the coalition of natural resource agencies/interagency climate change adaptation planning. Panelists representing FEMA, EPA, FWS, BIA, NRCS, USGS, NOAA.**
11:45	**Lunch and presentation by Darren Ranco: "Building cooperative Scientific Research Relationships between EPA and Tribal Nations: Lessons from the Maine DITCA" (New Hampshire Room)**
1:15	**NTOC Priorities and Path Forward by Sharri Venno, Houlton Band of Maliseet Indians and Luke Jones, USEPA American Indian Environmental Office.**
2:00	**GAP Guidebook: update on consultation process, tribal and EPA goals, tribal environmental plans by Luke Jones.**
3:00	**Break**
3:15	**National Tribal Science Council/ ORD and national Tribal Water council: Priorities and Initiatives by Dan Kusnierz, Water Resource Manager, PIN.**
4:00	**EPA Grants: Discussion on new requirements, consultation under state authorizations, question and answer period by Cheryl Scott, Director, EPA Region 1 Grants Management Office.**
5:00	**Closing comments and planning ahead (RTOC priorities) by John Banks, Sharri Venno, and Mike Stover.**
5:30	**Closing ceremony**

PLEASE NOTE: For conference participants who are unable to attend in person, call-in capability will be provided on Wednesday and Thursday, October 26th and 27th. Call in number: (617) 918-2826 and pass code 642692.

BIOGRAPHIES OF INVITED SPEAKERS

Wednesday, October 26th: 11:45 Lunch and Presentation by John E. Antonio Sr. Speaking on the DOI Tribal Climate Change Initiative

John is a member of the Pueblo of Laguna Tribe . He currently is the National Climate Change Coordinator for the Bureau of Indian Affairs, Office of Trust Services in Washington DC. John served two terms as Governor for Pueblo of Laguna, and also serve on the Laguna Tribal Council in the 1990's. He has worked 32 eyars in natural resources management. He is co-founder and past, president, vice-president, secretary, treasurer, and board member of the Native American Fish and Wildlife Society. He has served on numerous advisory committees and has received various awards during his career including New Mexico University Centennial Celebration Outstanding Alumni, Bureau of Indian Affairs Special Achievement Award; U.S. Fish and Wildlife Service Special Achievement Award, and the Native American Fish and Wildlife Society, Chief Sealth Award. John and his wife have been married for 36 years and have two sons, two daughters, and four grandsons.

Wednesday, October 26th: 7:00 Keynote Presentation by Jerry Pardilla, Executive Director of the National Tribal Environmental Council.

Jerry Pardilla is the executive director of the National Tribal Environmental Council (NTEC), an intertribal nonprofit whose mission is to enhance each tribe's ability to protect, preserve, and promote the wise management of air, land, and water for the benefit of current and future generations. In environmental issues and collaborative efforts, NTEC promotes an understanding of the environment based on traditional cultural and spiritual values, and supports tribal policies to protect, regulate, and manage their environmental resources according to their own priorities and values.

Jerry is a member of the Penobscot Indian Nation, and held leadership positions of Tribal Council Member, Lieutenant Governor, and Governor. He is a traditional musician—a singer, native flute performer, and instrument maker. He is an avid fly fisherman and is a member of New Mexico Trout. Jerry resides in Rio Ranco, NM with his wife, Marla.

Thursday, October 27th: 11:45 Lunch and Presentation by Dr. Darren Ranco

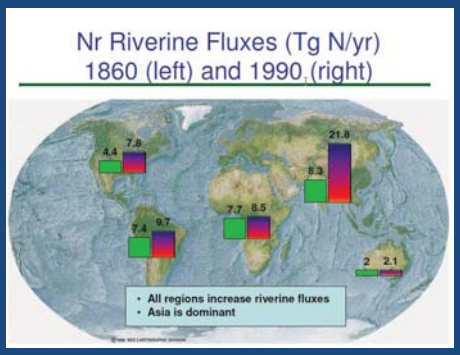
"Building Cooperative Scientific Research Relationships between EPA and Tribal Nations: Lessons from the Maine DITCA"

Darren J. Ranco, a member of the Penobscot Indian Nation, is an Associate Professor of Anthropology and Chair of Native American Programs at the University of Maine. He has a Masters of Studies in Environmental Law from Vermont Law School and a PhD in Social Anthropology from Harvard University. Dr. Ranco's research focuses on the ways in which indigenous communities in the United States, particularly Maine, resist environmental destruction by using indigenous diplomacies and critiques of liberalism to protect cultural resources. Indigenous intellectual property rights, research ethics, environmental justice, and tribal governance are some of the topics which he teaches at the University of Maine.

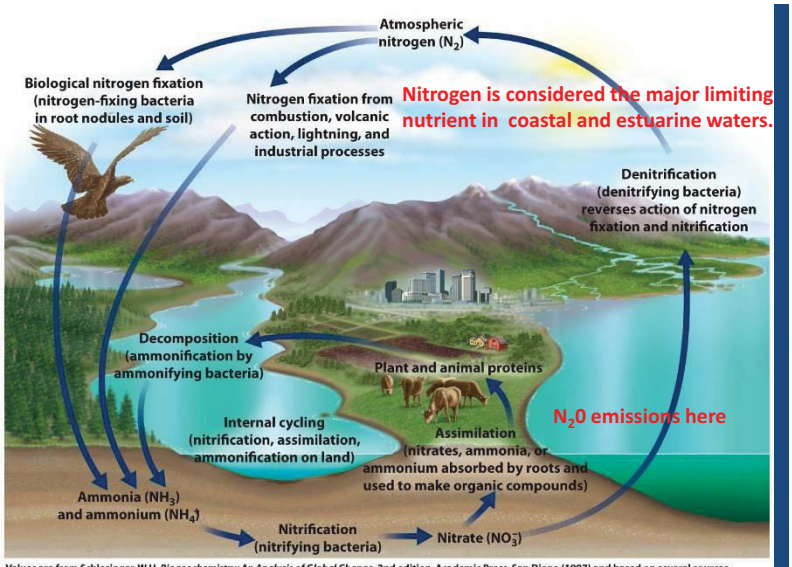
Nitrogen delivery to coastal waters in New England

Goals of the talk:

- Increase awareness of the nitrogen problem
- How urbanization perturbs the natural system
- Fate of nitrogen entering tributaries to estuaries
- Conceptual models of nutrient enrichment (eutrophication) in estuaries

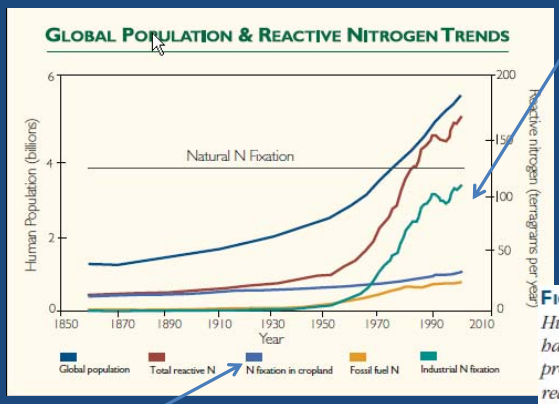


Matt Liebman, Environmental Tribal Conference Portland, ME
October 26, 2011



Values are from Schlesinger, W.H. *Biogeochemistry: An Analysis of Global Change*, 2nd edition. Academic Press, San Diego (1997) and based on several sources.

We have dramatically increased the amount of reactive nitrogen to the environment

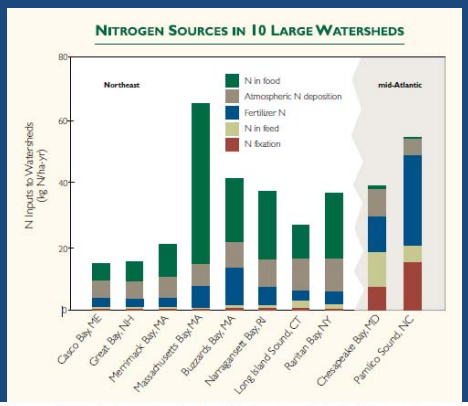


Fertilizer production and use includes food – anyone here a vegetarian? Only about one tenth (or less!) of the nitrogen (and energy) becomes meat – the rest is wasted

Includes planting of N fixing legumes

Figure 1: *Human activities have increased the production of reactive nitrogen. From Galloway and Cowling 2002.*

Wastewater and atmospheric deposition (both mobile and stationary sources) are the largest sources of nitrogen in New England coastal watersheds



Source: Driscoll et al, 2003. Hubbard Brook Foundation

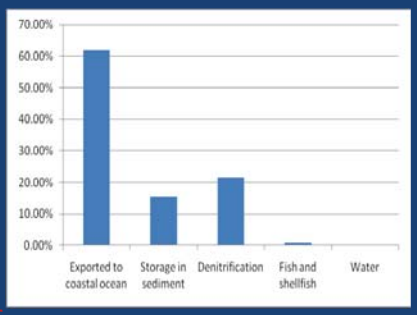
Note: *nitrogen inputs are calculated for the watershed draining each estuary.*

What happens to the nitrogen when it enters the watersheds?

- Recent research shows that about 60 to 90% of the nitrogen entering a watershed is attenuated (before hitting the coast or estuary)
  - Storage in soils and vegetation
  - Storage in stream and lake sediments
  - Denitrification (e.g. most of nitrate from septic systems are denitrified before reaching wetlands or streams (most of that is in the riparian area)
  - Accumulation in groundwater

What happens in a larger estuary such as Narragansett Bay?

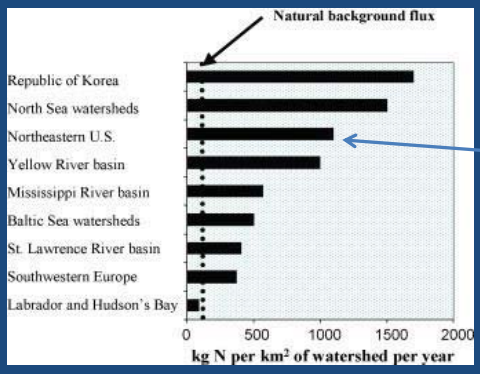
Answer: Because Narragansett Bay has a longer residence time, and in many places more contact with sediments, there is more attenuation



So, as residence time increases, more potential for denitrification, ***but more potential for symptoms of eutrophication***

Source: Nixon et al, 1996

Nitrogen delivery to the northeast coastal areas is elevated



You are here

Source: R.W. Howarth, 2008, Harmful Algae , Volume 8: 14 – 20.

We are all aware that urbanization has resulted in alterations to hydrological and biogeochemical (carbon, nitrogen, phosphorus) cycles

- Channelization and damming
- Water withdrawals
- Loss of vegetation, especially in riparian areas
- More impervious surfaces
- Less infiltration
- Less internal cycling
- Change the timing of discharge
- Sewer discharges

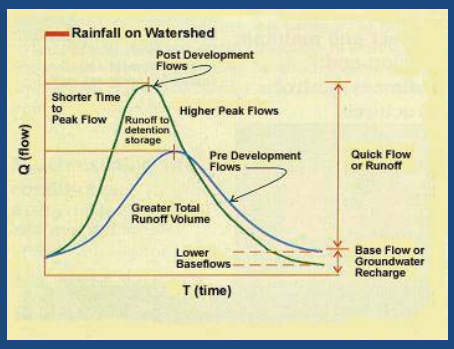
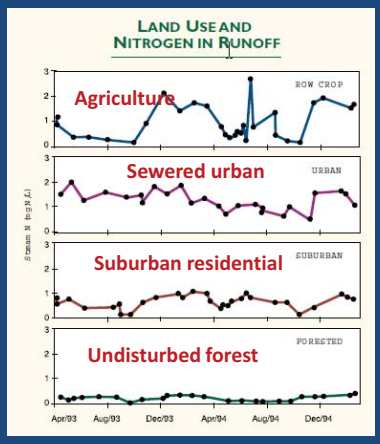


Image source: http://www.env.gov.bc.ca/wat/wq/nps/NPS_Pollution/Stormwater_Runoff/sw_main.htm

Land Uses strongly influence stream water quality

Total dissolved nitrogen (micromoles per liter) over two years 1993 to 1994

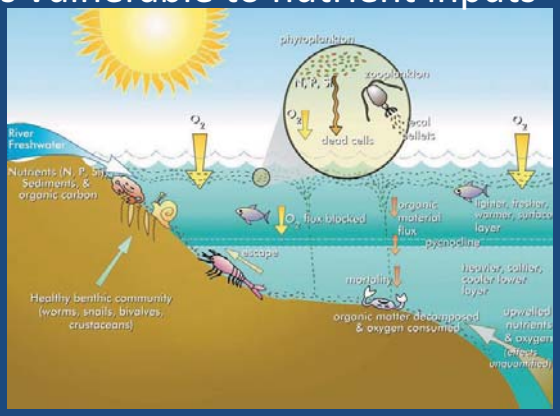
in streams draining upstate New York watersheds with a predominant land use:



Source: Driscoll et al, Bioscience 2003 and Hubbard Brook Foundation

The result -- more export of carbon, nitrogen and phosphorus to estuaries and coastal ecosystems

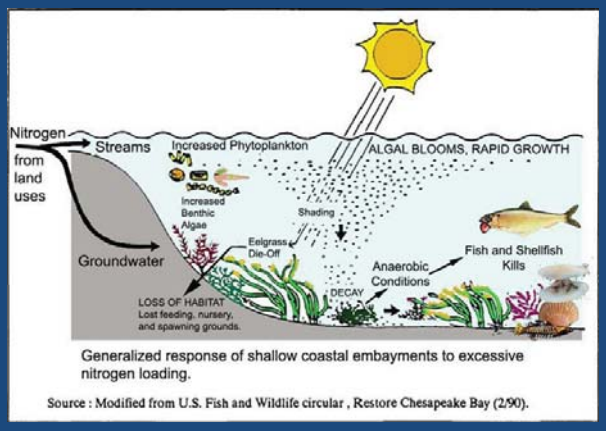
A healthy operating coastal ecosystem is vulnerable to nutrient inputs



http://new.coolclassroom.org/discoveries/view/dead-zones

Rutgers University and the Jacques Cousteau National Estuarine Research Reserve

Generalized response to nutrient enrichment



Source: Buzzards Bay project

Symptoms of eutrophication are commonly classified into primary and secondary indicators

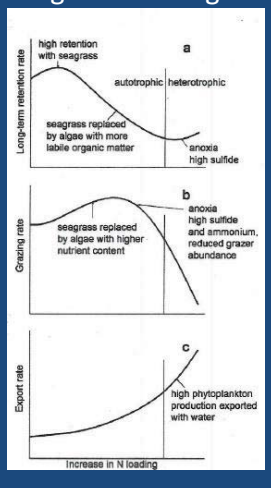
- Primary indicators
  - Increased nutrients
  - Increased algal, and macroalgal, production
  - Change in algal communities (e.g. increased dinoflagellates and other HABs, e.g. brown tides)
  - Increased turbidity (less light)

In shallow bays and estuaries, increased levels of nutrients favor macroalgae over seagrasses

Filtering function in estuaries is lost and more nitrogen is exported to the coastal ocean

PS : In deeper bays, phytoplankton predominates and can potentially shade seagrassses

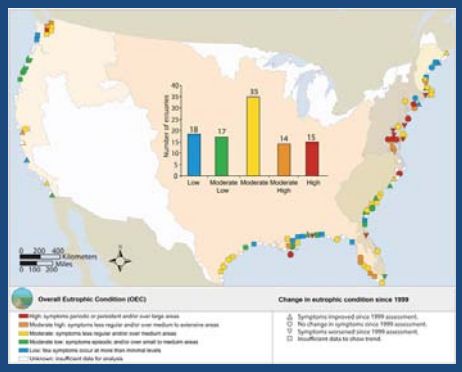
Source: McGlathery et al., 2007



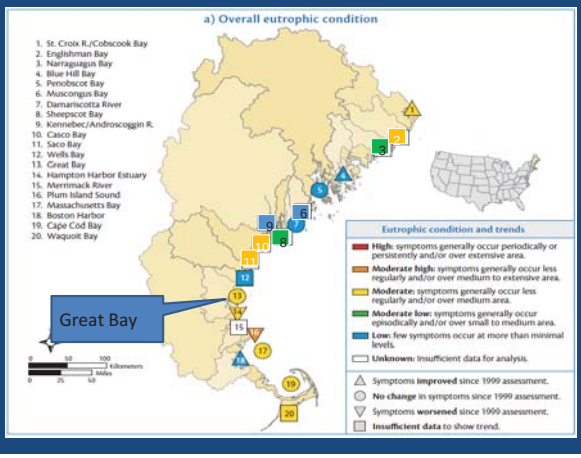
Secondary indicators of eutrophication

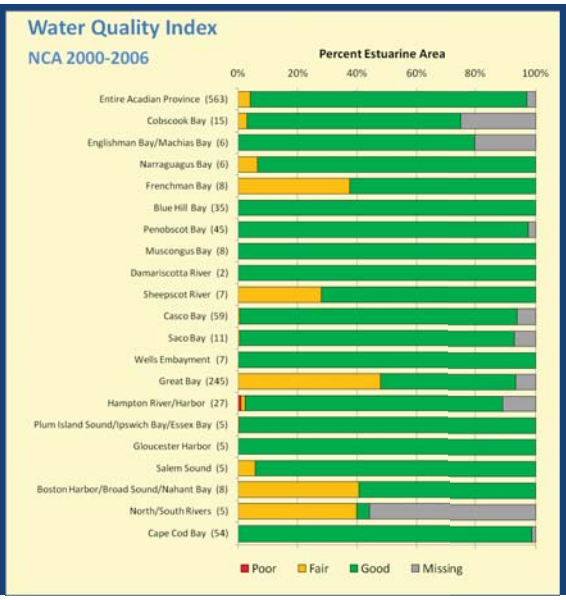
- Dissolved oxygen decline
- Loss of seagrasses due to light attenuation
- Increase in organic matter in sediments
- Shifts in trophic structure

- 60% US estuaries are eutrophic,
- Bricker et al., 2007



In New England, some estuaries are expressing symptoms of nutrient enrichment

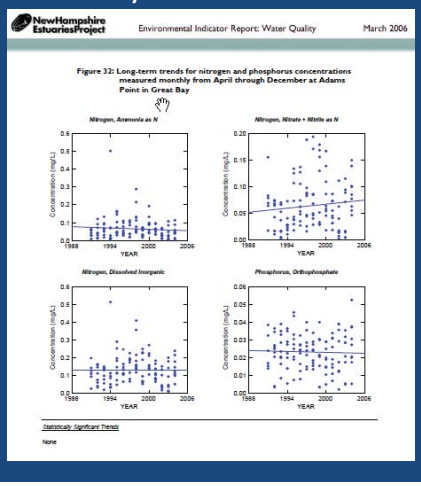




Routine monitoring shows slight increases in DIN in Great Bay over time

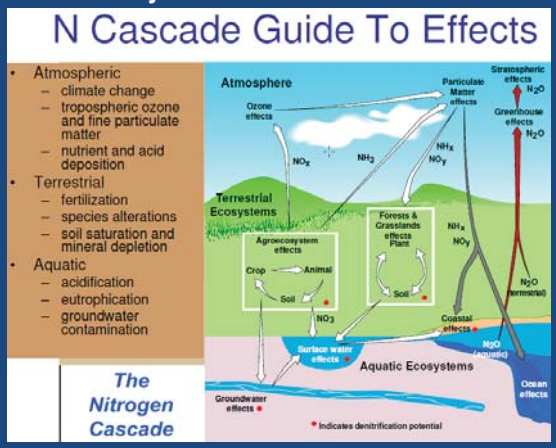
We see concomitant:

- loss of water clarity
- increases in macroalgae (which outcompete seagrasses for N)
- loss of seagrasses



Increase of reactive nitrogen has had cascading effects on many aspects of the global ecosystem – it 's not just in the water

Also, the nitrogen cycle depends on and is influenced by the carbon cycle



Source, Nitrogen backgrounder, from Andrew Manale, EPA HQ

Summary

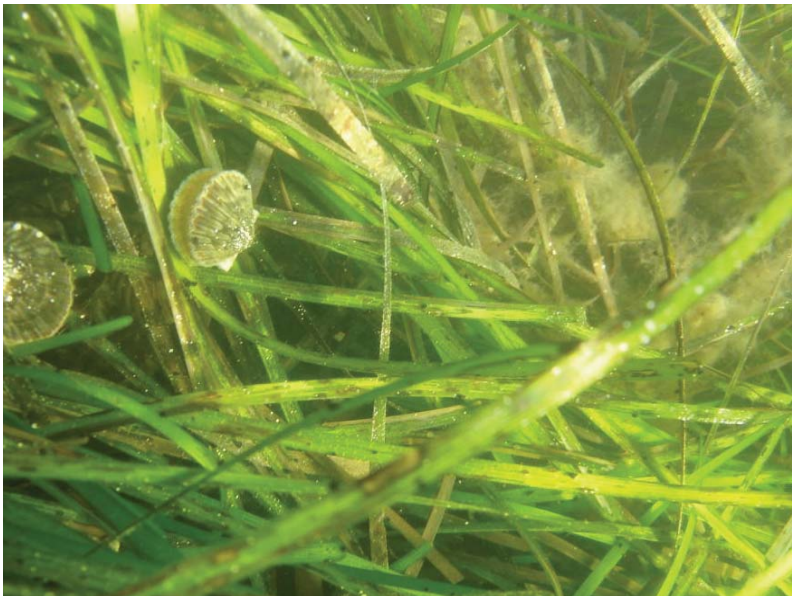
- Reactive nitrogen inputs are increasing to the coastal ocean due to urbanization effects
- Reactive nitrogen has cascading and global impacts
- Nitrogen is considered the limiting nutrient in estuarine and coastal waters
- Nonpoint sources of nitrogen predominate in the watersheds
- Most (60% to 90%) of the nitrogen is attenuated in the watershed
- Additional attenuation (20% to 40%) occurs in the estuaries depending on depth, typology and residence time
- Much nitrogen is exported to the coastal ocean
- Nutrient enrichment can result in shifts in ecosystem processing and trophic structure
- The ability of the watershed and estuaries to attenuate nitrogen is probably declining

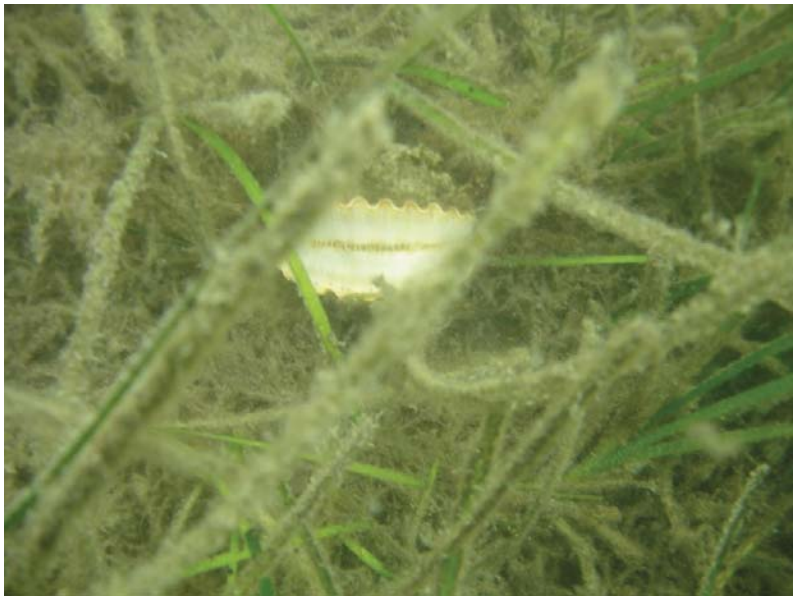
Eelgrass 2.0

Dr. Phil

Why do we care about eelgrass?

- Important spawning and nursery habitat
- Primary producer
- Root/rhizomes bind the sediments, leaves facilitate particle settlement
- Filters water
- Indicator species





Eelgrass occupies a very narrow geographical niche

- Lives in a narrow strip along the coast
- Restricted on shallow end by desiccation and waves, deep end by light penetration
- Lives generally in protected waters from North Carolina to Canada, Sea of Cortez to Alaska
- It is a cold water plant , it does best at 5° C

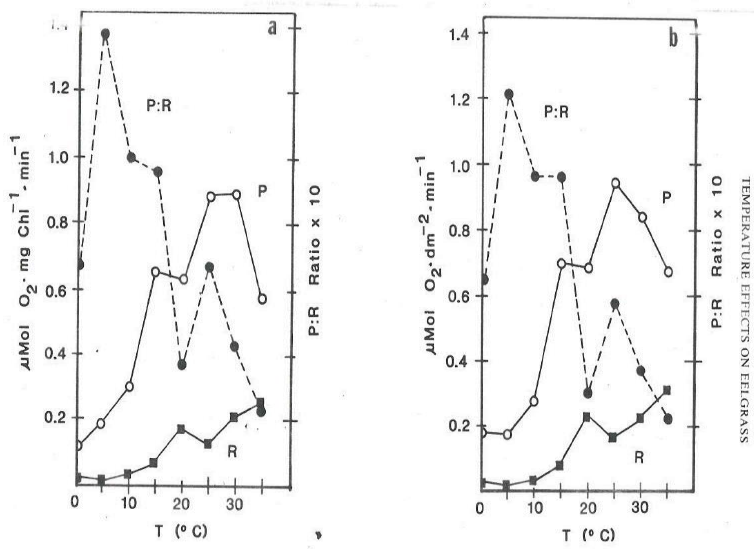


Fig. 2. Light-saturated photosynthesis (P), respiration (R), and P : R ratios as a function of temperature in *Zostera marina* leaf segments: a, expressed per

Eelgrass physiology/natural history

- It is an angiosperm, so it's a true flowering plant
- Through photosynthesis, it produces simple sugars and oxygen; the oxygen is released to the water column and the sediments
- Aeration of the sediments allows it to survive in some sediments that are anoxic and high in hydrogen sulfide (can be toxic)

Eelgrass physiology/natural history

- Absorbs nitrogen from sediments via roots or water column through the leaves
- Nitrogen is essential for the production of proteins and other compounds
- Evolved in a low nitrogen environment, thus lacks a feedback loop to shut off growth

Too much of a good thing?

- Chesapeake Bay model
  - High nitrogen stimulates phytoplankton, macroalgal, epiphytic growth
  - Less light reaching eelgrass, classic meadow response shoot density declines, deep edge of the meadow retreats
  - Squeezes the envelope of suitable habitat
- Direct toxicity

How are seagrasses doing?

- Most recent global assessment shows that we are losing about 3.7% of the habitat per year
- Loss rate in Mass. Has recently been estimated to be 2.9%/yr

State	Year	Area (km2)
Maine	1992-2005	126.08
New Hampshire	2008	6.36
Massachusetts	2010	124.49
Rhode Island	2006	1.88
Connecticut	2006	6.75

Success Stories

- Tampa Bay
- Chesapeake Bay
- Boston Harbor
- Gloucester Harbor
- New Bedford Harbor
- Mumford Cove, CT

Eel grass needs sun

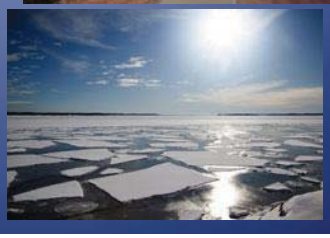
Credits Eelgrass by Tetzl (www.flickr.com/photos/tetzl/389138730/) Ray Bans by Schlusselbein2007 John McStravick (www.flickr.com/photos/schluesselbein/3906946418/)

Climate Change In Indian Country: Challenges and Opportunities

New England Tribal Environmental Training Conference
Holiday Inn By the Bay
Portland, Maine
October 26-27, 2011

John E. Antonio
National Climate Change Coordinator
Bureau of Indian Affairs, Office of Trust Services
Washington, DC
202-513-0337

The Changing Climate: Can We Do Anything About It?



The Climate is Changing.

What Do We Do??

Secretarial Order on Climate Change

(Interior Secretary Ken Salazar)

SO 3289

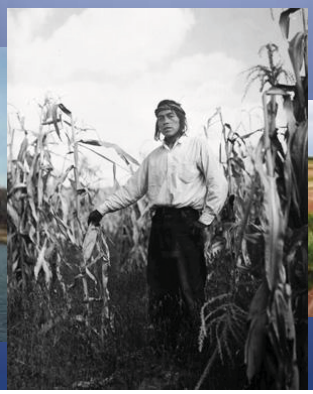
"Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources"

- **Signed September '09.**
- **Section 5 dedicated to American Indians and Alaska Natives.**

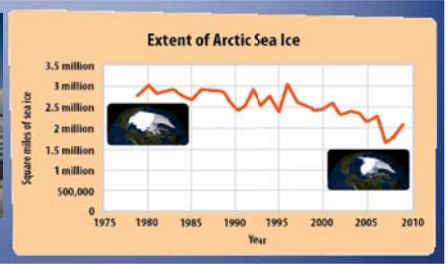
Water: The Lifeblood of Tribes
More Precious Than Gold

Drought: Little or No Water

A Threat to the Customs and Traditions of Tribal People



Shrinking Sea Ice



Many animals depend on sea ice for their homes and hunting grounds, and Native People in the Arctic need these animals for food.

Swinomish Tribe – Washington State Climate Change Initiative

SWINOMISH CLIMATE CHANGE INITIATIVE

The geographic location of the Swinomish Indian Reservation creates potential for climate change impacts that could be significant and long-term.

Swinomish Climate Change Initiative

The Swinomish Reservation is located on southeastern peninsula of Fidalgo Island and surrounded by water on three sides and is adjacent to low-lying mainland areas.

Swinomish Climate Change Initiative

- Report by State of Washington in 2006 identified the lower Skagit River area as high risk for sea level rise.

- The risk was realized in February 2006 when a strong storm surge pushed tides several feet above normal, resulting in some flooding and damage to Tribal property and in LaConner.
- As a result, the Tribal Senate issued a Proclamation in October 2007 directing action to respond to climate change challenges.

Swinomish Climate Change Initiative

- Tribe received $400,000 from U.S. Department of Health & Human Services, Administration for Native Americans.
- ANA provided 80% of the funding and Tribe matched 20%.
- This effort resulted in the completion of a:
  - Impact Assessment Technical Report, October 2009;
  - Climate Adaptation Action Plan, October 2010

SWINOMISH CLIMATE CHANGE INITIATIVE

Swinomish Climate Change Initiative Project Partners

- **University of Washington Center for Science in the Earth System/Climate Impacts Group** - Professional scientific review and advisory service.
- **Skagit River System Cooperative** - A fisheries branch of Tribe; advises on local conditions, projections and climate research data.
- **Town of La Conner** - Neighboring jurisdiction with interests in common; participation in advisory group.
- **Shelter Bay Community** - On-Reservation residential community in low-lying area; participation in advisory group.

Partnerships -Working Together

SWINOMISH CLIMATE CHANGE INITIATIVE

Climate Change Issues Create Many Challenges and Questions

- Can we keep the climate from changing?
- How do we adapt to climate change?
- Which natural resources are most vulnerable to climate change?
- Where do we get funds to deal with climate change issues? (conduct Vulnerability Assessments , Action Plans)
- Where do we get funds to implement Action Plans to deal with climate change impacts? (Swinomish)

More Challenges

- Integration of Traditional Ecological Knowledge into Climate Change Initiatives?
- How do we apply what our Tribal Customs and Traditions teach us about climate change?
- How are Tribes going to have meaningful participation in all the committees and groups that have formed to address Climate Change?
- How are Tribes going to coordinate with all the groups to address Climate Change issues?

More Challenges

- Our Biggest Challenge? FUNDING

Department of Interior Cooperative Landscape Conservation Initiative

	FY 2010/2011	FY 2012	Change
BLM	$15.0	$17.5	+$2.5
BOR	$3.0	$7.0	+$4.0
USGS	$63.2	$72.9	+$9.7
FWS	$40.0	$67.5	+$27.5
NPS	$10.0	$9.9	-$0.1
BIA	$0.419	$0.2	-$0.219
Totals	$131.619	$175.0	+$43.38

BIA Climate Change Program

- Hired National Climate Change Coordinator, (1st Day in Office: June 23, 2011)
- FY 2011 Funding - $419,000
- Of this total amount:
  - $319,000 – Tribal Climate Change Grant Program
  - $50,000 – BIA NW Region for North Pacific Landscape Conservation Cooperative
  - $50,000 – Central Office to coordinate Climate Change Activities

FY 2011 Tribal Climate Change Grant Program

- CATEGORY 1 - PARTICIPATION IN LANDSCAPE CONSERVATION COOPERATIVES (Grants, not to exceed $10,000 each, will be awarded for direct participation in LCC's).

- CATEGORY 2 - DEVELOPMENT OF VULNERABILITY ASSESSMENTS/ACTION PLANS
(Grants, not to exceed $50,000 each, will be awarded for development of Vulnerability Assessments and Action Plans).

- CATEGORY 3 – PARTICIPATION IN CLIMATE CHANGE WORKSHOPS AND OTHER RELATED MEETINGS.
(Grants, not to exceed $2,000 each, will be awarded for participation in climate change workshops and other climate change related meetings).

2011 Tribal Climate Change Grant Program

- 61 Grant Proposals Received

- 13 Category 1 Proposals
- 30 Category 2 Proposals
- 18 Category 3 Proposals

2011 Tribal Climate Change Grant Program

Total of 61 Proposals

	$1,671,755
Match	$ 256,877
Total	$1,928,632

2011 Tribal Climate Change Grant Program

Grant Proposal Review Process

- 20 Person Proposal Review Team
- Review Completed October 21
- Selections of Grant Awards made
- Announcement to be made by October 31, 2011

Collaboration Efforts

- Tribal/BIA involvement in Desert , Southern Rockies, and North Atlantic LCC's.
- Tribal/BIA involvement in Northwest Climate Science Center and working with USGS in "Framing Directions for Northwest Climate Science"
- SW Tribal Climate Change Workshop, September 13-14, Northern Arizona University, Flagstaff, AZ (sponsored by NAU and the Institute for Tribal Environmental Professionals).
- NAU and ITEP committed to sponsoring workshops in other regions to address climate change issues on Tribal lands.

Collaboration Efforts

- Tribal Ecological Knowledge Workshop, September 15-16, Seattle, WA. Hosted by Affiliated Tribes of Northwest Indians; sponsorship and support from Pacific Northwest Climate Change Collaboration, BIA, EPA, FWS and USGS.
- Affiliated Tribes of Northwest Indians passed Resolution #11-77 "Traditional Knowledge and Climate Change", September 2011, Tulalip, WA
- Collaborating with FWS National Conservation Center to add Tribal Component into existing Climate Change Training Curriculum

Collaboration Efforts

- Great Northern LCC proposed to match Tribal Climate Change Grants
- Discussion on development of National Tribal Climate Change Strategy - NCAI Meeting – November 2, 2011, Portland, Oregon
- Inter-agency meetings to discuss how to bring Tribes into the process

Collaboration Efforts

National Fish, Wildlife and Plants Climate Adaptation Strategy

Steering Committee Review Draft September 2011 (WITH APPENDICES)

National Fish, Wildlife and Plants Climate Adaptation Strategy

•*designed as key* part of nation's growing strategic framework for preparing for and adapting to a changing climate.

•coordinated with variety of climate change adaptation efforts at national, tribal, state and regional levels.

•a blueprint for coordinated actions to address common threats and concerns over the next 5 to 10 years.

•Produced by federal, state, and tribal representatives.

National Fish, Wildlife and Plants Climate Adaptation Strategy

➢Draft report to be distributed to Agencies and Tribes on November 1, 2011

➢Comments due November 30, 2011

➢Public Meetings and Tribal Consultations – between January 1, 2012 and February 28, 2012

➢Final Report issued May 2012

DOI Climate Change Initiatives

➢August 9, met with Secretary's Office (Elizabeth Klein) to receive updates on DOI Climate Change Initiatives.

➢Climate Change High Priority Performance Goal Action Plans

- •By end of 2012, for 50% of nation, DOI will identify resources that are particularly vulnerable to climate change, and implement coordinated adaptation response actions.
- •By September 30, 2013, for 75% of the nation, DOI will identify resources that are particularly vulnerable to climate change, and implement coordinated adaptation response actions.

Opportunities

- Determine what is important.
- Help us not take things for granted.
- Take care of our resources.
- Establish meaningful collaboration.
- Establish meaningful partnerships.
- Establish strategies to be involved and stay focused.
- Consider renewable energy developments

Alternative Energy Developments

Conflicting Values- Tribal versus Non-Tribal

Silver Dollar Ranch, Laguna Reservation

Red Mesa Wind Farm, Cibola County

Location of Wind Farms is Important

- Impacts to Cultural Resources
- Impacts to Aesthetic Values
- Impacts to Birds of Cultural and Religious Importance

http://www.youtube.com/watch?v=jwVz5hdAMGU&safety_mode=true&persist_safety_mode=1

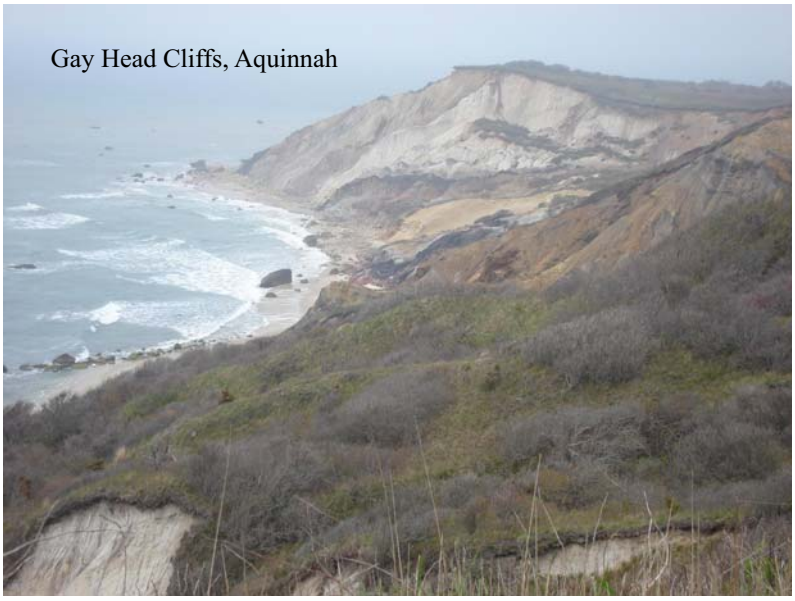
More Opportunities

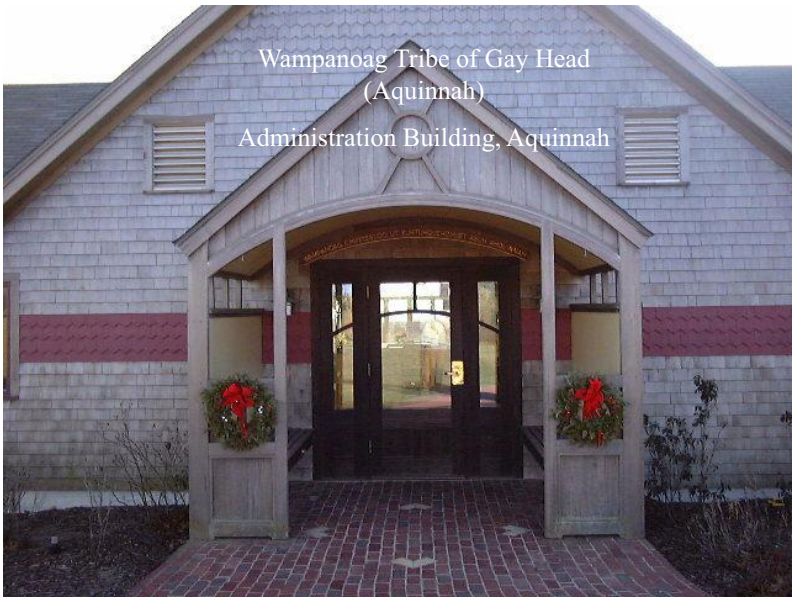
- Partner with Agencies that have funding.
- Develop strong Inter-Tribal network.
- Share information.
- Avoid duplication of effort; learn from others.
- Develop Information Pipeline.
- Search for more funding.
- Be Optimistic; Be Proactive; Be Hopeful.

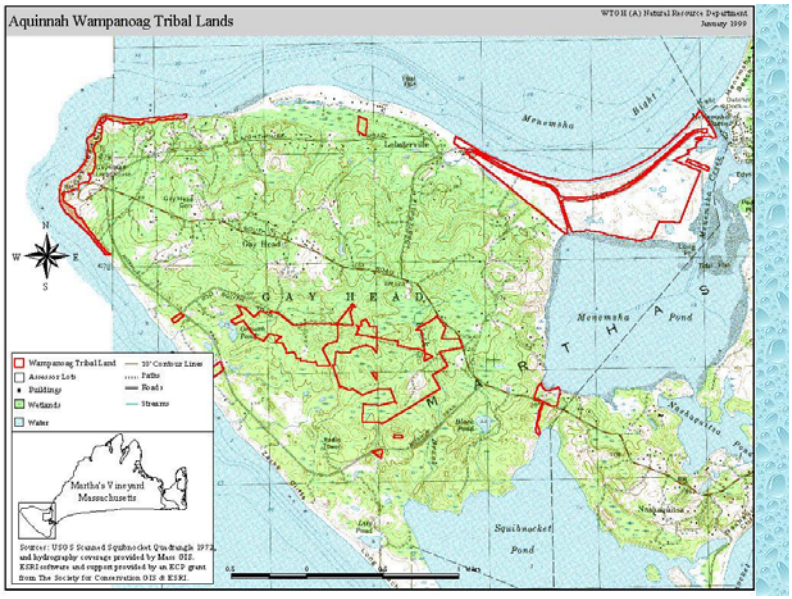
A New Dawn – A New Day
A New Beginning – What A Great Opportunity To Work Together

Natural Resources Department

Wampanoag Tribe of Gay Head (Aquinnah)







The Wampanoag Tribe of Gay Head (Aquinnah) Natural Resources Department's Mission Statement:

It has been in the past and will continue to be, into the future, the responsibility of Native Peoples to oversee the environment in which we must all survive. It is the purpose of the Natural Resources Department of the Wampanoag Tribe of Gay Head (Aquinnah) to assess the condition of the local environment, build and maintain the capacity to implement environmental programs in Tribal waters and on Tribal Lands, as well as those beyond the boundaries of Tribal Lands for the protection of health and resources of the Wampanoag people.

- **Provide a wide array of environmental programs to protect,enhance and restore resources of the land, water, air and natural environment within and beyond Tribal lands.**
- **Integrate Tribal philosophy and historic traditional values into environmental programs.**
- **Work cooperatively with the community, Island non profits, emergency response and enforcement agencies to protect environmental resources and human health.**

Sounds interesting, what does that really mean? …….good question!

Department staff responds to the immediate and future needs of the environment and environmental health. Staff strives to provide services to the membership, and create sustainable programs with direct benefits to the organization. The department currently has programs relating to;

Forest Management, Fire Management, Pre-Disaster Mitigation, Wetland Evaluation, Bio-Monitoring, Surface Water Quality Assessment, Drinking Water Evaluation, Ozone Monitoring, Air Quality Evaluation, Lead Assessment, Lead Outreach, Radon Testing, Solid Waste Management, Hazardous Materials Management, Marine Mammal Rescue Response, Environmental Education, Emergency Medical Response and Law Enforcement.

We also…..dig ditches, fill holes, paint, mow grass, light carpentry and small engine repair.

Managing Resources for future generations

Vector Diseases

-Lyme Disease

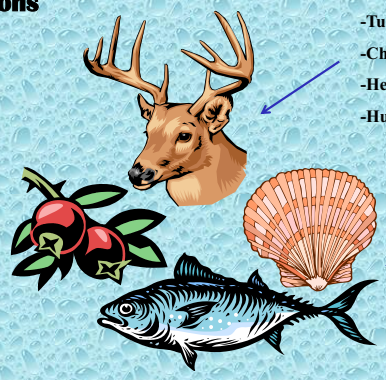
-Tularemia

-Chronic Wasting Disease

-Herd Management

-Hunting Seasons

-Air Quality (heavy metals, nitrite)
-Sustainable yields
-Invasive Species Control
-Biodiversity
-Traditional / Medicinal Plants



Non Point Source Pollution

-Roadway Runoff

-Oils/ Sediment

Population Re-Establishment

-Mercury, PCB's, Dioxins

-Risk Assessments

The Natural Resources Team

Direct Mercury Analyzer and Atomic Absorption Spectrophotometer

Ion Chromatograph

Incubator displaying coliform results from drinking water

Wampanoag Environmental Laboratory

- **State Certified for Microbiology & Chemistry**
- **Nationally Accredited for Lead Analysis in Dust Wipes**
- **Ability to Analyze Samples for Methyl Mercury in Minutes**
- **Only laboratory located on Martha's Vineyard**

Particulate Monitor 2.5 Improve Speciation unit

Top Right:

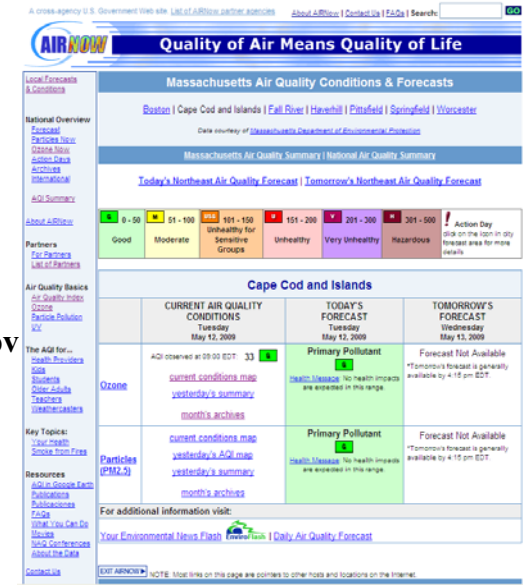
Shed where air monitor is housed

Left: Kendra with sample ready for shipping

Right: P.M 2.5 Air Module

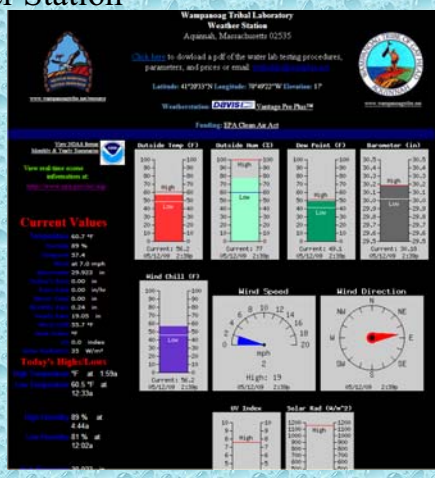
- Daily Ozone Conditions (April – October)
- Current Air Quality
- Weather Forecasts

•www.Airnow.gov

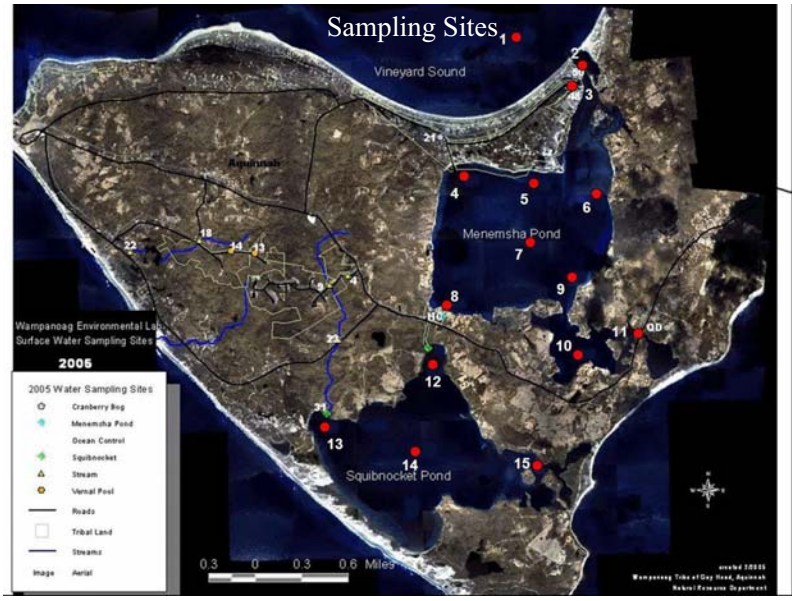


Wampanoag Tribal Laboratory Weather Station

- Temperature
- UV Index
- Rain (Day, Month, Year)
- Barometer
- Dew
- Humidity
- Wind (Speed, Chill, Direction)
- Solar Radiation



www.Wampweather.org



Andrew Jacobs on Squibnocket Pond with a YSI 6600 Water Quality Monitoring Instrument used to capture data including;

Depth

Temperature

Salinity

Dissolved Oxygen

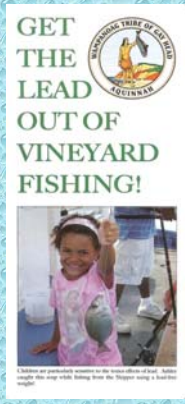
pH

Turbidity

Lead Program

Working to Reduce Lead in Vineyard Waters

- Providing Tribal members with services to reduce lead exposures
- Public Outreach and Awareness through innovative forums such as the Lead Free Fishing programs
- Partnerships with Local Organizations and Businesses
- Accredited analysis of lead in dust wipes and soil at the Wampanoag Environmental Laboratory.

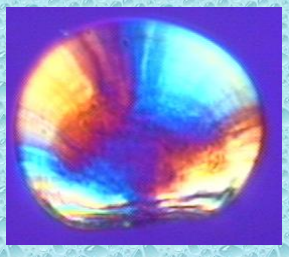


LIHDAT
Larval Identification Hydrographic Data Telemetry

LIHDAT Instrument

Goals:

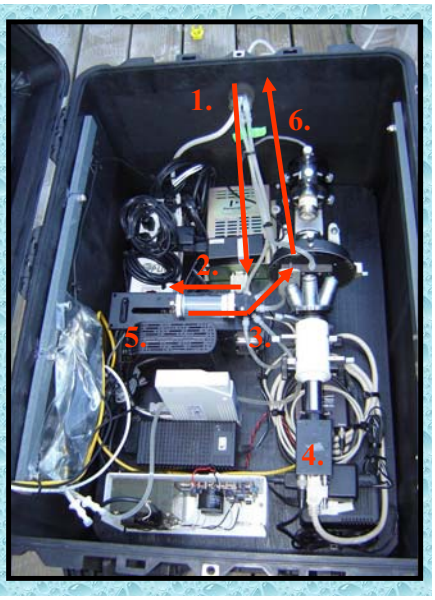
1. Determine times of spawning
2. Location of larvae within the water column
3. Forecast of larval distribution
4. Better management of marine fisheries

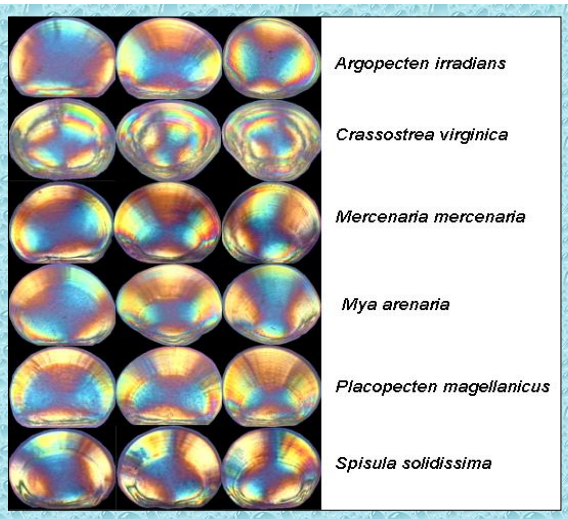


LIHDAT picture of Bay Scallop under polarized light

1. Water is drawn from one of two locations in the water column
2. Syringe stores 50 milliliters
3. Syringe forces the water sample past the view of the microscope at 30 micro liters per second
4. Camera takes 24 pictures per second using polarized light
5. Only images with something in field of view are stored on a 320gigabyte hard drive
6. Sample exits the LIHDAT with organisms unharmed

Each full sample takes 5 minutes





Argopecten irradians	Bay Scallop
Crassostrea virginica	Common Oyster
Mercenaria mercenaria	Quahog
Mya arenaria	Soft Shell Clam
Placopecten magellanicus	Sea Scallop
Spisula solidissima	Atlantic Surf Clam

The unique coloration comes from the polarized light reflecting off of the bi-refringent material within the larval shell. This is how we can distinguish different species of shellfish. The variances in coloration are species specific.

Bay Scallop Enhancement Program

- 2005 - present
- Important cultural, commercial, and ecological marine species
- 350,000 scallops have been raised and released
- 52,000 crabs removed
- Scallop harvest is up 322% since 2004
- Project has brought $588,588 to the local economy
- Scallop sanctuary has been created to ensure future breeding populations

Atlantic Bay Scallop

Releasing Bay Scallops

Placing bay scallop spat into grow-out bags on Menemsha Pond

Non-Point Source Pollution Prevention Program: Oil / Grit separator on State Road

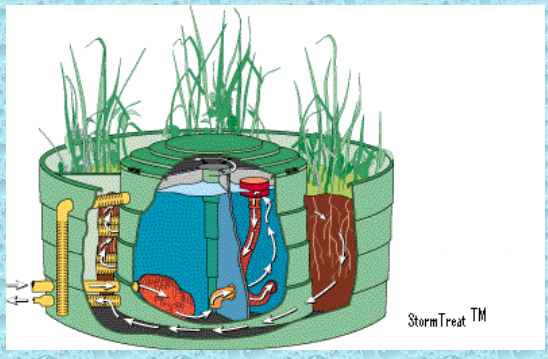
Catch basin on State Road / Herring Creek prior to Tribal oil/grit separator

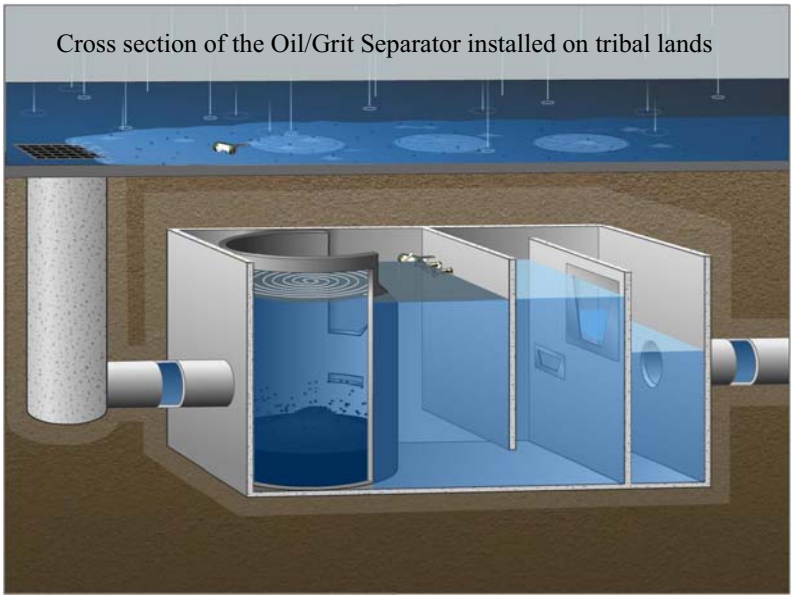
Prevents 88 pounds of sediment and over 160 gallons of oily water from entering Menemsha/Squibnocket Ponds ANNUALLY.

Installation of Oil/Grit Separator

Installation of non-leaching catch basin

Synthetic Wetland to Treat Storm Water Runoff Located at the Tribal Community Center

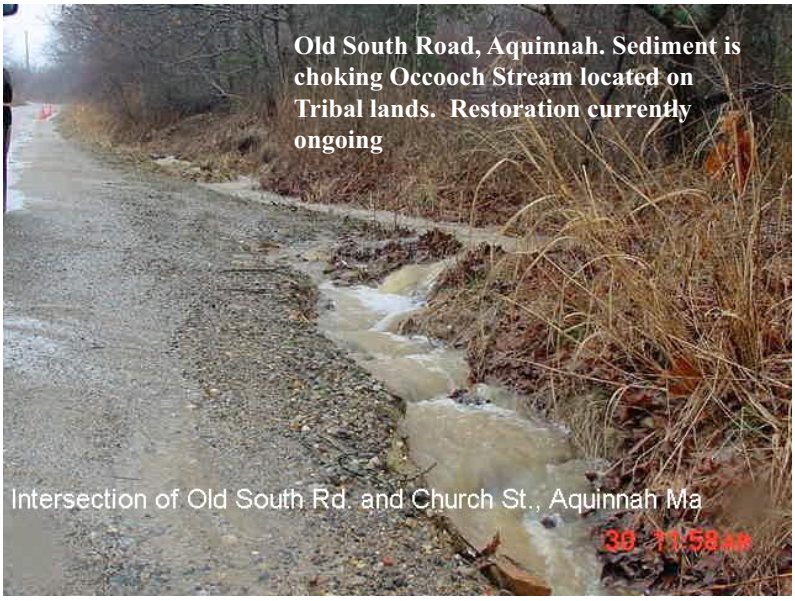



Cross section of the Oil/Grit Separator installed on tribal lands

Cranberry Bog Catch Basin

Site slated for installation of catch basins, taking place right now!!

Environmental Coordinator Jim Miller overlooks the
cranberry bog catch basin's rough finish



Old South Road, Aquinnah
COMPLETED

- Installed catch basins
- Infiltrator under roadway
- Vegetative swale

Catch basins have been installed along the roadside which drain to the bottom of to roadway. An infiltrator unit under the road allows the water to perk into the ground.

A vegetated swale collects runoff from driveways and private property.

Recycling with the Tribe

26 recycling bins for "single stream" recycling

No sorting necessary. All recyclable materials (paper, glass, metal, and plastic) can be placed within the same container.

Environmental and economically sensible solution to solid waste

Improves the health of the community and the environment

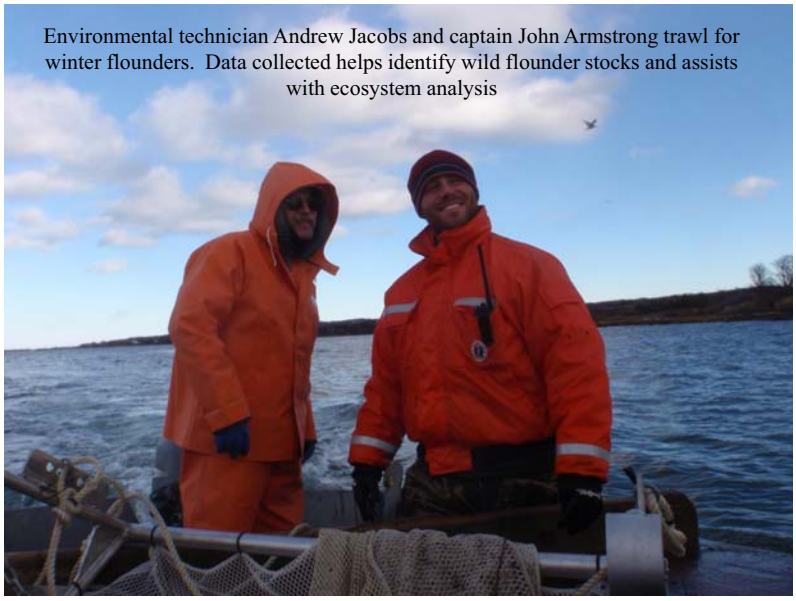
The Tribe recently leased the Tribal shellfish hatchery to a non profit fishermen's association to work cooperatively on a marine fishery restoration effort.

TRIBE ALLOWS USE OF HATCHERY FOR WINTERFLOUNDER PROJECT

By MARK ALAN LOVEWELL October 21, 2011

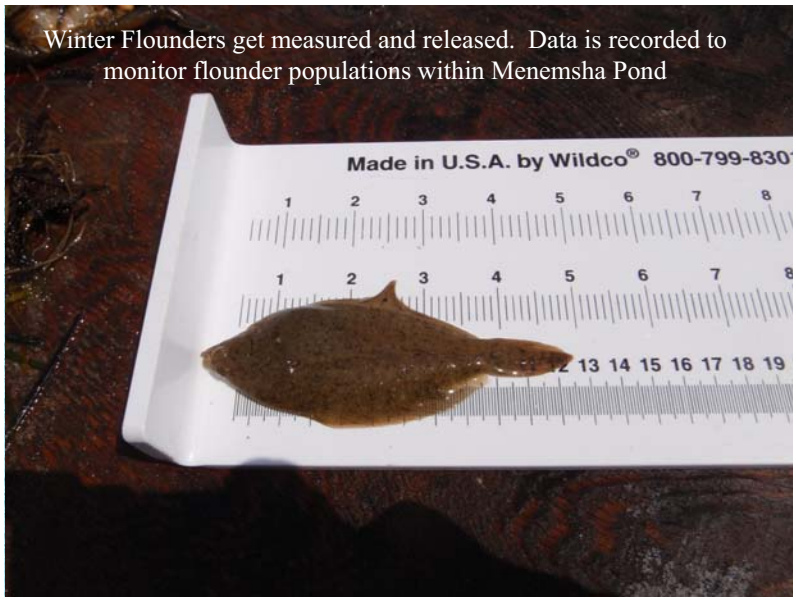
Bret Stearns and Warren Doty partner up for winter flounder project.

The Wampanoag Tribe of Gay Head (Aquinnah) has agreed to lease its shellfish hatchery on the shore of Menemsha Pond to the Martha's Vineyard/Dukes County Fishermen's Association for $100 to raise winter flounder. The partnership is part of a federally funded two-year $308,000 National Sea Grant project to find ways to restore one of the most troubled fish resources in Southern New England.



Environmental technician Andrew Jacobs and captain John Armstrong trawl for winter flounders. Data collected helps identify wild flounder stocks and assists with ecosystem analysis

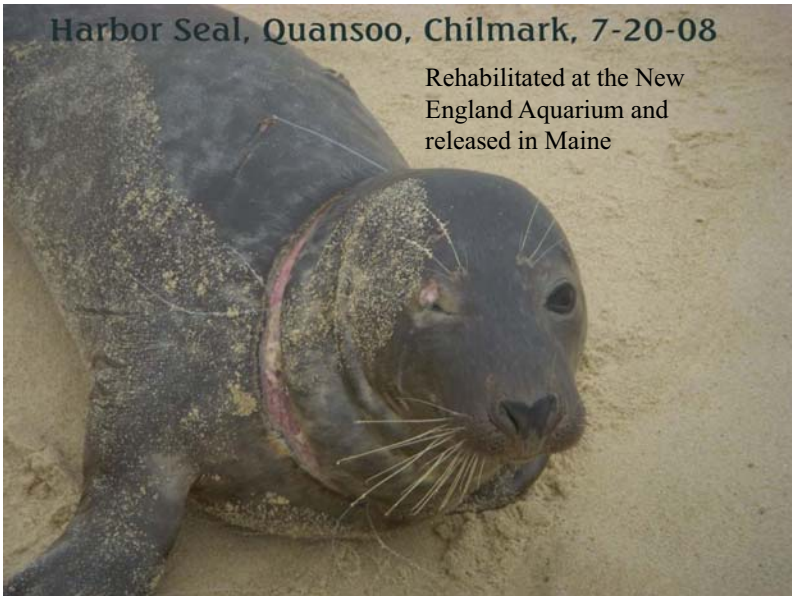
Seining for Winter Flounders. Bi-monthly sampling has taken place since November of 2010



Winter Flounders get measured and released. Data is recorded to monitor flounder populations within Menemsha Pond

Herring Creek, Tribal Lands, Aquinnah

Herring



Rehabilitated at the New England Aquarium and released in Maine

Harbor Porpoise, Menemsha Pond, Aquinnah

Bottlenose Dolphin, Menemsha Pond, Aquinnah

Leatherback Turtle, Lobsterville Beach

Eastern Box Turtle, Tribal Lands

Nesting Osperys

Smooth Green Snake

Praying Mantis

Milk Snake

Beach Plumb

Wild Grapes

THE ISLAND
Blue Pages
A Guide to Protecting
Martha's Vineyard Waters...
Páginas Azuis
da ILHA
Guia para Proteger
as Águas da Ilha Martha's Vineyard...
Funded the printing and distribution of 30,000 *Blue Pages* in 2006
Additional 12,500 English and 2,500 Portuguese in 2008
Additional 1500 copies sent out in papers last month

Photo by Peter Simon

Donated in 2005

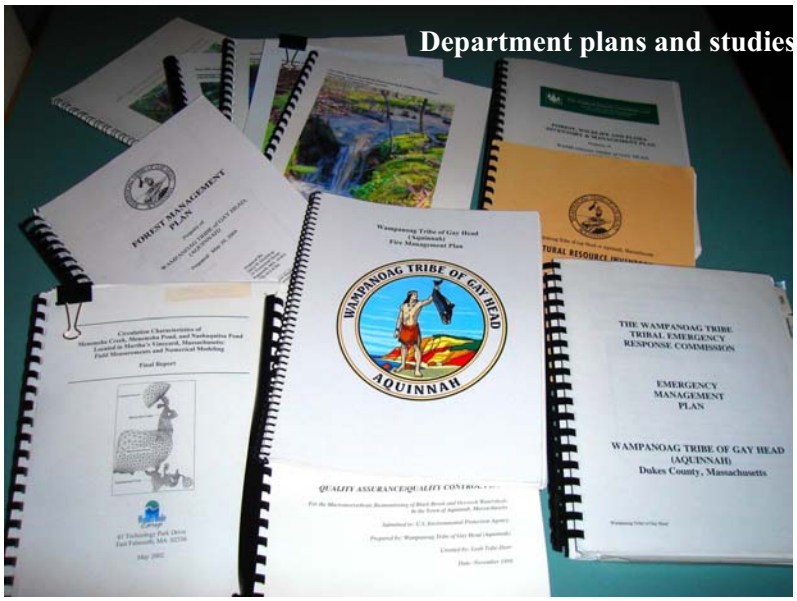
Donated in 2008

2010 Polaris Ranger for patrol and rescue

Working with local police and EMS to develop a beach response plan to better assist the public in the case of an emergency

Training is an important part of the position for all staff. Emergency medical, police, fire, hazardous materials, environmental and administrative in-service is essential and in most cases mandatory for department staff.

Tribal lands Multi-Casualty Incident training for Tri-Town Ambulance, sponsored by the Tribe

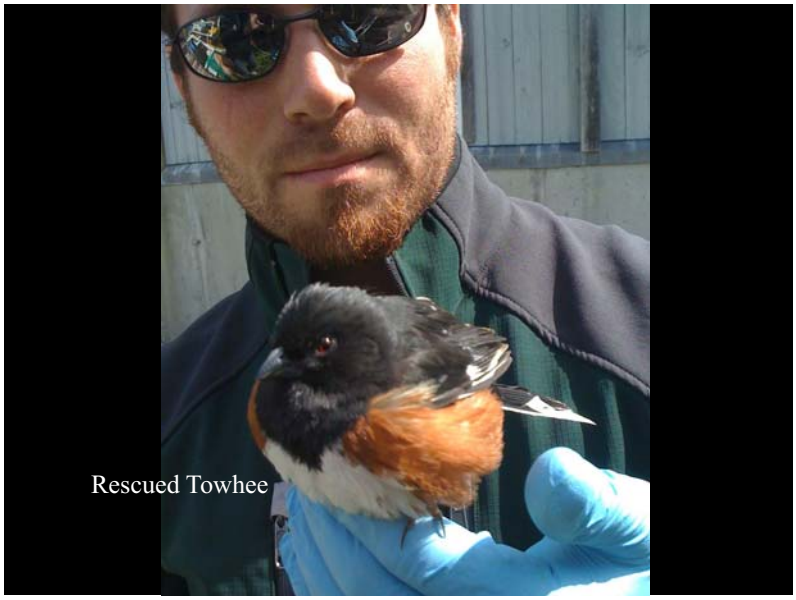


Department plans and studies

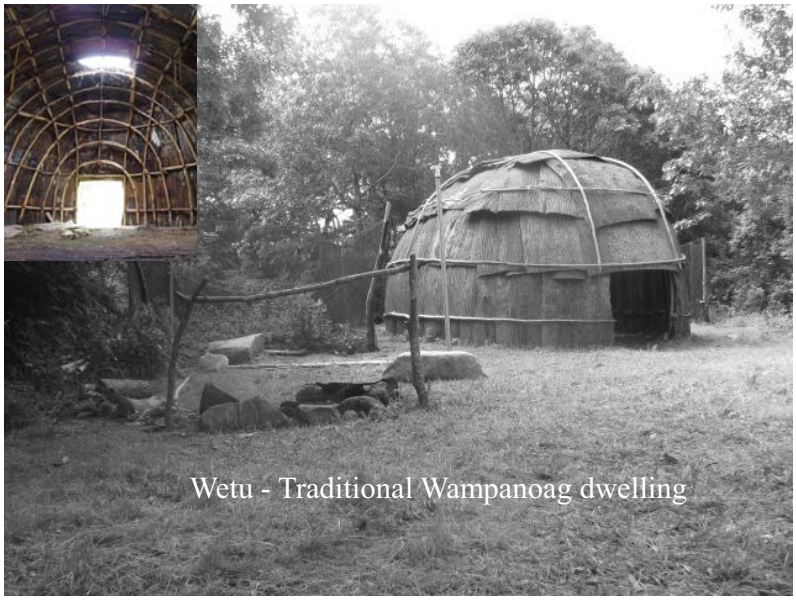
Earth Day Beach Clean up

Earth Day helpers

Spring Peeper


Rescued Towhee

Four-toed Salamander

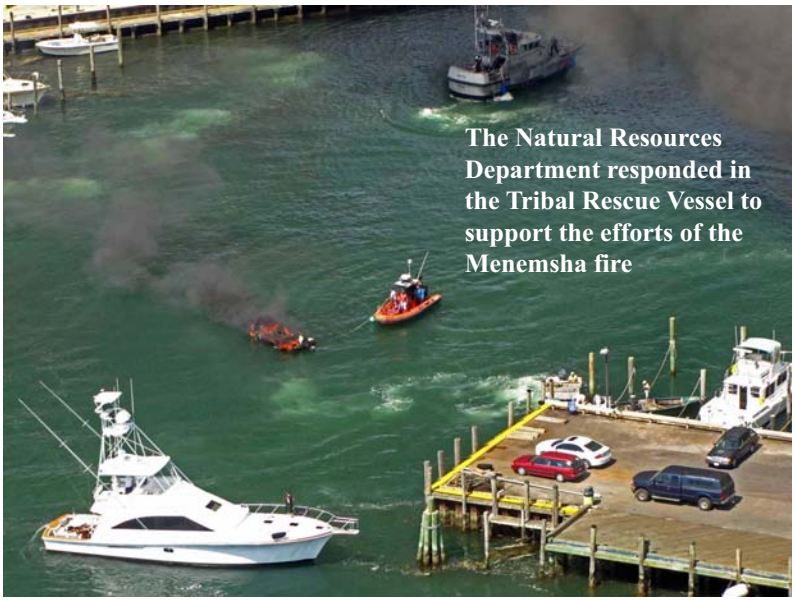

Wetu - Traditional Wampanoag dwelling

The Natural Resources Department supports the Massachusetts Hunter Safety Program each year by serving as instructors and providing training aids for Island students.

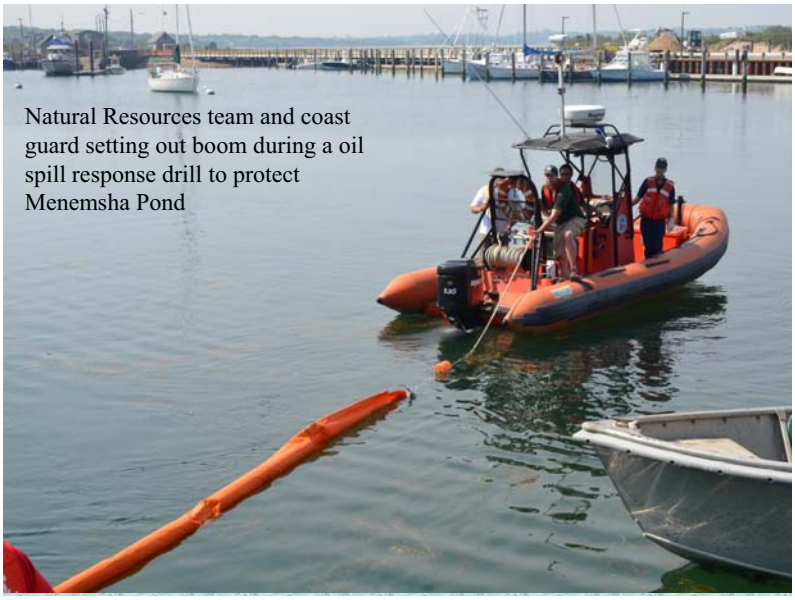
Ranger Curtis Chander, always on duty

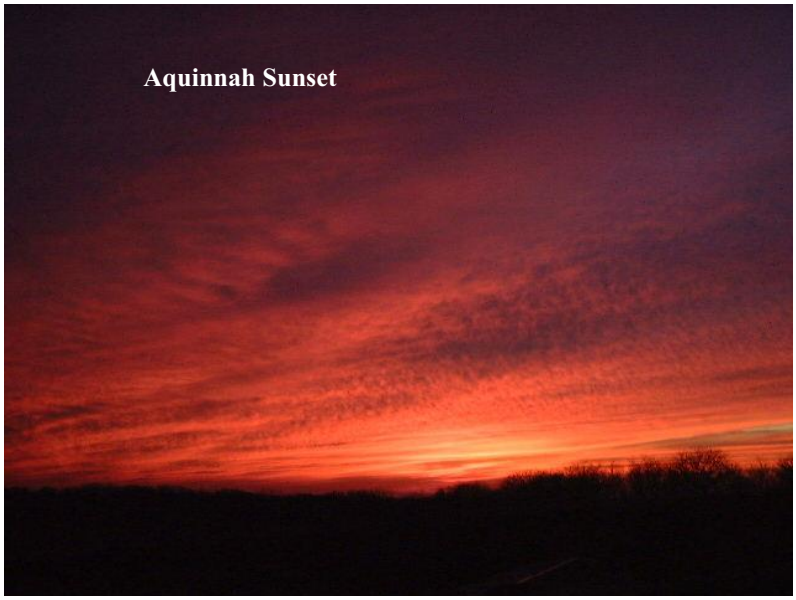
Menemsha Fire, July 12, 2010

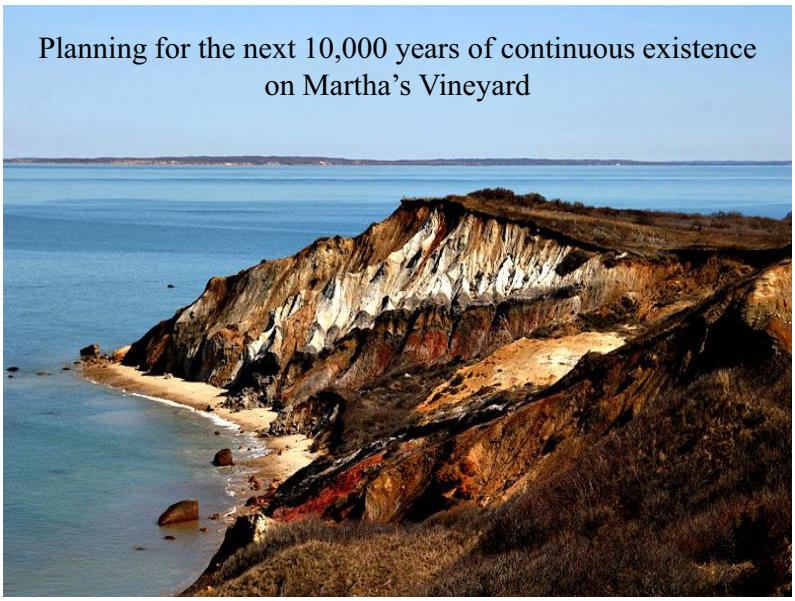
Menemsha Coast Guard Station Boat House


The Natural Resources Department responded in the Tribal Rescue Vessel to support the efforts of the Menemsha fire

Tribes' 21' Rigid Inflatable vessel. Department staff towed vessels from the burning dock, brought supplies to responders and used portable fire pumps to extinguish the fire.

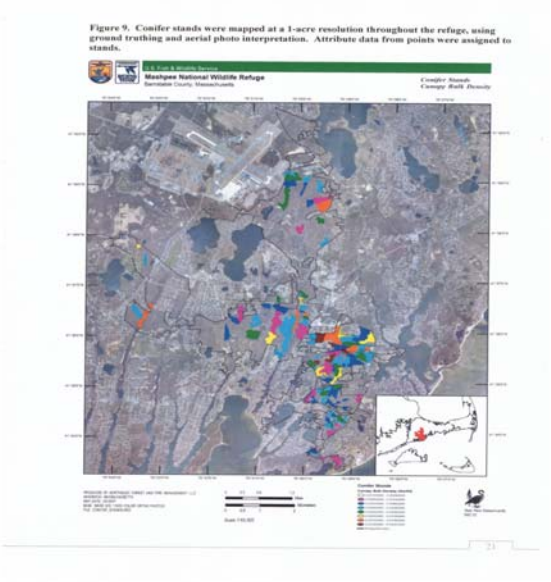

Natural Resources team and coast guard setting out boom during a oil spill response drill to protect Menemsha Pond


Aquinnah Sunset

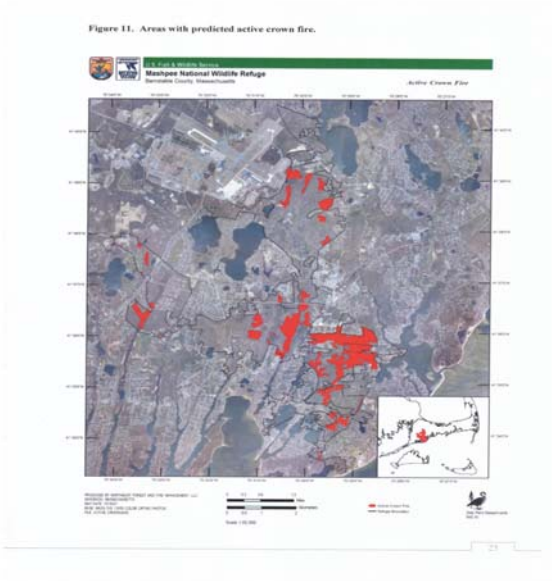

Planning for the next 10,000 years of continuous existence
on Martha's Vineyard

Mashpee Wampanoag Tribe

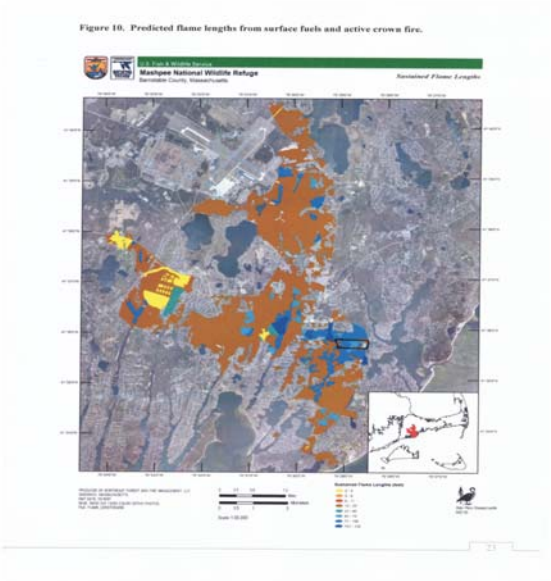
Tribal Environmental Conference Presentation



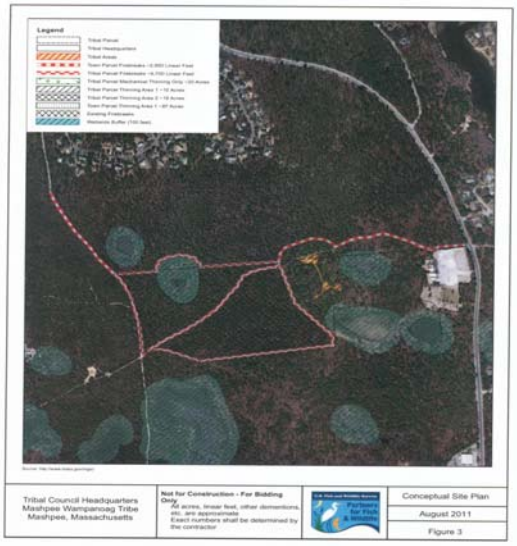
Medium to high canopy bulk density



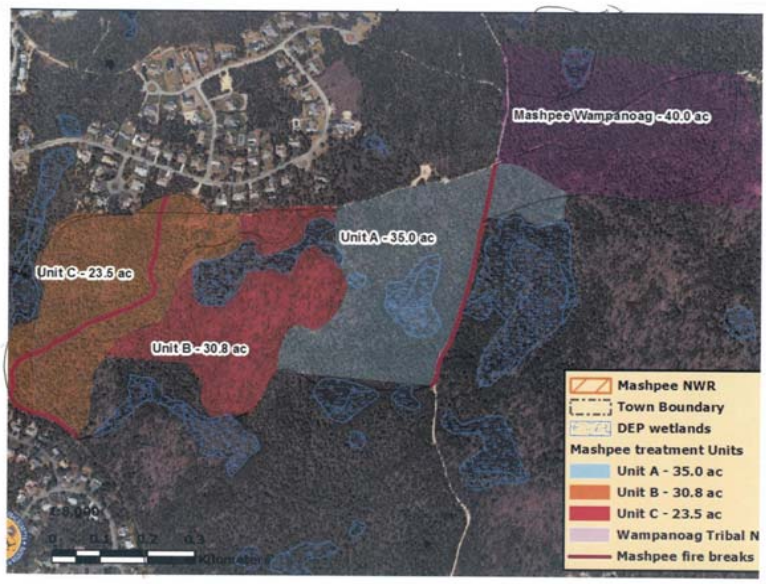
Predicted active crown fire on the majority of the property

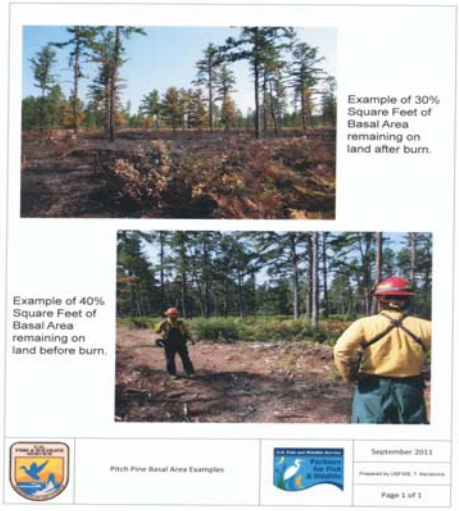


Predicted flame lengths from surface fuels and active crown fire of 12 – 100 feet



Buffers to protect wetlands and cultural sites





Mechanical Treatment:

- 2012 – 24 acres

Construct Firebreak :

- 2013 – 8,828 ft

Prescribed Burns Planned In:

- 2013 – 12 acres
- 2015 – 20 acres
- 2019 – 12 acres
- 2024 – 20 acres

Historical reference to native use of fire as a management tool

05/04/2011 11:24

05/04/2011 11:23

MASHPEE
05/04/2011 11:49

6600 V2

06/29/2011 13:02

N32 919

Tribal-Focused Exposure, Risk, and Sustainability Tool: T-FERST

overview of draft prototype version

August 2011
U.S. Environmental Protection Agency
Office of Research and Development

What Is T-FERST?

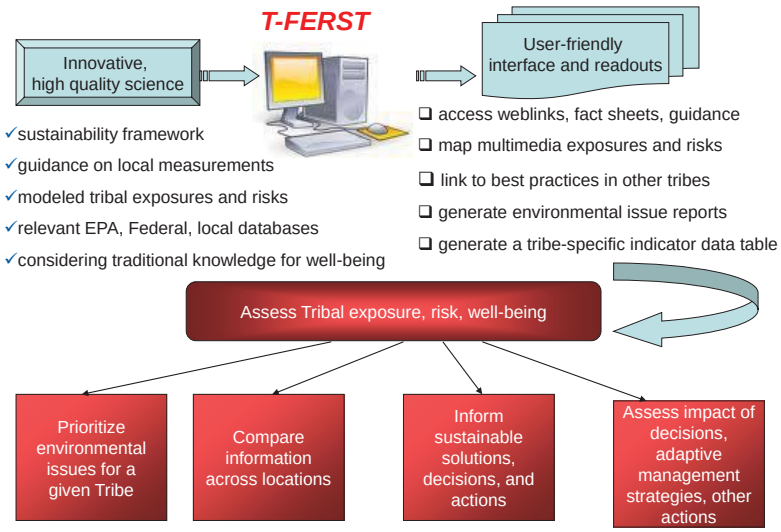
T-FERST (https://cfpub.epa.gov/tferst) is being developed as a web-based environmental decision support tool for building sustainable and healthy tribes.

- It will serve as
  - *a geospatial research framework and developmental platform to empower tribes with best available human health and ecological science*

What Is T-FERST (cont'd)?

T-FERST is a collaboration, an opportunity for early tribal involvement and integration of unique tribal perspectives in a project that serves tribal needs

- It will be collaboratively designed, populated, and piloted to:
  - *inform prioritization of environmental issues within a given tribe*
  - *inform risk management decisions reflecting unique tribal considerations*
  - *assess well-being, impact of sustainable solutions, adaptive management strategies*



Planned Products of T-FERST Project

- A methodology to build capacity and match tribal issues with best available science and info
- A user-friendly, science-based tribal environmental decision support tool
- A national tribal data inventory to inform and populate T-FERST
- Tribal science and information that can be included in T-FERST
- Results from pilot project(s)
  - answers to questions of tribal interest for priority environmental issues
  - *a phased pilot approach will be taken, based on available resources*

Planned Products of T-FERST Project

Tribal science & information that can be included in T-FERST

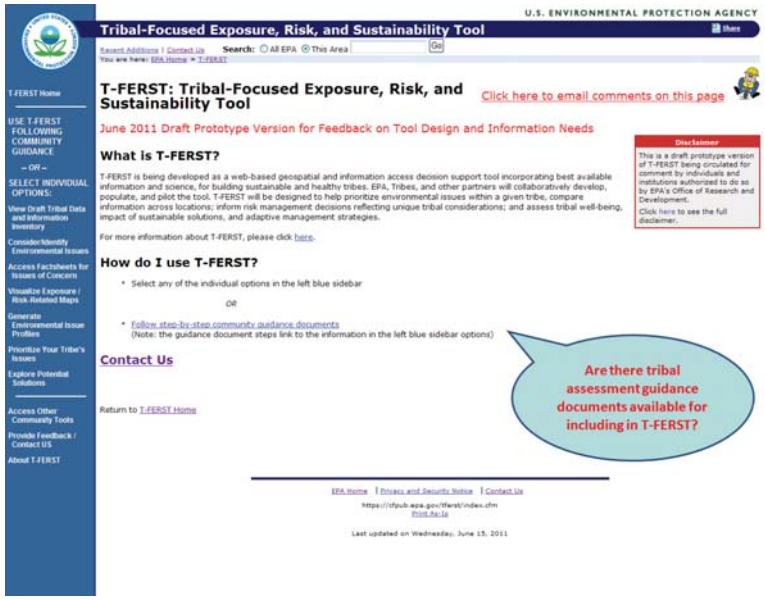
- fish consumption modeling results to inform meal sizes, fish types to avoid
- cumulative tribal risk/well-being estimates, reflecting unique pathways and culture
- geospatial maps displaying data on human health risks, ecological risks, ecosystem services, and other tribal assets and vulnerabilities
- development of a tribally-focused sustainability methodology, focusing on solutions and initiated with a solid waste case study in PPP ME tribe
- tribal-focused fact sheets, weblinks, data collection methods, tribal indicator data tables, guidance etc. to support tribal assessments

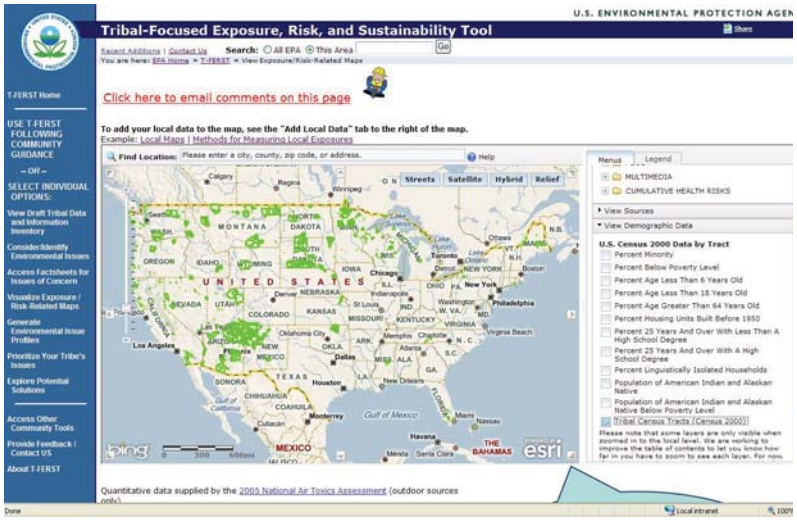
Passamaquoddy Tribe involvement

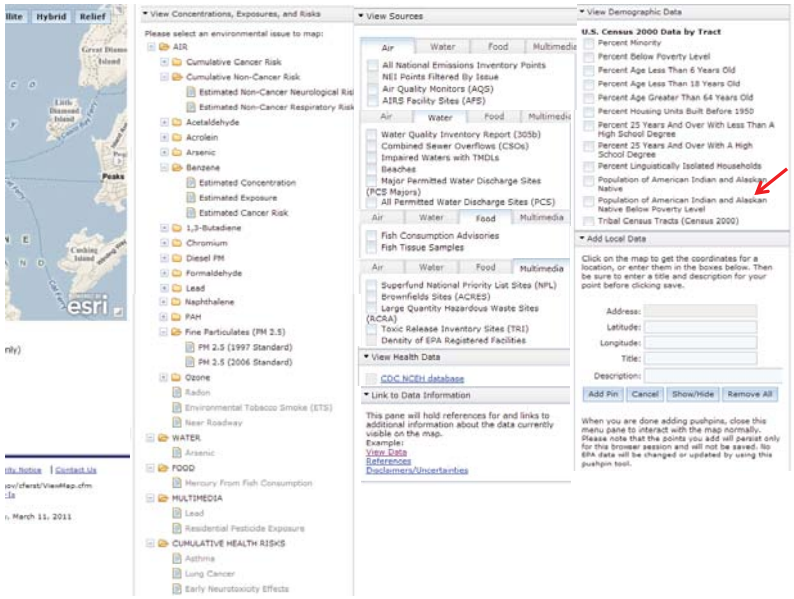
- Enter Tribal data on lead study, fish consumption and mercury
- Compare/evaluate tribal data with EPA
- Prioritize community environmental health issues
- Develop alternative risk reduction/adaptive strategies
- Provide reports
- training

URGENT-VC Involvement

- Develop alternative risk reduction/adaptive strategies
  calculate associated costs and benefits
  Social, economic, environmental
- Develop sustainability project on solid wastes and other programs, link methods to T-FERST

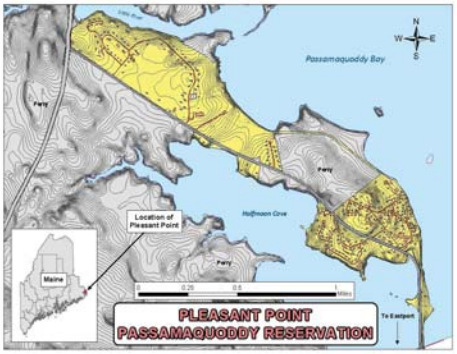






EPA United States Environmental Protection Agency

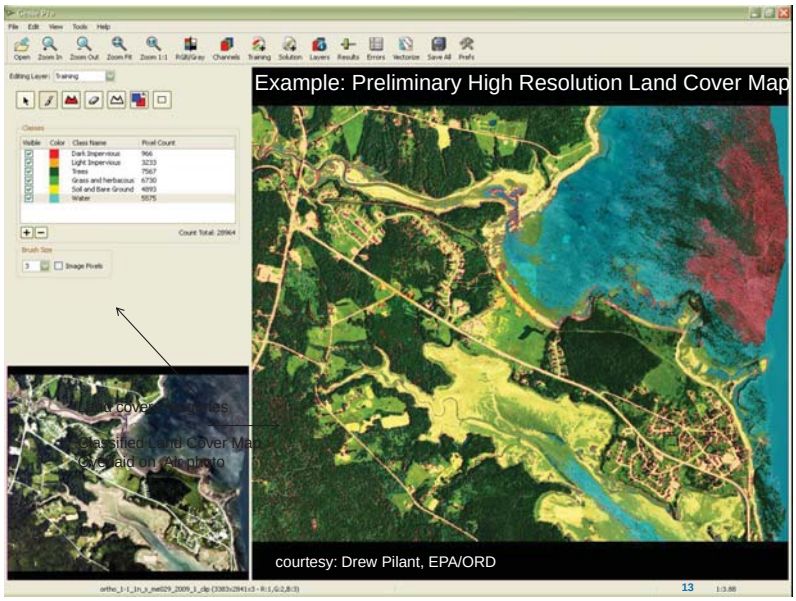
Initial T-FERST Pilot



http://www.wabanaki.com/location_map.htm

Example #1:
Matching Tribal Issue with Available Science

- Passamaquoddy Environmental Issue of Concern
  - Climate change:
    - Rising sea levels resulting in beach erosion especially near Housing Authority Building, Treatment Plant, some homes exposed, incursion of salt water into sensitive tidal marshlands
  - Nationally available data and models:
    - Rising sea level estimates, National Wetlands Inventory, National Digital Elevation Maps (USGS), National Landcover Database, NOAA tidal data
  - Local data
    - Geocoded locations of sites of concern
    - State or more locally assessed Digital Elevation Maps
    - Local identification of critical coastline features



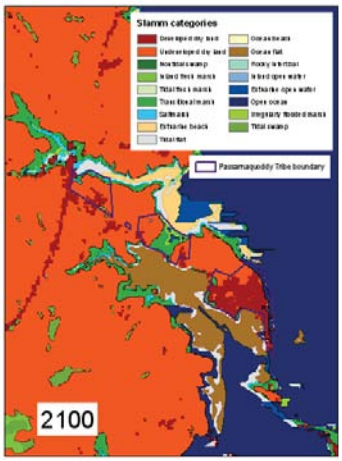
Example Climate Change Modeling Results for T-FERST Consideration

preliminary EPA ORD SLAMM (Sea Level Affecting Marshes Model) predictions

EPA United States Environmental Protection Agency

- One possible future
  - Tidal marshes are among the most susceptible ecosystems to climate change, especially accelerated sea level rise (SLR)
  - SLAMM simulates processes involved in wetland and shoreline changes during long-term sea level rise (up to yr 2100)
- Uses data layers from USGS, NWI (national wetlands inventory), national land cover data,
- Tide inputs from NOAA Station (Eastport, ME)
- SLAMM default erosion and accretion rates
  - local data would be more accurate

NOTE: Model inputs and results can be refined.

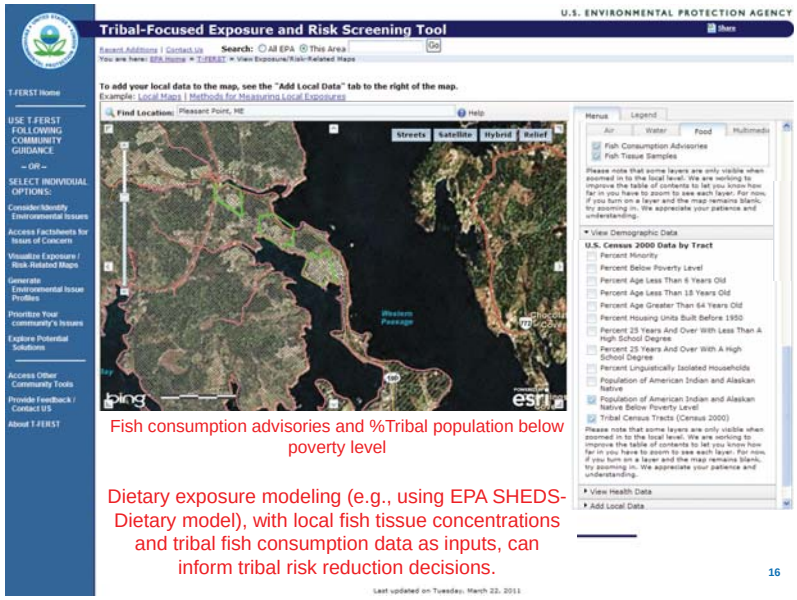


Maps are about 3 miles x 3 miles, Projection UTM Zone 19

Modeling by EPA/ORD C. Erickson and D. Heggem

Example #2:
Matching Tribal Issue with Available Science

- Passamaquoddy Environmental Issue of Concern
  - Subsistence diets: heavy metals, dioxins, mercury exposures
    - Local marine food sources used for subsistence and are part of tribal cultural practices
    - Contamination in these foods linked to health outcomes of concern to tribe: mortality, cancer
  - Nationally available fish tissue concentration data:
    - National fish consumption advisories
    - USGS National Water-Quality Assessment Program: mercury
    - EPA National Rivers and Streams Assessment: many toxicants
  - Local data
    - Fish consumption survey
    - Hg and heavy metals analysis of mackerel, scallops, porpoise, cadmium in Moose liver (Township study)

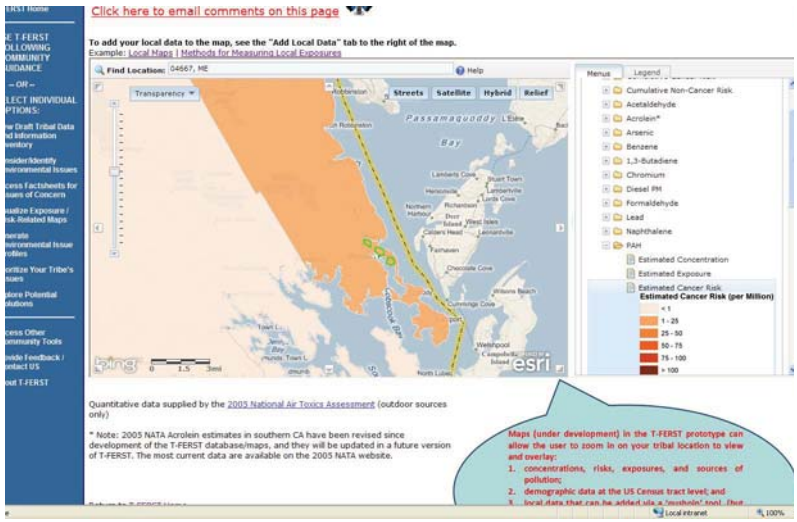


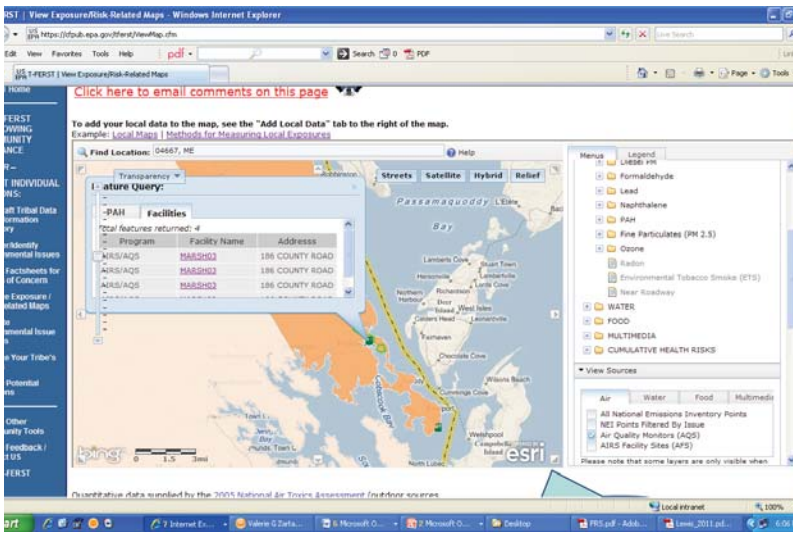
Fish consumption advisories and %Tribal population below poverty level

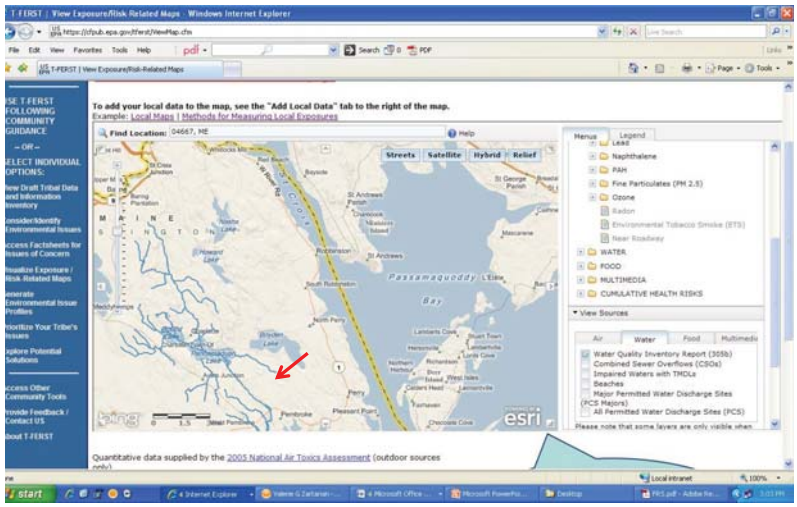
Dietary exposure modeling (e.g., using EPA SHEDS-Dietary model), with local fish tissue concentrations and tribal fish consumption data as inputs, can inform tribal risk reduction decisions.

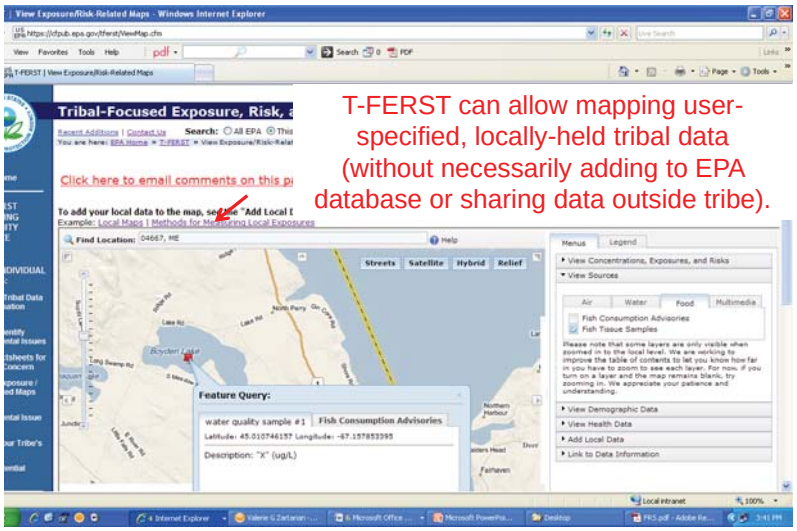
Additional Passamaquoddy Environmental Issues of Concern

- Health: mortality, asthma, cardiovascular disease, diabetes, cancer
- Indoor air: smoking, wood stoves, radon, mold, poor "home management"
- Ambient air pollution
- Solid waste management
- Water quality: nonpoint source pollution in Tribal wetlands, drinking water
- Energy: home energy (solar/green homes), energy self-sufficiency
- Softwood forestry converting to hardwoods; sugar maples adversely impacted
- Acidification of ocean and impacts on shellfish
- Impacts on NorthEast Blueberry Co (NEBCO) being invaded by southern grasses and insects

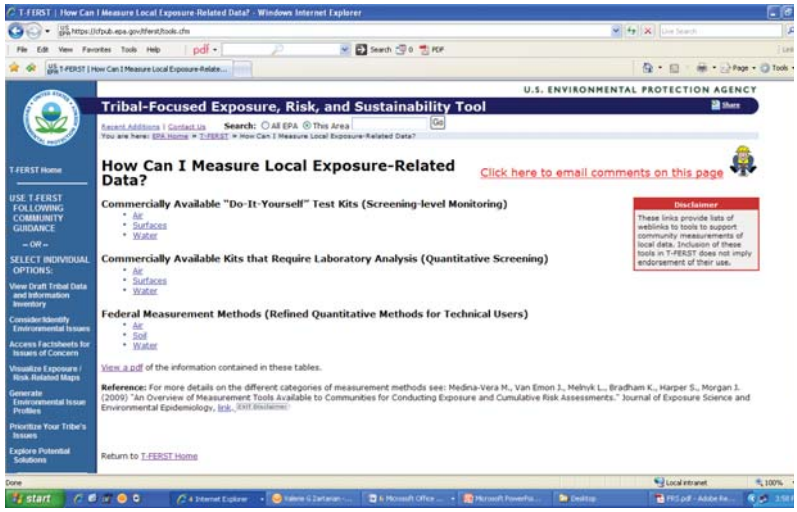






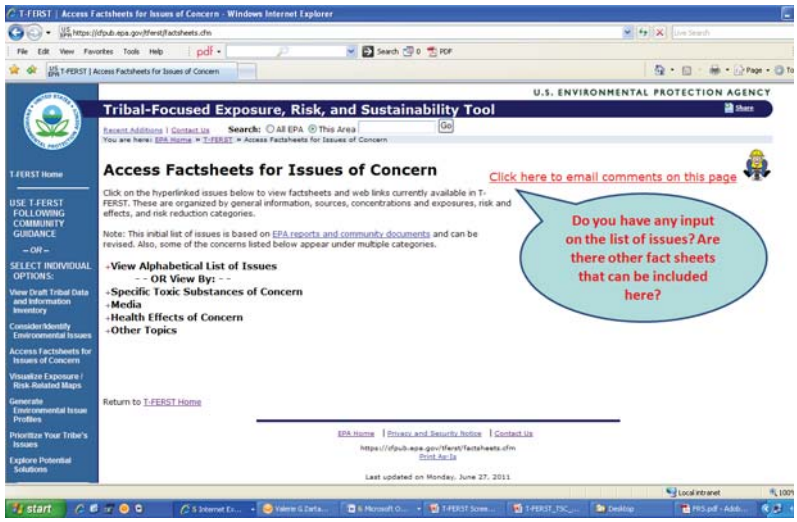


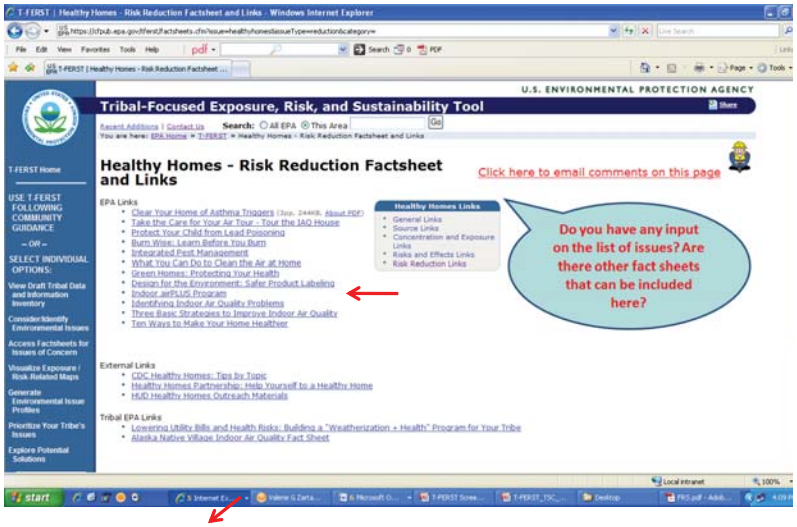
T-FERST can allow mapping user-specified, locally-held tribal data (without necessarily adding to EPA database or sharing data outside tribe).



Additional Local Data for Potential Incorporation into Tribal Science and T-FERST

- Locations of sites of concern
- Solid waste data
- Indoor air monitoring of Tribal homes (radon, mold)
- Home energy audits
- Ambient air monitoring
- Water quality sampling in Boyden Lake (present source of drinking water) and watershed
- Nonpoint source pollution in Tribal wetlands


T-FERST | Access Factsheets for Issues of Concern - Windows Internet Explorer
U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
Access Factsheets for Issues of Concern
Click here to email comments on this page
Do you have any input on the list of issues? Are there other fact sheets that can be included here?
View Alphabetical List of Issues
Specific Toxic Substances of Concern
Media
Health Effects of Concern
Other Topics


T-FERST | Healthy Homes - Risk Reduction Factsheet and Links - Windows Internet Explorer
U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
Healthy Homes - Risk Reduction Factsheet and Links
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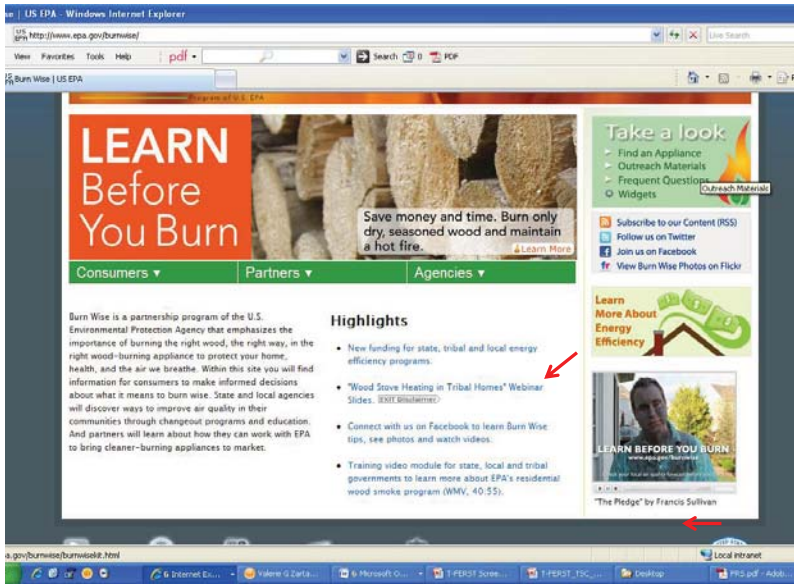
US EPA - Windows Internet Explorer
LEARN Before You Burn
Save money and time. Burn only dry, seasoned wood and maintain a hot fire.
Take a look
Find an Appliance
Outreach Materials
Frequent Questions
Widgets
Subscribe to our Content (RSS)
Follow us on Twitter
Join us on Facebook
View Burn Wise Photos on Flickr
Consumers
Partners
Agencies
Highlights
Learn More About Energy Efficiency
LEARN BEFORE YOU BURN
"The Pledge" by Francis Sullivan

U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
Access Factsheets for Issues of Concern
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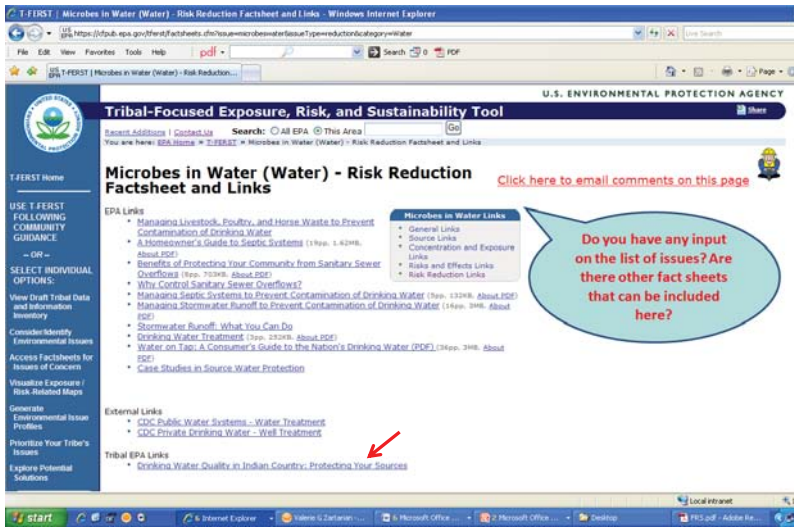
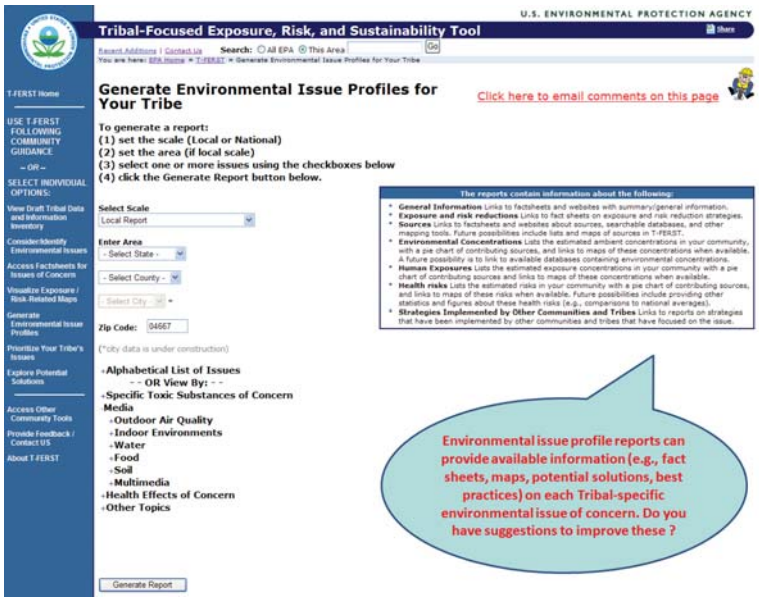
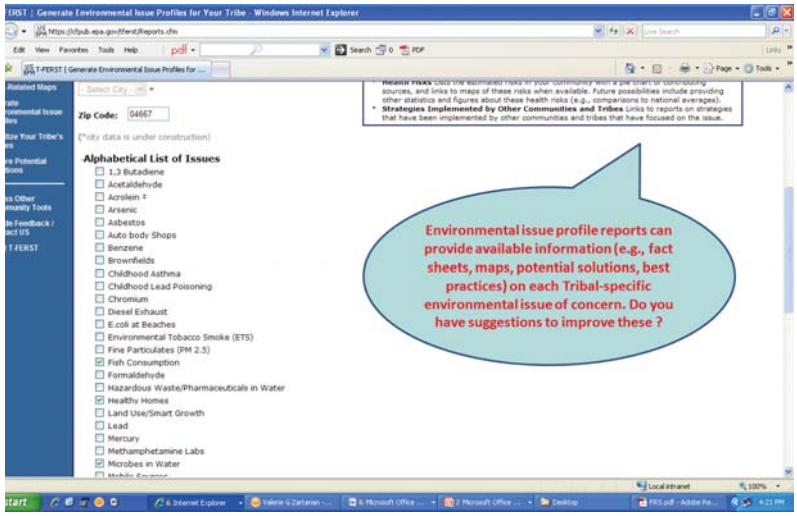
Do you have any input on the list of issues? Are there other fact sheets that can be included here?
View Alphabetical List of Issues


T-FERST | Microbes in Water (Water) - Risk Reduction Factsheet and Links - Windows Internet Explorer
U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
Microbes in Water (Water) - Risk Reduction Factsheet and Links
Click here to email comments on this page
Microbes in Water Links
Do you have any input on the list of issues? Are there other fact sheets that can be included here?


U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
Generate Environmental Issue Profiles for Your Tribe
Click here to email comments on this page
To generate a report:
(1) set the scale (Local or National)
(2) set the area (if local scale)
(3) select one or more issues using the checkboxes below
(4) click the Generate Report button below.
Select Scale
Local Report
Enter Area
Zip Code: 04667
Alphabetical List of Issues
Specific Toxic Substances of Concern
Media
Outdoor Air Quality
Indoor Environments
Water
Food
Soil
Multimedia
Health Effects of Concern
Other Topics
Generate Report
Environmental issue profile reports can provide available information (e.g., fact sheets, maps, potential solutions, best practices) on each Tribal-specific environmental issue of concern. Do you have suggestions to improve these ?


T-FERST | Generate Environmental Issue Profiles for Your Tribe - Windows Internet Explorer
Zip Code: 04667
Alphabetical List of Issues
1,3 Butadiene
Acetaldehyde
Acrolein
Arsenic
Asbestos
Auto body Shops
Benzene
Brownfields
Childhood Asthma
Childhood Lead Poisoning
Chromium
Diesel Exhaust
E.coli at Beaches
Environmental Tobacco Smoke (ETS)
Fine Particulates (PM 2.5)
Fish Consumption
Formaldehyde
Hazardous Waste/Pharmaceuticals in Water
Healthy Homes
Land Use/Smart Growth
Lead
Mercury
Methamphetamine Labs
Microbes in Water
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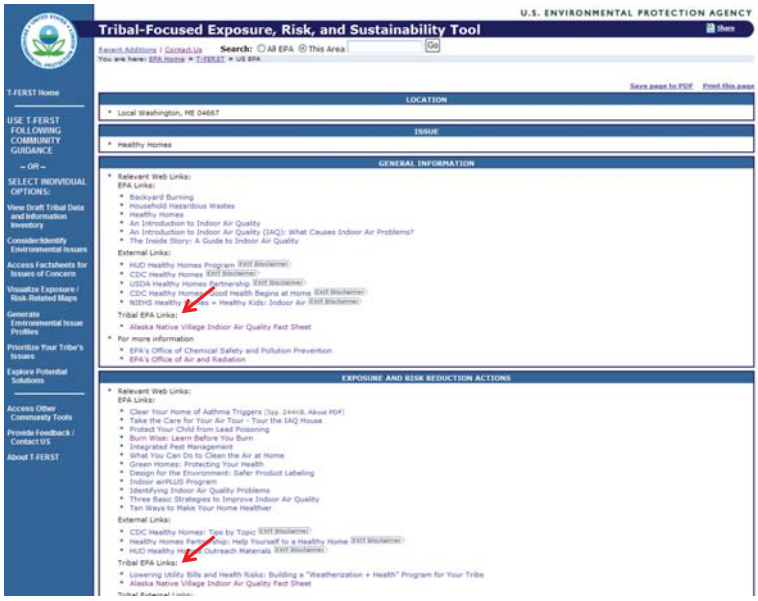

U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
LOCATION
Local Washington, ME 04667
ISSUE
Healthy Homes
GENERAL INFORMATION
EXPOSURE AND RISK REDUCTION ACTIONS

Tribal EPA Links:

- Lowering Utility Bills and Health Risks: Building a "Weatherization + Health" Program for Your Tribe
- Alaska Native Village Indoor Air Quality Fact Sheet

Tribal External Links:

- Northern Plains Smoke-free Homes Campaign Community Toolkit EXIT Disclaimer

SOURCES

- Relevant Web Links:
  EPA Links:
  - Take the Care for Your Air Tour - Tour the IAQ House
  - An Introduction to Indoor Air Quality (IAQ): What Causes Indoor Air Problems?

ENVIRONMENTAL CONCENTRATIONS

No data are currently available here.

HUMAN EXPOSURES

No data are currently available here.

- Relevant Web Links:
  EPA Links:
  - Indoor Air Topics: Radon
  - Spray Polyurethane Foam (SPF) Insulation
  - Indoor Air Topics: Respirable Particles
  - Indoor Air Topics: Combustion Products
  - Indoor Air Topics: Asbestos
  - Indoor Air Topics: Formaldehyde (Pressed Wood Products)
  - Indoor Air Topics: Carbon Monoxide
  - Indoor Air Topics: Volatile Organic Compounds (VOCs)
  - Indoor Air Topics: Pesticides
  - Indoor Air Topics: Mold
  - Indoor Air Topics: Lead
  - Lead in Paint, Dust and Soil

HEALTH RISKS

No data are currently available here.

- Relevant Web Links:
  EPA Links:
  - Indoor Air Topics: Asthma
  - Indoor Air Pollution and Health
  - Private Wells: Human Health

  External Links:
  - NLM ToxTown EXIT Disclaimer

STRATEGIES IMPLEMENTED BY OTHER COMMUNITIES AND TRIBES

CARE Final Reports and Tribal Projects

Colorado: Groundwork Denver, Inc. (2005)

- Abstract | Final Report (124pp. 4MB. About PDF)

Montana: Montana Indian Country CARE Project, Rocky Mountain College (2006)

- Abstract | Final Report (74pp. 3.5MB. About PDF)

Michigan: Muskegon County Environmental Coordinating Council (2005)

- Abstract | Final Report (12pp. 94KB. About PDF)

New York: Center of Environmental Information, Rochester (2005)

- Abstract | Final Report (34pp. 934KB. About PDF)

Connecticut: New Haven City Government (2005)

LOCATION

- Local Washington, ME 04667

ISSUE

- Polycyclic aromatic hydrocarbons (PAHs)

GENERAL INFORMATION

- Relevant Web Links:
  EPA Links:
  - Technology Transfer Network Air Toxics Web Site | Health Effects Notebook: Polycyclic Organic Matter
  - Priority Persistent Bioaccumulative and Toxic (PBT) Profiles: Benzo(a)pyrene
  - Basic Information about Benzo(a)pyrene in Drinking Water

  External Links:
  - NTP 11th Report on Carcinogens Substance Profile: Polycyclic Aromatic Hydrocarbons (3pp. 214KB. About PDF) EXIT Disclaimer
  - ATSDR Toxic Substances Portal: Polycyclic Aromatic Hydrocarbons EXIT Disclaimer
  - NLM ToxTown: Polycyclic Aromatic Hydrocarbons EXIT Disclaimer
- For more information
  - EPA's Office of Water
  - EPA's Office of Air and Radiation

EXPOSURE AND RISK REDUCTION ACTIONS

- Relevant Web Links:
  Tribal EPA Links:
  - Reducing Backyard Burning in Indian Country
  - Tribal Leaders are Key to Reducing Backyard Burning

SOURCES

- Relevant Web Links:
  EPA Links:
  - Search TRIExplorer for Reports on Polycyclic Aromatic Compound Releases from Stationary Sources

  External Links:
  - Search ToxNet for Reports and Maps on Polycyclic Aromatic Compound Releases from Stationary Sources EXIT Disclaimer
  - NLM ToxTown: Polycyclic Aromatic Hydrocarbons EXIT Disclaimer

ENVIRONMENTAL CONCENTRATIONS

Quantitative data supplied by the 2005 National Air Toxics Assessment (outdoor sources only): Disclaimer

- Estimated Local average concentration = 0.02 µg/m³
  - estimated background concentration = 0 µg/m³
  - estimated contribution from major point sources = 0.0000006 µg/m³
  - estimated contribution from area and other sources = 0.02 µg/m³
  - estimated contribution from on-road mobile sources = 0.000004 µg/m³
  - estimated contribution from non-road mobile sources = 0.00006 µg/m³
- View map of Estimated Polycyclic aromatic hydrocarbons (PAHs) concentration.

Estimated Concentration

HUMAN EXPOSURES

Quantitative data supplied by the 2005 National Air Toxics Assessment (outdoor sources only): Disclaimer

HUMAN EXPOSURES

Quantitative data supplied by the 2005 National Air Toxics Assessment (outdoor sources only): Disclaimer

- Estimated Local average exposure concentration = 0.01 µg/m³
  - estimated background exposure concentration = 0 µg/m³
  - estimated contribution from major point sources = 0.0000004 µg/m³
  - estimated contribution from area and other sources = 0.01 µg/m³
  - estimated contribution from on-road mobile sources = 0.000004 µg/m³
  - estimated contribution from non-road mobile sources = 0.00003 µg/m³
- View map of Estimated Polycyclic aromatic hydrocarbons (PAHs) exposure concentration.
- Relevant Web Links:
  External Links:
  - CDC National Report on Human Exposure to Environmental Chemicals: PAHs Factsheet EXIT Disclaimer

Estimated Exposure Concentration

HEALTH RISKS

Quantitative data supplied by the 2005 National Air Toxics Assessment (outdoor sources only): Disclaimer

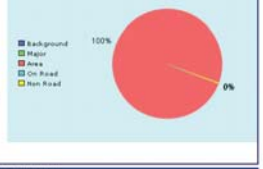
Cancer Risk

- Estimated Local lifetime Cancer Risk attribute from Polycyclic aromatic hydrocarbons (PAHs) = 1.2 in one million.
  - estimated contribution from background source = 0 in one million
  - estimated contribution from major point sources = 0.00004 in one million
  - estimated contribution from area and other sources = 1.2 in one million
  - estimated contribution from on-road mobile sources = 0.0004 in one million
  - estimated contribution from non-road mobile sources = 0.003 in one million
- View map of Estimated Polycyclic aromatic hydrocarbons (PAHs) Cancer Risk.
- Relevant Web Links:
  EPA Links:
  - Technology Transfer Network Air Toxics Web Site | Health Effects Notebook: Polycyclic Organic Matter
  - Integrated Risk Information System (IRIS): Benzo(a)pyrene

  External Links:
  - ATSDR Toxic Substances Portal: Polycyclic Aromatic Hydrocarbons EXIT Disclaimer

  Tribal EPA Links:
  - Reducing Backyard Burning in Indian Country

Estimated Cancer Risk



STRATEGIES IMPLEMENTED BY OTHER COMMUNITIES AND TRIBES

CARE Final Reports and Tribal Projects

Swinomish Tribal Community - Bioaccumulative Toxics in Native American Shellfish

- Abstract | Final Report

Community-based Air Toxics Project Database search - PAHs

Save this issue to PDF

U.S. ENVIRONMENTAL PROTECTION AGENCY

Tribal-Focused Exposure, Risk, and Sustainability Tool

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You are here: EPA Home » T-FERST » Consider/Identify Environmental Issues

T-FERST Home

USE T-FERST FOLLOWING COMMUNITY GUIDANCE

– OR –

SELECT INDIVIDUAL OPTIONS:

View Draft Tribal Data and Information Inventory

Consider/Identify Environmental Issues

Access Factsheets for Issues of Concern

Visualize Exposure / Risk-Related Maps

Generate Environmental Issue Profiles

Prioritize Your Tribe's Issues

Explore Potential Solutions

Access Other Community Tools

Provide Feedback / Contact US

About T-FERST

Consider/Identify Environmental Issues for Your Tribe

Click here to email comments on this page

Do you have any feedback on this page? Should any information be added or deleted?

View Tribal Science Priorities

- **Tribal Science Priorities**
  This links to a page of science topics identified by tribal representatives and EPA, including the National-EPA Tribal Science Council (TSC), as being important or of interest to tribes. It also links to a National Tribal Science Priorities document prepared by the TSC.

View Guidance Developed By Other Groups

- **EPA's CARE (Community Action for a Renewed Environment) Roadmap**
  Step 2, "Identify Community Concerns: Identify the environmental, health, and related social and economic concerns of the community," pp. 9-10.
- **NACCHO's PACE-EH (Protocol for Assessing Community Excellence in Environmental Health)**
  Task 5, "Generate a list of community-specific environmental health issues", p.24.
- **EPA's 2007 Cumulative Risk Guidance Document**
  Section 2.1, "Initiating Factors For Cumulative Risk Assessment", pp. 2-1 to 2-4.
- **EPA's 2004 Toolkit for Assessing Potential Allegations of Environmental Injustice**
  Phase 1, "Problem Formulation", pp. 58-63.

What are other communities concerned about?

- **EPA CARE Community Profiles**
  View all community projects undertaken through EPA's CARE Program, organized by year with links to descriptions of the projects.
- **EPA CARE Level 2 Solutions and Tribal Projects**
  Search EPA CARE Level 2 Solutions and Tribal Projects by issue.
- **EPA Environmental Justice Grant and Program Projects**
  View summary of EJ community projects being conducted through grants, cooperative agreements, and other programs.
- **EPA Community-based Air Toxics Projects**
  View reports on community-based air toxics projects (searchable by issue) and access other links to strategies on improving air quality.
- **EPA Case Studies in Local Source Water Protection**
  View examples of local source water protection programs compiled by EPA's Office of Ground Water and Drinking Water.

Learn about Environmental Issues

- **Access Federal Factsheets**
  Access Federal factsheets and web links organized by general information, sources, concentrations and exposures, risk and effects, and risk reduction categories.
- **Environmental Issues Categorizes by Resource**
  View a table of issues categorized by EPA reports and community documents.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Tribal-Focused Exposure, Risk, and Sustainability Tool

Recent Additions | Contact Us Search: All EPA This Area Go

You are here: EPA Home » T-FERST » Prioritize Your Tribe's Issues

T-FERST Home

USE T-FERST FOLLOWING COMMUNITY GUIDANCE

-- OR --

SELECT INDIVIDUAL OPTIONS:

- View Draft Tribal Data and Information Inventory
- Consider/Identify Environmental Issues
- Access Factsheets for Issues of Concern
- Visualize Exposure / Risk-Related Maps
- Generate Environmental Issue Profiles
- Prioritize Your Tribe's Issues
- Explore Potential Solutions

Access Other Community Tools

Provide Feedback / Contact US

About T-FERST

Prioritize Your Tribe's Issues

Click here to email comments on this page

View Your Tribe's Data Table

* City is still under development.

How can the tribal data table be improved?

	State	County	City *	Zip Code
Your Tribe	- Select State -	- Select County -	- Select City -	04667

You may also specify reference community(ies); however, note that differences from one community to another do not necessarily mean that those are the most important issues for public health impact. For example, one issue can have a much greater health impact than another issue in the table for a given community

	State	County	City *	Zip Code
Reference Area (optional)	- Select State -	- Select County -	- Select City -	04668
Reference Area (optional)	- Select State -	- Select County -	- Select City -	

Generate Tribal Data Table Export to Excel *

* You can export your Tribal Data Table to Excel for entering your own additional issues/indicators, local data for these issues, and weighting factors

Access examples of risk ranking approaches

Below are links to resources for ranking the relative exposures and risks associated with different environmental issues. Inclusion of these in T-FERST does not necessarily imply endorsement of their use.

Are there examples of tribal risk ranking approaches that could be included here?

- NACCHO's Protocol for Assessing Community Excellence in Environmental Health (PACE-EH) (PDF) (11Lep. 96KB, About PDF) EXIT Disclaimer
  Task 10, "Rank The Issues", pp50-56.
- CARE Detroit Best Practices
- CARE Pueblo Best Practices

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https://cfpub.epa.gov/tferst/Prioritize.cfm

Print As-Is

Last updated on Wednesday, June 15, 2011

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1 / 3 100% Find

T-FERST | Community Data Table | Export to Excel Page 1 of 3

Data Metrics	Your Community 04667	National Average	Standard *	Data Info/Notes *	Reference Community 04668
Sources of Stress Placed on the Community (Vulnerability Indicators)					
Proximity/density of regulated facilities (under development)					
Traffic Density (under development)					
# current and past permit exceedances by regulated facilities (under development)					
# or extent of non-point sources of pollution (under development)					
% domestic well water use (under development)					
Environmental Concentration Estimates (pg/m^3)					
Outdoor Air - Acetaldehyde	0.8	1.9			0.9
Outdoor Air - Acrolein[2]	0.007	0.05			0.004
Outdoor Air - Arsenic	0.0001	0.0006			0.0001
Outdoor Air - Benzene	0.4	1.06			0.4
Outdoor Air - Butadiene	0.03	0.07			0.03
Outdoor Air - Chromium	0.00005	0.0009			0.00004
Outdoor Air - Diesel PM	0.007	0.9			0.008
Outdoor Air - Formaldehyde	0.6	2.09			0.7
Outdoor Air - Lead	0.0007	0.002	1.5 pg/m^3 (Quarterly Avg)		0.0005
Outdoor Air - Naphthalene	0.008	0.07			0.004
Outdoor Air - PAH	0.02	0.02			0.005
Outdoor Air - Fine Particulates (PM2.5) (under development)					
Outdoor Air - Ozone (under development)			0.075ppm (2008 std) 0.08ppm (1997 std)		
Outdoor Air - Near-Roadway (EPA Research Underway)					
Indoor Air - Radon (EPA Research Underway)					
Indoor Air - ETS (EPA Research Underway)					
Drinking Water - Arsenic (EPA Research Underway)					
Food - Methyl Mercury in Fish Consumption (EPA Research Underway)					
Human Exposure Estimates (pg/m^3)					
Outdoor Air - Acetaldehyde	0.6	1.5			0.7
Outdoor Air - Acrolein[2]	0.003	0.03			0.002
Outdoor Air - Arsenic	0.00007	0.0003			0.00007
Outdoor Air - Benzene	0.3	0.9			0.3
Outdoor Air - Butadiene	0.01	0.06			0.01
Outdoor Air - Chromium	0.00004	0.0008			0.00004
Outdoor Air - Diesel PM	0.004	0.5			0.006

---

2 / 3 100% Find

T-FERST | Community Data Table | Export to Excel Page 2 of 3

Data Metrics	Your Community 04667	National Average	Standard *	Data Info/Notes *	Reference Community 04668
Outdoor Air - Formaldehyde	0.5	1.7			0.5
Outdoor Air - Lead	0.0003	0.001			0.0003
Outdoor Air - Naphthalene	0.007	0.07			0.003
Outdoor Air - PAH	0.01	0.01			0.002
Outdoor Air - Near-Roadway (EPA Research Underway)					
Indoor Air - Radon (EPA Research Underway)					
Indoor Air - ETS (EPA Research Underway)					
Drinking Water - Arsenic (EPA Research Underway)					
Food - Methyl Mercury in Fish Consumption (EPA Research Underway)					
Multimedia- Childhood Lead Exposure					
Multimedia - Residential Pesticide Exposure					
Health Risk Estimates (in One Million)					
Cumulative Air Toxics Cancer Risk	15.7	49.8			15.6
Cumulative Air Toxics Non-Cancer Respiratory Risk (Hazard Quotient)	0.3	2.3			0.3
Cumulative Air Toxics Non-Cancer Neurological Risk (Hazard Quotient)	0.02	0.06			0.02
Outdoor Air - Acetaldehyde	1.4	3.3			1.6
Outdoor Air - Acrolein[2]	0	0			0
Outdoor Air - Arsenic	0.3	1.3			0.3
Outdoor Air - Benzene	2.2	7.4			2.2
Outdoor Air - Butadiene	0.4	1.9			0.4
Outdoor Air - Chromium	0.09	1.4			0.1
Outdoor Air - Diesel PM	0	0			0
Outdoor Air - Formaldehyde	6.3	22.5			7.03
Outdoor Air - Lead	0	0			0
Outdoor Air - Naphthalene	0.2	2.3			0.1
Outdoor Air - PAH	1.2	1.5			0.3
Outdoor Air - Near-Roadway (EPA Research Underway)					
Indoor Air - Radon (EPA Research Underway)					
Indoor Air - ETS (EPA Research Underway)					
Drinking Water - Arsenic (EPA Research Underway)					
Food - Methyl Mercury in Fish Consumption (EPA Research Underway)					
Cumulative Health Risk: Long Cancer (EPA Research Underway)					
Cumulative Health Risk: Asthma (EPA Research Underway)					
Cumulative Health Risk: Early neurotoxicity effects (EPA Research Underway)					
Health Content Areas (under development)					
Asthma				https://cnxkiss.publichealth.emiss.gov/	
Birth Defects				https://cnxkiss.publichealth.emiss.gov/	

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3 / 3 100% Find

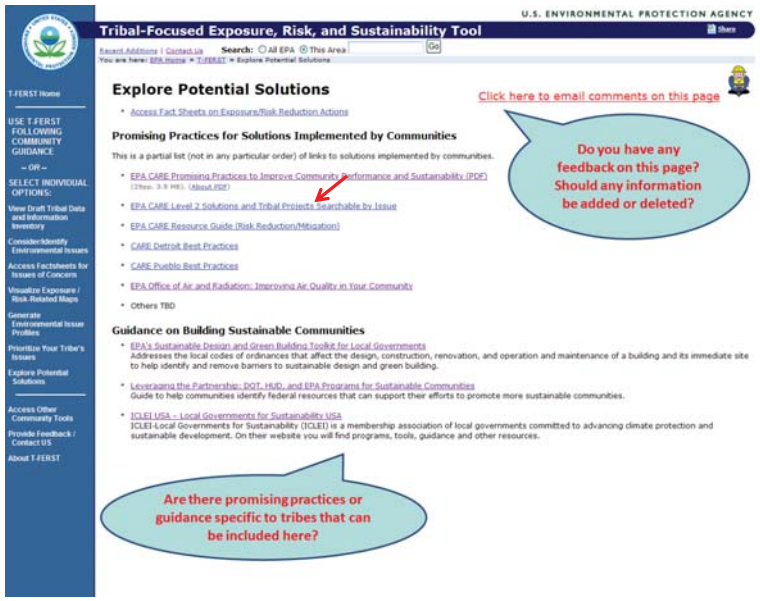
T-FERST | Community Data Table | Export to Excel Page 3 of 3

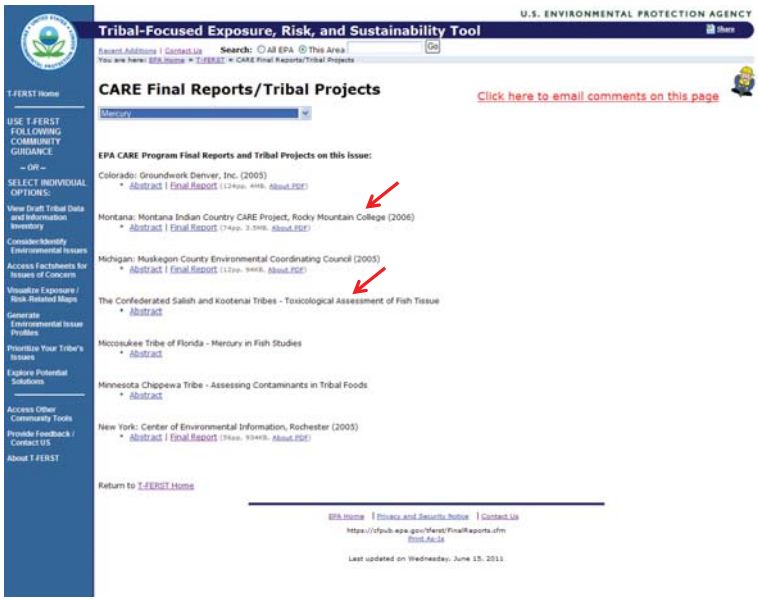
Data Metrics	Your Community 04667	National Average	Standard *	Data Info/Notes *	Reference Community 04668
Cancer				https://cnxkiss.publichealth.emiss.gov/	
Childhood Cancer				https://cnxkiss.publichealth.emiss.gov/	
Carbon Monoxide Poisoning				https://cnxkiss.publichealth.emiss.gov/	
Childhood Lead Poisoning				https://cnxkiss.publichealth.emiss.gov/	
Heart Attack				https://cnxkiss.publichealth.emiss.gov/	
Reproductive and Birth Outcomes				https://cnxkiss.publichealth.emiss.gov/	
Demographic, Social and Economic Indicators *					
% Minority	6.9	31.8			6.9
% Below Poverty Level	19.02	12.5			19.02
% Less than Age 6 years	6.2	8.2			6.2
% Less than 18 Years	22.9	25.6			22.9
% > 64 years	17.3	12.4			17.3
% >= 25 years with less than a B.S. degree	41.9	28.6			41.9
% Housing Units Built Before 1950	38.04	22.08			38.04
% Linguistically Isolated Households	0.03	1.8			0.03
% Population American Indian and Alaskan Native	4.08	0.9			4.08
% Population American Indian and Alaskan Native below poverty	1.3	0.2			1.3

* For ZIP Code selections, county-level demographics are displayed. ZIP Code-level demographic data are being developed.

[1] Under development

[2] Note: 2005 NATA Acrolein estimates in southern CA have been revised since development of the T-FERST database/maps, and they will be updated in a future version of T-FERST. The most current data are available on the 2005 NATA website.

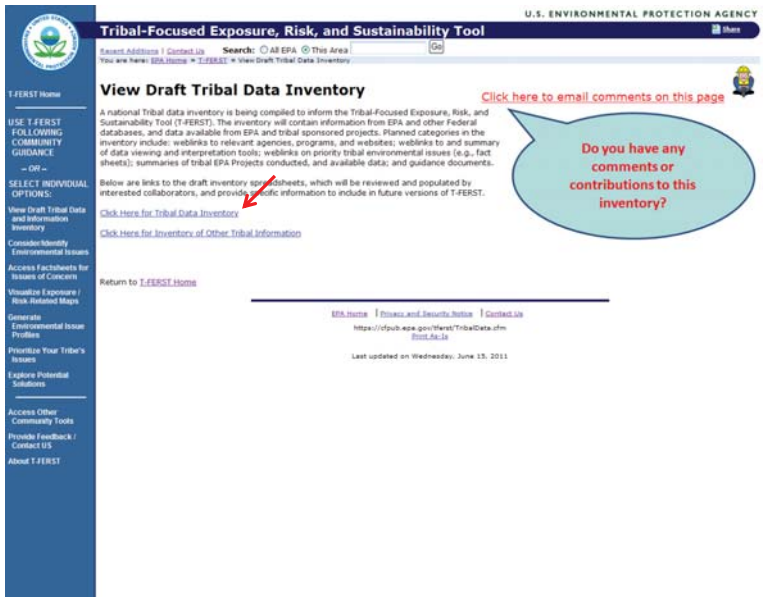




Planned Products of T-FERST Project

Draft T-FERST Tribal Data Inventory

- National tribal data inventory being compiled by EPA OCSPP and ORD
  - EPA and other Federal databases
  - data available from EPA tribal projects
- Categories
  - weblinks to agencies, programs, websites
  - weblinks to and summary of data viewing and interpretation tools
  - weblinks on priority tribal environmental issues (e.g., fact sheets)
  - summaries on tribal EPA Projects conducted, and available data
  - guidance documents
- Information compiled can be discussed, considered, and collected for inclusion in T-FERST


U.S. ENVIRONMENTAL PROTECTION AGENCY
Tribal-Focused Exposure, Risk, and Sustainability Tool
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USE T-FERST FOLLOWING COMMUNITY GUIDANCE
-- OR --
SELECT INDIVIDUAL OPTIONS:
View Draft Tribal Data and Information Inventory
Consider/Identify Environmental Issues
Access Factsheets for Issues of Concern
Visualize Exposure / Risk-Related Maps
Generate Environmental Issue Profiles
Prioritize Your Tribe's Issues
Explore Potential Solutions
Access Other Community Tools
Provide Feedback / Contact US
About T-FERST
View Draft Tribal Data Inventory
Click here to email comments on this page
A national Tribal data inventory is being compiled to inform the Tribal-Focused Exposure, Risk, and Sustainability Tool (T-FERST). The inventory will contain information from EPA and other Federal databases, and data available from EPA and tribal sponsored projects. Planned categories in the inventory include: weblinks to relevant agencies, programs, and websites; weblinks to and summary of data viewing and interpretation tools; weblinks on priority tribal environmental issues (e.g., fact sheets); summaries of tribal EPA Projects conducted, and available data; and guidance documents.
Below are links to the draft inventory spreadsheets, which will be reviewed and populated by interested collaborators, and provide specific information to include in future versions of T-FERST.
Click Here for Tribal Data Inventory
Click Here for Inventory of Other Tribal Information
Do you have any comments or contributions to this inventory?
Return to T-FERST Home
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https://cfpub.epa.gov/tferst/TribalData.cfm
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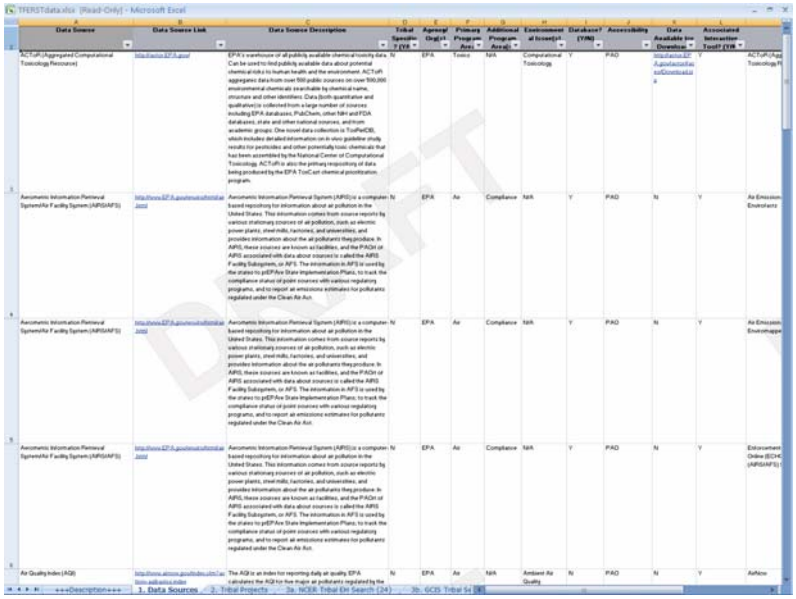
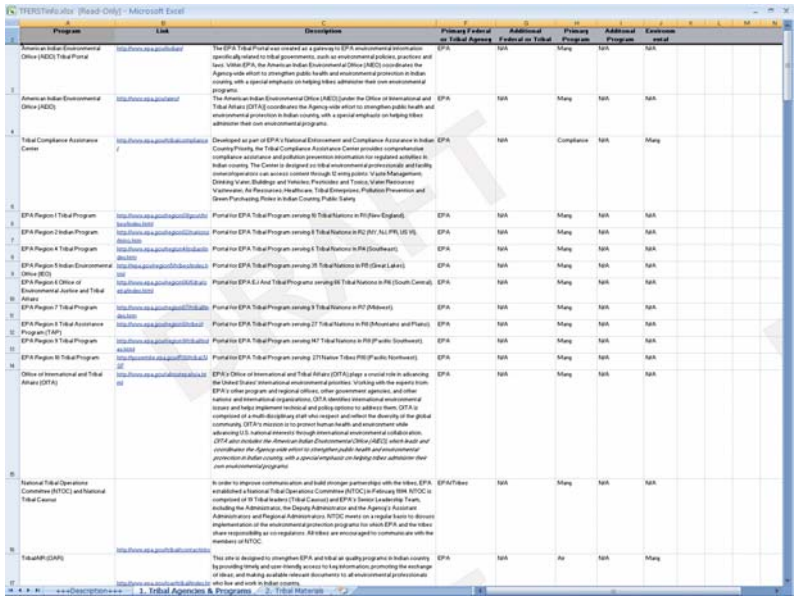
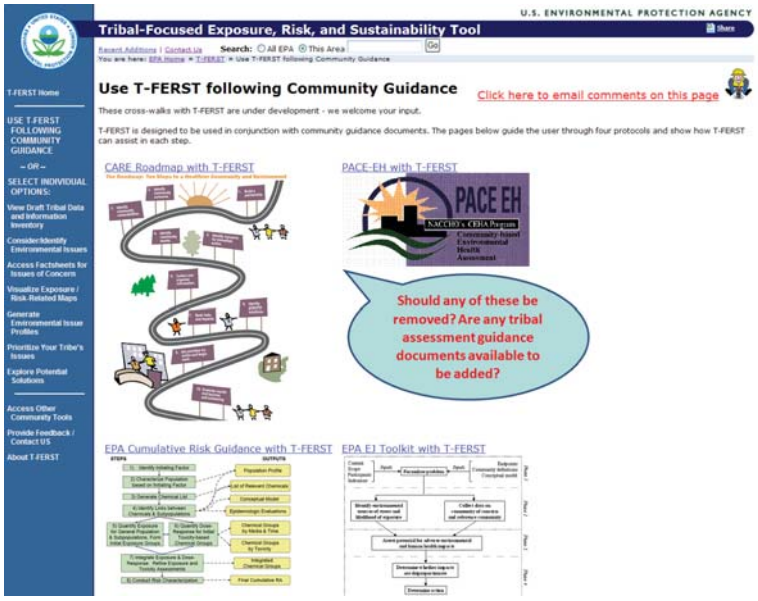

TFERSTdata.xlsx [Read-Only] - Microsoft Excel
Data Source
Data Source Link
Data Source Description
Tribal Specific? (Y/N)
Agency Org(s)
Primary Program Area
Additional Program Area(s)
Environmental Issue(s)
Database? (Y/N)
Accessibility
Data Available for Download
Associated Interactive Tool? (Y/N)
ACToR (Aggregated Computational Toxicology Resource)
Aerometric Information Retrieval System/Air Facility System (AIRS/AFS)
Air Quality Index (AQI)
1. Data Sources
2. Tribal Projects
3a. NCER Tribal EH Search (24)
3b. GCS Tribal Sc


TFERSTinfo.xlsx [Read-Only] - Microsoft Excel
Program
Link
Description
Primary Federal or Tribal Agency
Additional Federal or Tribal
Primary Program
Additional Program
Environmental
American Indian Environmental Office (AIEO) Tribal Portal
American Indian Environmental Office (AIEO)
Tribal Compliance Assistance Center
EPA Region 1 Tribal Program
EPA Region 2 Indian Program
EPA Region 4 Tribal Program
EPA Region 5 Indian Environmental Office (IEO)
EPA Region 6 Office of Environmental Justice and Tribal Affairs
EPA Region 7 Tribal Program
EPA Region 8 Tribal Assistance Program (TAP)
EPA Region 9 Tribal Program
EPA Region 10 Tribal Program
Office of International and Tribal Affairs (OITA)
National Tribal Operations Committee (NTOC) and National Tribal Caucus
TribalAPI (OAPI)
1. Tribal Agencies & Programs
2. Tribal Materials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T-FERST Home
USE T-FERST FOLLOWING COMMUNITY GUIDANCE
-- OR --
SELECT INDIVIDUAL OPTIONS:
View Draft Tribal Data and Information Inventory
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Access Factsheets for Issues of Concern
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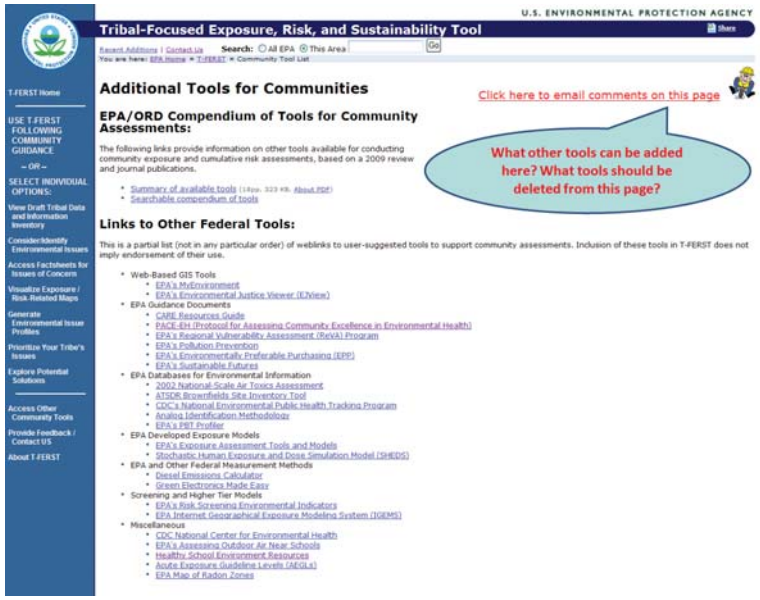
Generate Environmental Issue Profiles
Prioritize Your Tribe's Issues
Explore Potential Solutions
Access Other Community Tools
Provide Feedback / Contact US
About T-FERST
Use T-FERST following Community Guidance
Click here to email comments on this page
These cross-walks with T-FERST are under development - we welcome your input.
T-FERST is designed to be used in conjunction with community guidance documents. The pages below guide the user through four protocols and show how T-FERST can assist in each step.
CARE Roadmap with T-FERST
PACE-EH with T-FERST
PACE EH
NACCHO + CEHA Program
Community-based Environmental Health Assessment
Should any of these be removed? Are any tribal assessment guidance documents available to be added?
EPA Cumulative Risk Guidance with T-FERST
EPA EJ Toolkit with T-FERST



Next Steps for T-FERST "Front-End" Design

- Provide T-FERST url to all interested partners and stakeholders: https://cfpub.epa.gov/tferst
- Provide information on how interested tribes and partners can provide feedback on general and specific aspects of T-FERST
- Compile all comments in fall 2011, and discuss them with interested partners
- Make changes to T-FERST based on feedback, with available resources

Next Steps for T-FERST Data and Information

- Solicit broad input on national tribal data inventory
- Assess what information resources and data from inventory are available for inclusion in T-FERST
- Compile and conduct research for priority tribal issues, and to support initial pilot(s)
- Populate the T-FERST database and geospatial maps

Project Timeline

- June 2011: T-FERST prototype presented at annual TSC mtg; tribes will have access to provide feedback on tool design, mapping, and information needs; status and next steps for PPP pilot (Phase 1) project will be discussed
- September 2011: feedback from stakeholders and partners will be compiled and prioritized (based on available resources) to plan version 1; progress on Phase 1 pilot will continue
- June 2012: Phase 1 pilot and progress toward T-FERST version 1 will be presented at annual Tribal Science Forum; Phase 2 pilot(s) will be discussed, based on available resources
- September 2012: feedback from Phase 2 pilot(s) will be incorporated; T-FERST version 1 will be completed
- June 2013: Phase 2 pilot(s) and progress toward T-FERST version 2 will be presented at annual Tribal Science Forum or other key tribal meetings
- September 2013: feedback from pilots will be incorporated; T-FERST version 2 will be completed; future versions and tribal applications of T-FERST will be discussed

Acknowledgments

- Passamaquoddy pilot collaborators and USET
- EPA National Tribal Science Council
- EPA T-FERST Development Team
  - Office of Research and Development (e.g., NERL, OSP)
  - Region 1 GIS and IT team
  - Office of Chemical Safety and Pollution Prevention (OCSPP)
  - National Computing Center
  - Contractors through EPA/NCC and EPA/ORD

Disclaimer

Although this work was reviewed by EPA and approved for presentation, it may not necessarily reflect official Agency policy.

Background

- Tribes face unique environmental challenges, and seek accessible tools for assessing issues, data, and solutions
- T-FERST concept originated from discussions at tribal session of 2009 EPA cumulative risk workshop, and ORD's C-FERST (www.epa.gov/heasd/c-ferst)

Aligning EPA Research & Needs To Advance the Science & Practice of Cumulative Risk Assessment

• Tribal-specific sampling strategies	• Representative dietary data collection
• Physical and spiritual health	• Relevant exposure pathways
• Relevant activity data	• Critical ecological services

Background (cont'd)

- EPA proposed idea for collaborative T-FERST project at multiple mtgs, e.g.:
  - 6/2010 National EPA Tribal Science Forum
  - 9/2010 cross-EPA meeting to discuss interest in T-FERST
  - 10/2010 United South and Eastern Tribes (USET) conference
  - 2/2011 Impact Week USET workshop
- Multiple tribes and other agencies (HUD, USGS) have expressed support and interest in collaborating with EPA on T-FERST development and application
- Initial T-FERST pilot project underway with Passamaquoddy Pleasant Point ME tribe, matching EPA science to the tribe's priority environmental issues
- T-FERST is part of EPA/ORD's Sustainable and Healthy Communities Research Program, and supported initially by EPA/OCSPP and Region 1

Initial Pilot Approach

- Elicit tribal environmental issues and questions of concern; identify indicators of interest and available data sources
  - What local data are available for priority issues?
  - What EPA and other databases are available for priority issues?
  - What information can be used to support the Passamaquoddy pilot, and what information can go in T-FERST?
- Assess needs and options for data collection, analysis, modeling, mapping, research
  - What data can be shared in a publically-accessible Web-based decision tool, and what data should not be shared?
  - What research or science (human health and ecological) is needed to fill in gaps for issues of concern?
  - How can sustainability methods be incorporated? linkage w/ U-VC efforts?

Initial Pilot Approach

- Collaboratively design, populate, and pilot the T-FERST prototype to support the tribe's needs
  - What should the user interface look like? How to revised the prototype T-FERST interface based on tribal input?
  - How can we populate the tool with relevant tribal-specific data, weblinks, fact sheets, data, maps, guidance, best practices, other information (considering confidentiality)?
  - How can we develop and apply T-FERST to answer questions of interest to the tribe?
- Generate T-FERST reports and communicate findings
  - How to best provide results and convey accessible information to answer questions of interest for priority tribal environmental issues?
  - How to refine the tool and assess lessons learned for future pilots?

Houlton Band of Maliseet Indians

And

Successes / Challenges

Environmental Issues We Don't Have

Not operating our own *landfill*,

wastewater treatment plant, or

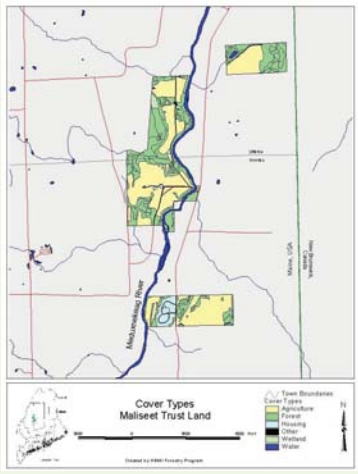
public drinking water system

No: *underground storage tanks*

industrial air or water emissions

Superfund or Brownfield sites

Don't *generate toxic waste*



Environmental Challenges

- **Water quality** - *nutrients, algae, bacteria, sediment, pesticides, low DO*
- **Air quality -** *pesticide drift, aerial deposition, localized PM*
- **Indoor air quality** - *lead, asbestos, radon, mold, CO*
- **toxins in wild & locally grown foods** - *DDT, Dioxin, heavy metals.*
- **Oil, gasoline, antifreeze, etc. & small amounts of laboratory chemicals**
- **Old farm dumps/waste**
- **Reducing household waste**

Natural Resources Department

5 member team/4 Programs

Real Estate *(Director, Grants & Contracts Administration)*

Forestry/Natural Resources *(NPS management, toxics monitoring, wetlands)*

Water Resources *(monitors watershed surface water & tribal groundwater, NPS, wetlands)*

Environmental Planning *(capacity building through grant writing, program & partnership development)*

Natural Resources Department

"Environmental Presence"

Mission: *"To sustain and manage HBMI's natural resources for the continuing benefit of Maliseet human, cultural and ecosystem health."*

Respond to governmental/ membership concerns and pollution events re:

- drinking water
- indoor air quality
- safety of wild & locally grown foods
- oil spills
- legacy contamination from injection well
- proposed local landfill
- pesticide drift
- land spreading of contaminated soil
- Energy efficiency/alternative energy

Partnering to Protect Tribal Resources in a Watershed Context

- Become a model land owner
- Communicate our land management successes
- Collect and share environmental data
- Work with the watershed community
- Bring financial resources to watershed-level protection/management activities

HBMI – A Model Landowner

NRCS EQIP $ – installation

EPA CWA 319 $ - maintenance

Water Quality Monitoring

Monitoring pH, temp., E. coli, conductivity, turbidity, algae, nitrogen & phosphorus

BIA, EPA, ANA

Collecting and Sharing Environmental Data

- Document water quality problems
- Advocate for stronger water quality standards
- Demonstrate need for stricter discharge limits
- Support higher water quality classification

Working with the Watershed Community

Bringing financial resources to the watershed

$868,835 over 20 years

- **$41,000 Pollution Prevention** *(road construction and maintenance workshop; forest management and harvesting practices workshop; cattle exclusion and watering demonstration project)*
- **$19,500 IEGAP** *(manure management survey)*
- **$569,449 Targeted Watershed Initiative** *(agricultural conservation practices/illicit sewer connections removal)*
- **$238,886 Competitive CWA 319** *(storm water management project at local Civic Center, Pearce Brook watershed-based plan and storm water management project)*

PARTNERSHIPS

Tribes

University of Maine System

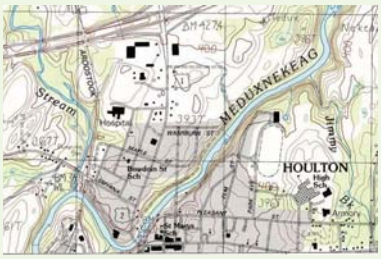
HBMI Housing Authority

HBMI Health Dept

Adult Literacy Coalition

Alternative Grazing and Watering Demonstration Project – Pollution Prevention $

Erosion Control Project at Municipal Civic Center - CWA319 $



Winter Cover Project – Targeted Watershed $

Pearce Brook Watershed Based Plan & Stormwater BMPs

Water Quality Problems

Sediment from eroding stream banks, road ditches, sidewalks, driveways, and bridge embankments.

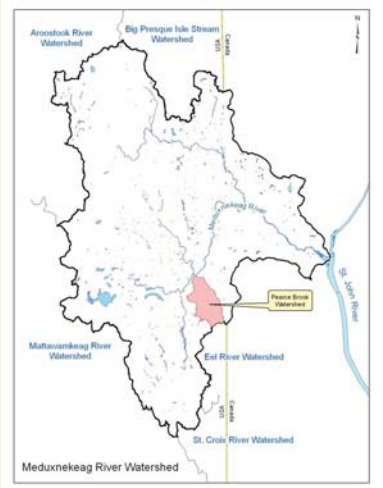
Conductivity (a measure of pollutant load) exceeds the range of all other tributaries in the Meduxnekeag except Jimmy Brook, and increases dramatically after Pearce flows through its urbanized stretch.

Bacteria above natural background levels, and commonly exceed state standards.- found at high levels in storm drains.

Dissolved Oxygen impairments in the lower watershed.

Aquatic Invertebrates at Class B levels, other tributaries attain a higher standard (Class A).

Fuel Contamination a historical legacy of over 30 underground gas/fuel storage tanks.



Research & Assessment

Sediment Study (Pesticides & Nutrients)

Bacterial Source Tracking

Storm Event Nutrient & Sediment Loading

Toxins in fish, locally grown meat/game & sediment (Dioxin, DDT, Hg, et.al)

HBMI PLANT MATERIALS CENTER - *ongoing*

Streamco Willow, Bankers Willow, Red Osier Dogwood

Aquatic Habitat Study

1) bank height, stability and composition
2) grade controls (e.g. culverts & waterfalls)
3) channel reach morphology (pool-riffle, step-pool, etc)

Wolastoqewiyik
"People of the Beautiful, Flowing River"

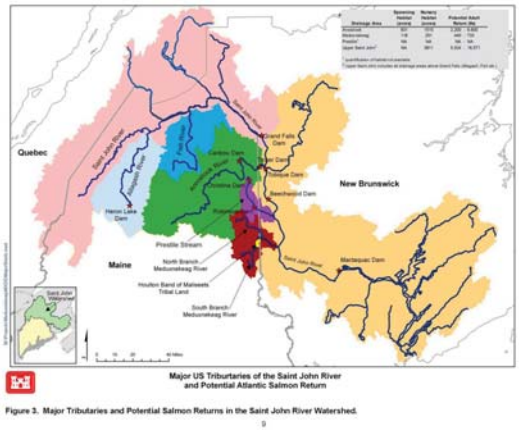


Figure 3. Major Tributaries and Potential Salmon Returns in the Saint John River Watershed.

9

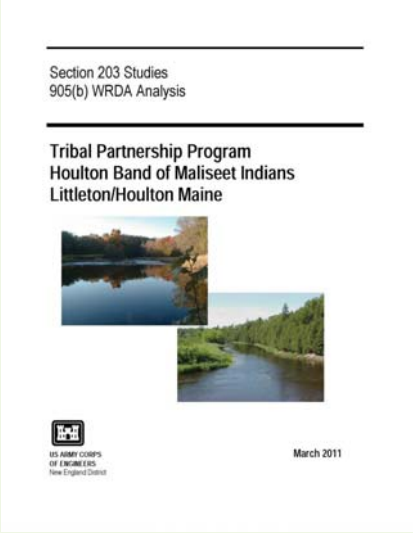
The MNCC (Maliseet Nation Conservation Council), formed in 2004, represents the Maliseet First Nation communities located along the Saint John River watershed in New Brunswick, Canada. The Maliseet traditional territory extends into Quebec, the State of Maine, USA, and on to the Bay of Fundy. Dedicated to conservation and increasing the involvement of Maliseet First Nations people in the co-management of resources located in our traditional territory, the MNCC has its head office in Fredericton, located at 150 Cliffe Street at the Kchikhusis Commercial Centre on the Saint Mary`s First Nation. The MNCC is now entering its collaborative management phase and plans to offer several programs in 2008.

VISION STATEMENT

Our vision is that MNCC will be a strong, responsible, well organized, resourceful, accountable and sustainable organization comprised of strong Wolustoq communities that support and practice Wolustgiyik values and help make our vision a reality.

WHO IS MNCC?

- MNCC IS made up of six MALISEET FIRST NATION communities in NEW BRUNSWICK.
- MNCC is a non-profit corporation conservation council promoting conservation and management of our natural resources.
- MNCC entered a co-management agreement with DFO in August 1, 2007.
- MNCC co-manages the ST. JOHN RIVER watershed with DFO.



Section 203 Studies
905(b) WRDA Analysis

Tribal Partnership Program
Houlton Band of Maliseet Indians
Littleton/Houlton Maine

US ARMY CORPS OF ENGINEERS
New England District

March 2011

Restoration and Protection of the Meduxnekeag and the larger Saint John River.

Study Focus:

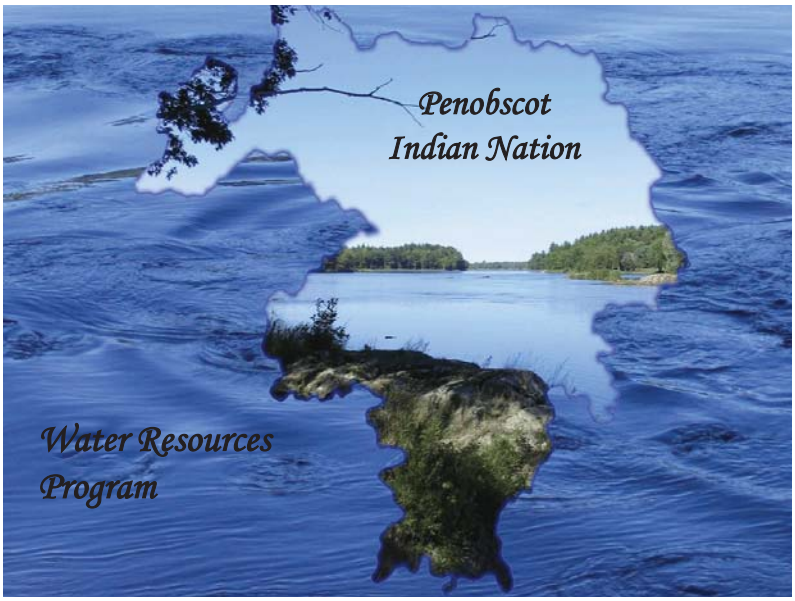
1) a trans-border Saint John River watershed plan;
2) feasibility study of diadromous fish restoration alternatives in the Medux;
3) establishing a SJR Board within the IJC.

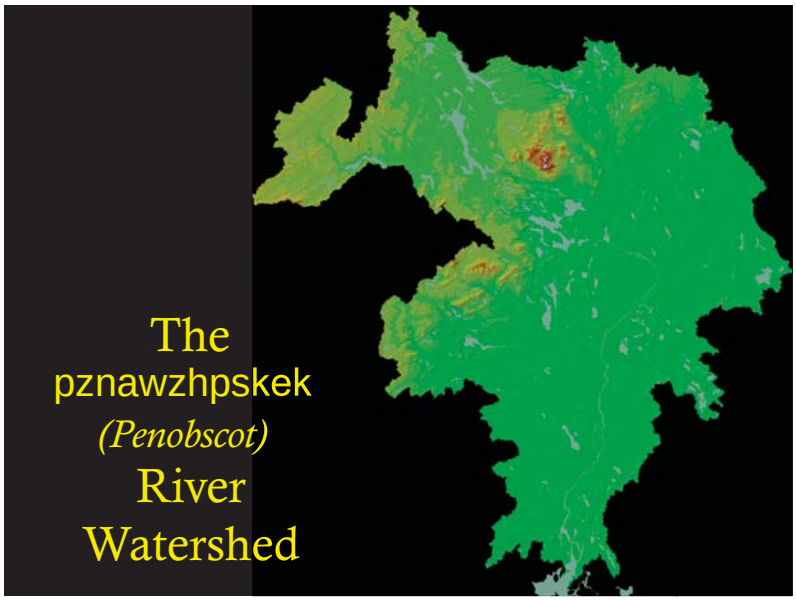
Initial Feasibility Screening Results:

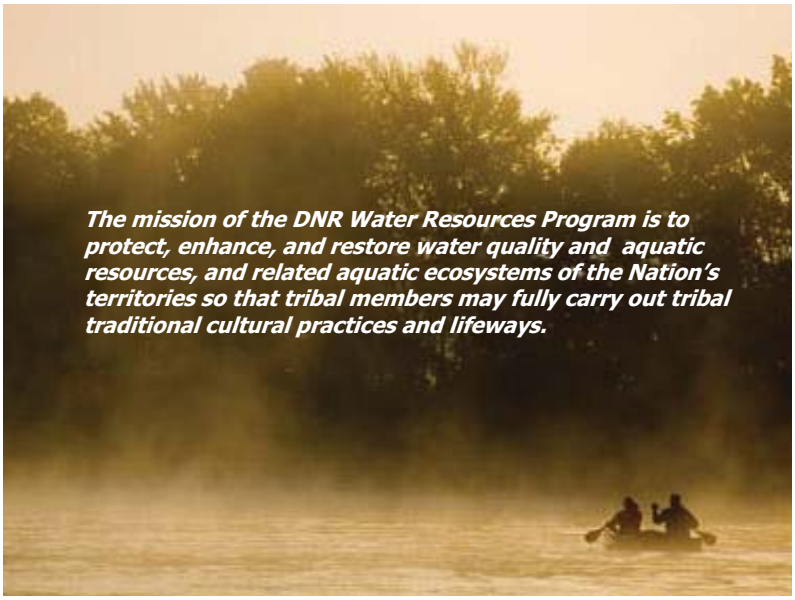
- fish hatchery and/or rearing facility
- Partner with the Atlantic Salmon for Northern Maine hatchery
- streamside incubation
- instream egg planting/incubation
- SJR Board or committee
- a trans-border watershed management plan

Future Plans

- Implementing Pearce Brook's Watershed-Based Plan
- NPS BMPs for Smith Brook
- Aquatic Habitat Restoration in the Meduxnekeag
- Culvert Replacement at the outlet of Moose Brook
- Encouraging additional Riparian Buffer Planting
- Watershed Modeling – what will Climate Change bring?
- Implementing our Village Environmental Landscape Plan
- Understanding groundwater influences on Meduxnekeag Impairment
- Biochar Investigations: reducing erosion and groundwater contamination, opportunity for carbon sequestration







BASELINE WATER QUALITY MONITORING

WEEKLY

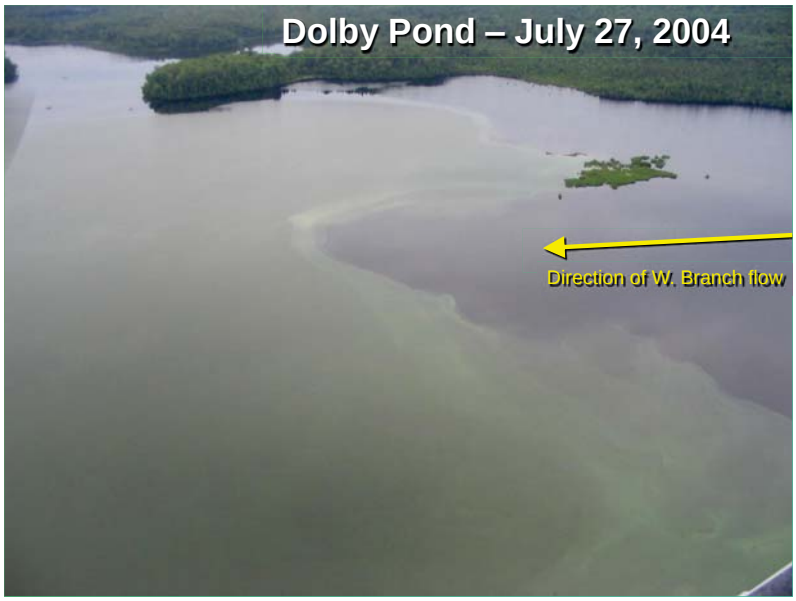
- 87 river sites on the main stem of Penobscot and East & West Branches
- 30 sites on tributaries

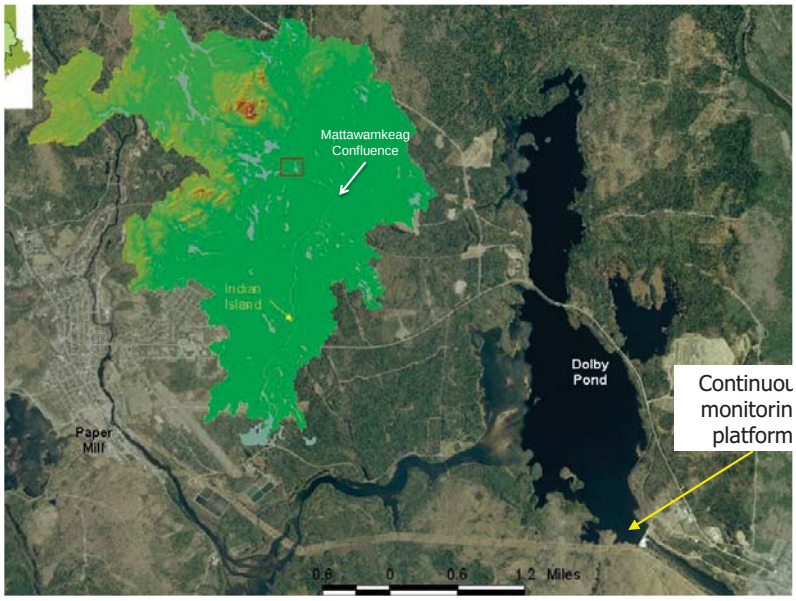
SITES SELECTED

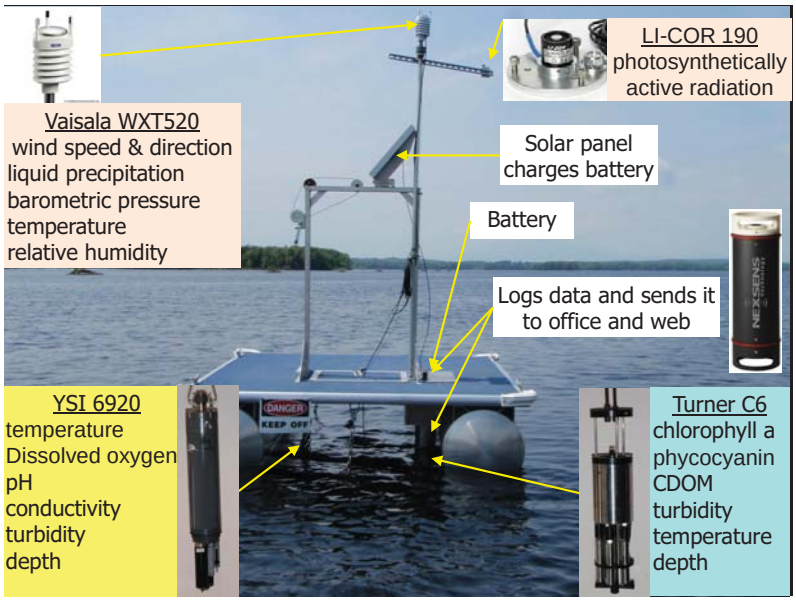
- "Clean/healthy" reference conditions
- Industrial & municipal dischargers (for example; paper mills and sewage treatment plants)
- Dam impoundments
- Non-point sources of pollution (for example; farm fields)

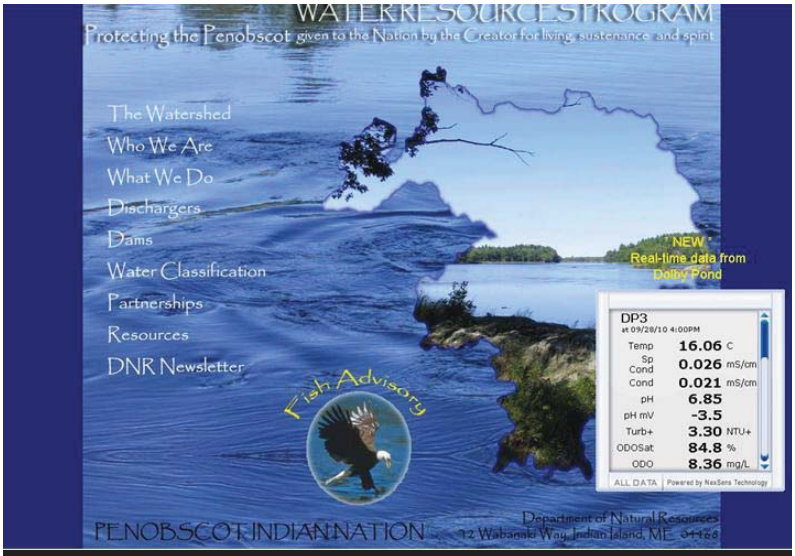
Cyanobacteria Blooms

- Have been getting worse over past 12 years
- Worst problems in 2001, 2004 and 2007
- Species present were known toxin producers



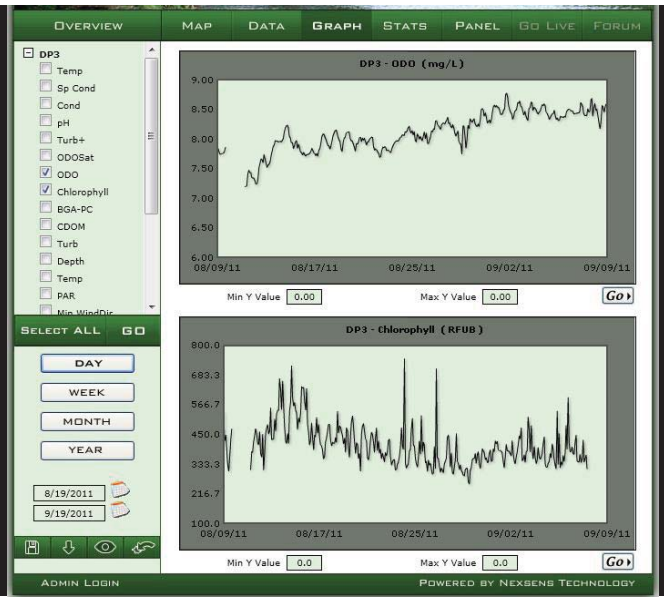






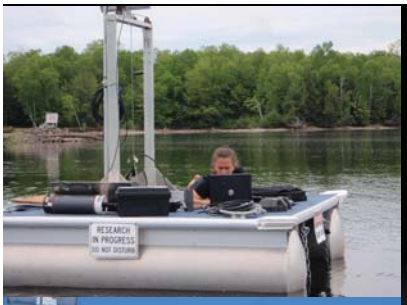
www.penobscotnation.org/DNR/Water/wrhome.html

v4.wqdata.com/webdblink/Penobscot.php



Other efforts:

1. Concurrent collection of location, depth and all water quality parameters - surface and at depth - using Streamline GEO (www.riocean.com/slgeo.php)
2. Determine the area of sediments that experience low oxygen waters and potentially provide a source of phosphorus through recycling
3. More frequent sampling for total phosphorus, soluble reactive phosphorus and chlorophyll a using a submersible automatic sampler
4. Developing in-house skills for analyzing chlorophyll a and P

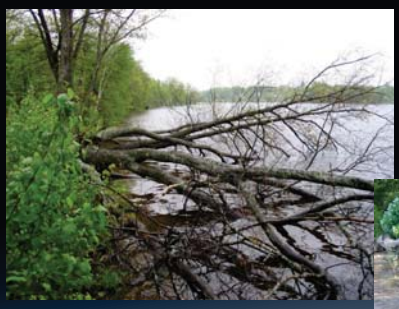


Challenges

- Reliable and affordable technical assistance with:
  - Determining the appropriate correlation/validation sample collection and analyses
  - Developing lab skills
  - Data interpretation

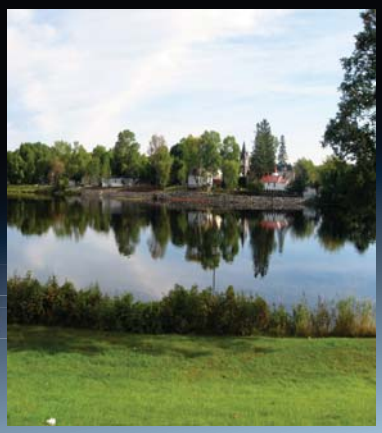
CWA Section 319 - NPS

FY2011 319 Competitive Grant - Indian Island



Riverbank erosion on Indian Island

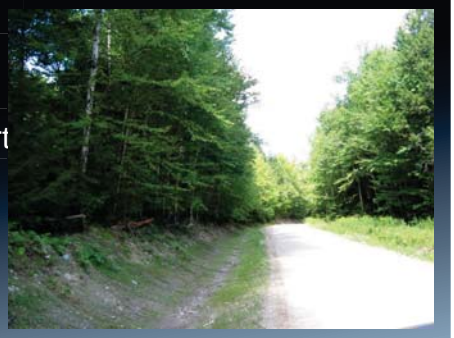
- Originally identified 11,200 ft. of eroding riverbank
- To date 2,300 ft. have been stabilized
- 1,600 ft. stabilized with CWA 319 funds
- 700 ft. stabilized through a FERC license agreement with a downstream dam owner



Past 319 Competitive NPS projects: T3R1 Bridge

T2R9 Road work

- Installed 2 miles of ditching
- Replaced 14 culvert



Highway Crew Training

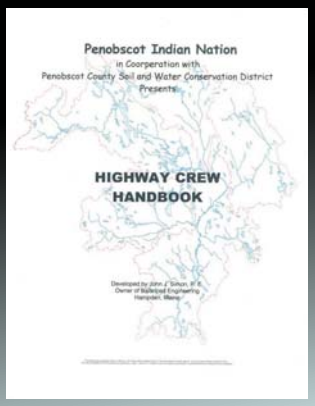
- 3 day training session (free!)
- For municipal road crews in Penobscot watershed (affecting Reservation waters)
- Engineering for non-engineers
- Culvert issues and designs
- Road ditch issues and designs
- Road slope stabilization methods and designs
- Road turnouts and buffers

Highway Crew Training (cont.)

- Hands on learning
- Participants work in teams to:
  - analyze watershed size
  - design for erosion control by selecting appropriately sized culverts, and determining ditch and stabilization methods.
- Participants receive a certificate of completion as well as 6 continuing ed credits from the State of Maine NPS learning center.

Highway Crew Training

- 2 trainings
- Trained 13 crew members
- 6 towns and Penobscot Nation road crew staff



Flow Devices – aka Beaver Deceivers

- Protect water quality
- Prevent road washouts - $
- Maintain wetland habitat/function
- Low maintenance

PIN Node WQ data exchanges

- Successful submission to EPA WQX (July 2011)
- Test submission w/ USET node (TPA b/4 final)
- Test submission to ME DEP (TPA b/4 final)
  - Mapping to EGAD
  - This work will benefit other ME tribes that want to share data w/ ME DEP

Penobscot Watershed MEPDES Licensing

- Penobscot River WQ model
- Penobscot River Phosphorous Waste Load Allocation
- Phosphorous Ambient Monitoring Plan
- PIN reviewed 12 and commented on 7 MEPDES licenses
- Several PIN comments resulted in license changes

Benthic Macroinvertebrate and Water Quality Monitoring of Great Works and Veazie Dam Areas for PRRP – 2009-2010

Dan Kusnierz, Project PI
Penobscot Indian Nation
Water Resources Program

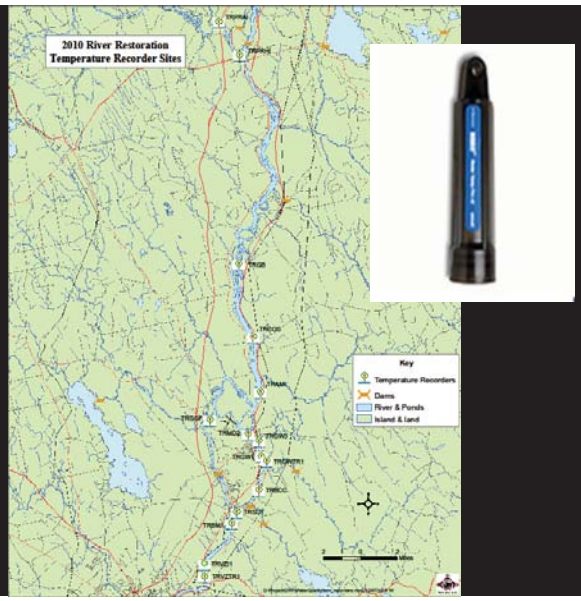
NOAA PI PRRT

Objectives

- Gather pre-dam removal baseline data in the Lower Penobscot River to:
  - Determine if benthic macroinvertebrate community composition changes with barrier removal
  - Determine if water quality changes with barrier removal

Benthic monitoring locations

- 2009
  - Great Works Impoundment
  - Great Works Tailwater
  - Veazie Impoundment
  - Veazie Tailwater
- 2010
  - Great Works Impoundment
  - Great Works Tailwater(2 locations)
  - Upstream of Great Works Impoundment
  - Veazie Impoundment
  - Veazie Tailwater
  - Upstream of Veazie Impoundment



Water Quality Monitoring - Parameters

Sampled bi-weekly for:

- temperature
- dissolved oxygen
- conductivity
- BOD
- E. coli bacteria
- Total coliform bacteria
- total suspended solids
- turbidity
- secchi disc visibility
- foam (index)
- total phosphorous
- ortho-phosphorous
- chlorophyll a
- pH (closed cell)

WATER QUALITY MONITORING

2009

- 6 sampling events
- 2-3 wk intervals
- July – October
- Some "exploratory" sampling
- Fewer parameters regularly monitored

2010

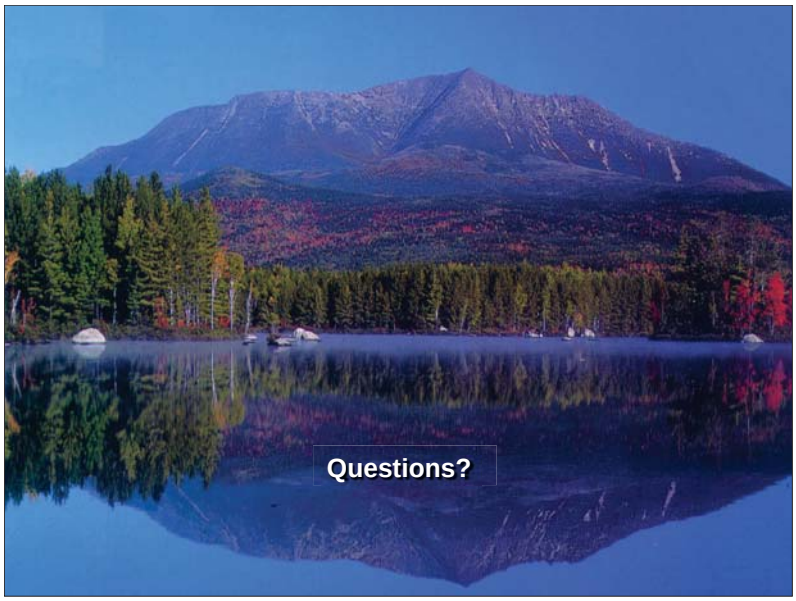
- 12 sampling events
- 2 wk intervals for all parameters, 5 additional events for field and PIN parameters
- Late June – late September
- More refined sampling
- Early morning sampling

Penobscot Nation Air Quality Program

- Single person program with multiple parameters including but not limited to:
- **AMBIENT**:
- Acid wet deposition
- Mercury wet deposition
- Regional haze particulate matter
- Ozone
- Meteorological
- **INDOOR AIR QUALITY**
- Mold
- Particulate matter (2.5, 10 micron)
- Carbon monoxide

Penobscot Nation Air Quality Program

- **Partnerships**
- Tribes in what is now called "Maine" are our partners
- USEPA, Region 1
- AirNOW, Federal Government Air Quality Forecasting Network
- Maine State Air Bureau State-Wide Air Quality Forecasting
- Tribal Exchange Network (TREX)
- MidAtlantic and New England Visibility Union (MANE-VU) Regional Progress Org for reduction of transported haze contaminants
- Institute for Tribal Environmental Professionals (ITEP)'s Tribal Air Monitoring Support (TAMS) Center, Steering Committee Member
- National Tribal Air Association Chair. NTAA is a conduit between Tribes and the Federal Government for Air Quality Policy, funded by EPA through the National Tribal Environmental Council (NTEC)



PASSAMAQUODDY TRIBE AT PLEASANT POINT

SOME RECENT ACTIVITIES

STEVE CRAWFORD
ENVIRONMENTAL DIRECTOR

COMMUNITY INFRASTRUCTURE

PUBLIC WATER

- TWO GRANTS, MOA WITH IHS- AND EPA
  - 2009 $157,300
  - 2010 $180,000

PASSAMAQUODDY WATER DISTRICT FROM SURFACE WATER AT BOYDEN LAKE
2 BOIL ORDERS IN LAST 3 MONTHS
DEP ADMINISTRATIVE CONSENT ORDER NOV.12, 2009
VIOLATIONS IN HALOCETIC ACIDS, TRIHALOMETHANES
NON-COMPLIANCE SINCE MAY 19,2005

WATER

3 PRODUCTION WELLS IN HARDROCK AQUIFER
150-300 GPM
REQUIRE 10-DAY PUMP TEST= $211,000
HOPEFULLY APPROVED AND CONDUCTED IN SUMMER OF 2012

SOLID WASTE

- GARBAGE TRUCK EXPIRED, 2009
  - TRIBE HIRED PRIVATE CONTRACTOR, CURB-SIDE PICKUP
  - TOWNSHIP RECEIVED GRANT FOR WASTE/ENERGY

  - USDA RD PROVIDED $175K, NEEDED 25% MATCH
    - I WROTE GRANT TO IHS , 75K
    - 50K TO TRUCK, 25K FOR SOLID WASTE PLAN

    - CONTRACTED WITH URGENT-VC, NYC TO DEVELOP PLAN
    - ENGAGED 17 COMMUNITIES, TOWNSHIP

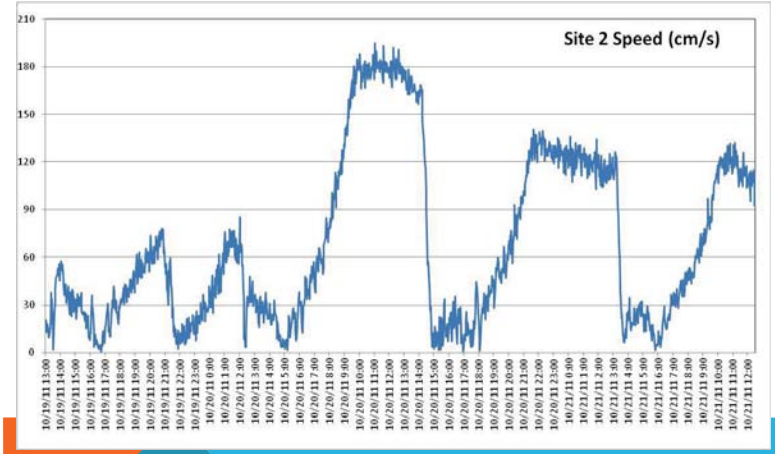
RENEWABLE ENERGY

HYDRO:

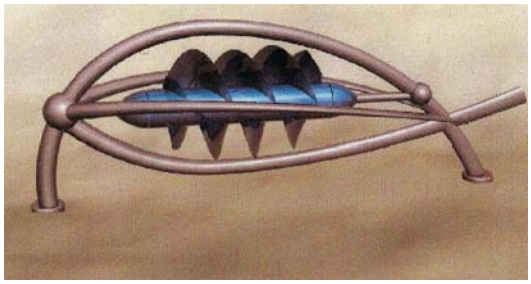
- DOMESTIC HYDRO-KINETIC DEVICE, SUBSEA
- TIDAL BARRAGE SYSTEM, HALF-MOON COVE

WIND:

- COMMERCIAL: 50.5 MW AT T-19
- DOMESTIC:
  - 3 WINDSPIRE 1.2 KV TURBINES



Subsea Energy NA/URGENT -VC



RENEWABLE ENERGY CONT.

- SOLAR FURNACES
  - 4 RREAL PANEL UNITS
    - TRIBAL LICENSED PLUMBER HAS FRANCHISE FOR MAINE STATE

RENEWABLE ENERGY (CONT.)

- ALGAE-OIL PROJECT
  - 2010, $30 K FROM EPA AIR PROGRAM, $15K BIA
  - 2011, $25K EPA EJ PROGRAM
  - CONCEPT: PRODUCE HEATING OIL FOR DOMESTIC USE FROM ALGAE GROWN IN BACKYARD GREENHOUSE

SOME OTHER STUFF.....

WATER QUALITY:

- BOYDEN LAKE WATERSHED
  - PENKNIFE PONDS, LITTLE RIVER ESTUARY
  - BLUEBERRY FARM WATERSHED, LIBBY BROOK, BLACK BROOK
  - OVER 4000 SETS OF DATA TO WQX, THROUGH USET SUPERNODE

  OCEAN AND BAY pH monitoring,
  dead mud
  green slime

  - AIR QUALITY

MISC. (CONT.)

- CLIMATE CHANGE
  - STC3 COMMITTEE, EPA
  - NATIONAL CLIMATE ASSESSMENT, BULL BENNETT
  - ITEP TRIBAL CC ADAPTATION PLAN ($500 K, 4 YRS)

  - T-FERST

  - INTER-GENERATIONAL ENTREPRENEURSHIP GENERATOR

  - NOC GOVERNANCE COORDINATING COMMITTEE

  - RETIREMENT HOME, BEAUFORT, NC

PMS-S

Spiritual focus

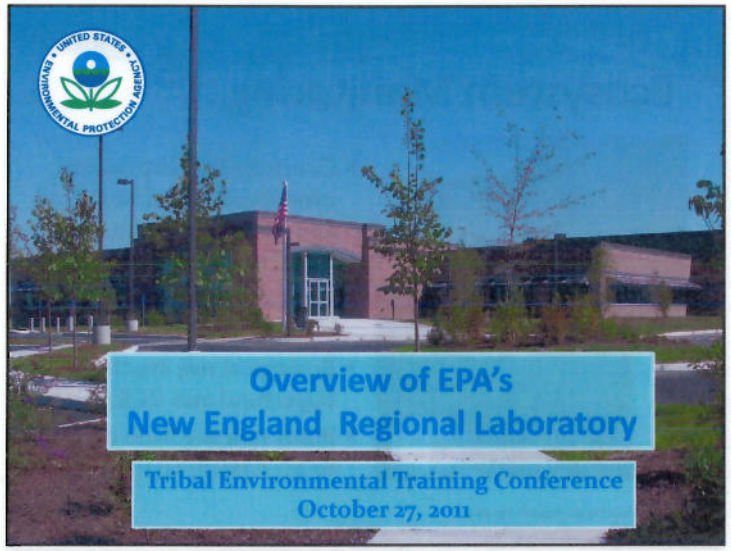
CONSCIOUS UNIVERSE

Your consciousness affects the behaviour of subatomic particles
- or -
Particles move backwards as well as forwards in time and appear in all possible places at once
- or -
The universe is splitting, every Planck-time (10 E-43 seconds) into billions of parallel universes
- or -
The universe is interconnected with faster-than-light transfers of information

James Higgo, 1999, lazy man's quantum physics

BOOGEY MAN

FENCE



Outline

- Overview of New England Regional Laboratory (NERL) mission and capabilities
- Review of tribal support during 2011
- Agree on process for 2012
- Identify potential assistance/training needs

Lab Facility Overview

- Located in North Chelmsford, MA (about 35 miles northwest of Boston)
- State of the art facility completed in 2001
- 70,000 square feet of lab, office and storage space
- Houses about 93 employees
- LEED (Leadership in Energy and Environmental Design) Gold Rating achieved in 2003

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

New England Regional Laboratory (NERL) Mission

- To protect human health and the environment by providing state of the art monitoring, evaluation, and technical expertise to EPA, state, tribal and other partners

Role of NERL

- Monitor the health of NE's air, water and ecosystems, identifying emerging problems and trends
- Collect and analyze samples critical to regulatory decisions (clean-ups and permits)
- Investigate compliance with environmental laws through inspections, air stack tests, and sample collection and analysis
- Assist in EPA's responses to disasters and terrorist incidents
- Ensure that all data relied upon by EPA is high quality

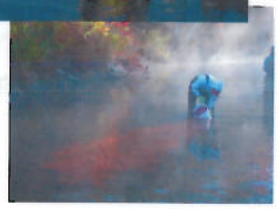
EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

Ecosystem Monitoring

- Conduct studies to assess overall ecological health of aquatic resources and impacts
- Electrofishing capability – backpacks and shock boat
- Ecological risk studies at Superfund and RCRA sites
- Boats ranging from canoes to 23" coastal boat

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

Water Monitoring



- Water and sediment quality monitoring and analysis
- Tracking the sources of sewage in stormwater
- Dye and SOD studies
- Water quality sondes
- Studies to support reduction of pollutant loading to impaired waters (TMDLs and permits)

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

Air Monitoring

- Oversee network of over 300 air monitors operated by states and tribes
- Conduct air toxics and deposition investigations
- Support vapor intrusion studies at Superfund sites

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

Compliance Inspections, Sampling & Site Investigations

- Characterize remediation sites
- Provide evidence of air and water permit violations
- Investigate and document mismanagement of hazardous chemicals

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

Chemistry Lab Capabilities

- Volatile organics in air, water, soil, sediment and product
- Semi-volatiles, pesticides and PCBs in water, soil, sediment, product, and tissue
- Metals in water, soil, and sediment
- Various additional inorganics (e.g. cyanide, asbestos)
- Chemistry mobile lab

Biology Lab Capabilities

- Microbiology – pathogens in water
- Aquatic and sediment toxicity testing
- Genomics/PCR (polymerase chain reaction) - detection of biological pathogens in water
- Low level mercury in biota
- Fish processing
- Biology mobile laboratory

Quality Assurance

- Ensuring scientific and legal defensibility of the data we generate and use
  - Project planning
  - Data validation
  - Review & approve documents and reports
  - Lab and field audits
- Lab and field technical support
  - Superfund sample management
    - Over 10,00 samples
  - Direct support for field work

EPA New England Regional Laboratory
Scientific Excellence to Protect Public Health and the Environment

2011 Support for Tribal Programs

- Lab held conference calls with 8 tribes during winter/spring 2011
- EPA programs represented: chemistry lab, biology lab, water monitoring, air monitoring, QA, tribal program
- Identified 40+ action items
- Completed actions on most items

Examples of EPA Lab Support

- Ion chromatography training at EPA for Micmac staff
- EPA chemist spent 3 days at Penobscot lab assisting with *chlorophyll a* procedure
- Technical assistance with water quality sondes
- Assistance with improving pH measurements
- DO meter calibration assistance for PIT
- Health and safety review/advice on planned new wet lab construction
- Air monitoring assistance
- QAPP/SOP development

Proposed Process for 2012

- EPA to send email soliciting assistance needs in late November
- Tribes submit prioritized list of needs by February 1, 2012
- Follow-up emails/calls for clarification if needed
- By May, EPA identifies support to be provided
- Today – identify any training or support that can be held this winter

QUESTIONS?

For more information on
EPA's New England Regional Laboratory:
www.epa.gov/ne/lab

Katrina Kipp, 617-918-8309
Ernie Waterman, 617-918-8632

New England Federal Partners

Melville P. Coté, Jr.
EPA Region 1
Nan Johnson
FEMA Region 1
July 22, 2011

New England Federal Partners

The New England Federal Partner comprises representatives from federal agencies that have agreed to work together in New England on:

- climate change mitigation;
- climate change adaptation; and
- coastal and marine spatial planning.

New England Federal Partners

NEFP evolved from Northeast Regional Ocean Council Federal Partners, which formed in 2007 to:

- solidify federal partnerships;
- support NROC and Ocean Action Plan;
- determine capacity to respond to evolving NROC priorities; and
- develop federal interagency communications and content strategy to advance regional coastal and ocean priorities.

New England Federal Partners

Accomplishments:

- Federal Interagency Climate Change Meeting, June 2009.
- Regular meetings and conference calls to communicate and coordinate.
- "Statement of Common Purpose" signed by representatives of 15 agencies, May 2011.
- Federal agencies CMSP meeting, May 2011.
- Identified workgroup leads at May 18 meeting.
- Briefed CEQ on July 22, 2011.

New England Federal Partners

Statement of Common Purpose:

- Establishes framework for communication, coordination, cooperation, and collaboration.
- Identifies three priority issues:
  - climate change mitigation,
  - climate change adaptation, and
  - coastal and marine spatial planning.
- Calls for establishment of cross-agency workgroups to work on priority issues.

New England Federal Partners

Workgroup leads:

- Climate change adaptation – Ellen Mecray, NOAA
- Climate change mitigation – Norm Willard, EPA
- Coastal and Marine Spatial Planning – Betsy Nicholson, NOAA; Ron Beck, USCG; Mel Coté, EPA

New England Federal Partners

Current activities:

- Chairmanship recently transitioned from NOAA (Nicole Bartlett) to FEMA (Nan Johnson).
- Standing up priority issue workgroups.
- Identifying projects and activities on which to work together.

New England Federal Partners

Future activities:

- National Climate Assessment, Northeast Chapter
- New England Municipal Sustainability Network
- Regional HUD/DOT/EPA Sustainable Communities Partnership
- DOI Land Conservation Cooperatives
- Academic Partnerships (e.g., RISAs, Sea Grant)
- Federal Agency Climate-Related Profiles

New England Federal Partners

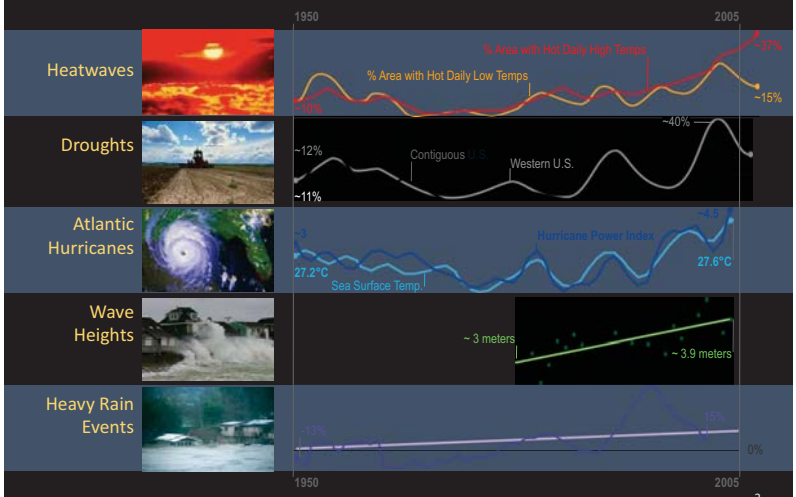
Future activities (continued):

- Coordinating Federal Agencies Response to Executive Order on National Ocean Policy
- Forming Regional Planning Body to lead Northeast Coastal and Marine Spatial Planning
- Identifying & Servicing State, Tribal, and Local Government Needs, Solution-Oriented
- Improving Communication & Building Planning and Implementation Capabilities/Capacity

New England Federal Partners

Thanks – Any Questions?

The nation faces real climate challenges



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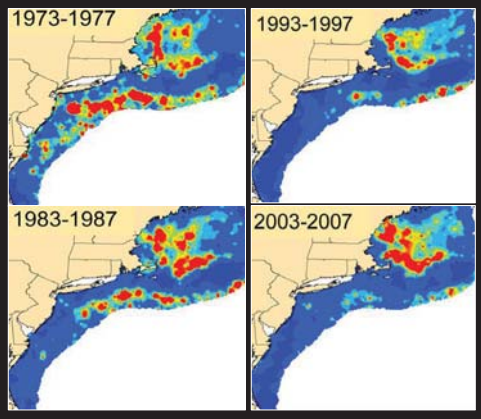
News Examples

- **'Snowmageddon' blankets Mid-Atlantic in white; Storm could be the biggest for the nation's capital in modern history**
- **Worst flooding in 40 years hits Northeast (**VT (Aug 2011); RI (March 2010); NJ (Sept 2011)
- **Forget Irene: The Drought in Texas Is the Catastrophe That Could Really Hurt**
- **Big, Record-Setting Heat Wave Settles In as a 'Silent Killer'**

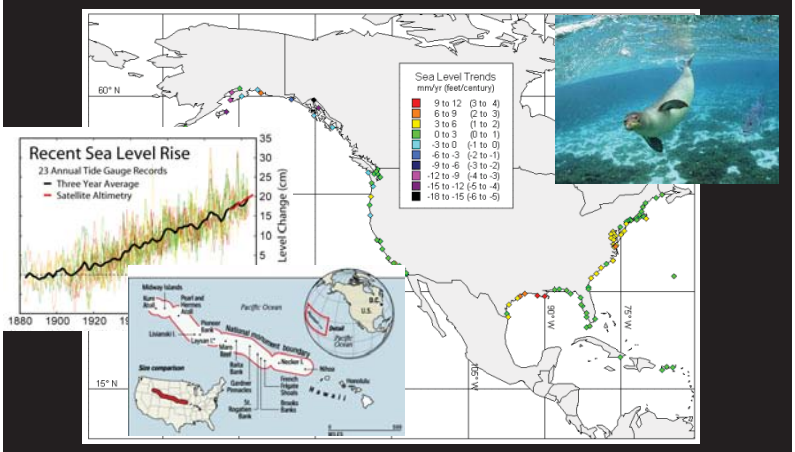
Climate Change Observations and Projections: Altered Water Temp Regimes

Poleward shifts in biomass and increases in depth distribution have been correlated with large-scale warming and climatic conditions for 24 of the 36 stocks examined in the Northeast (Nye et al. 2009)

Example: red hake (northern and southern stocks combined)



Trends in Sea Level Rise & Resource Impacts



USDA Map of North American Plant Hardiness Zones (1990)

- Map includes data from 1974–1986.
- An interactive version of this map is available at:

http://www.usna.usda.gov/Hardzone/ushzmap.html

Climate-related planting zones using new Normals (1981-2010)

- Climate-related planting zones in the United States based on new U.S. Climate Normals (1981-2010); old Normals (1971-2000); and areas that have changed zones as a result of warmer winter minimum temperatures (Maps by NOAA).

These maps of climate-related planting zones were created by the National Oceanic and Atmospheric Administration (NOAA) as a special service to the American Public Garden Association. The official Plant Hardiness Zone Map, familiar to any gardener who has looked at a packet of seeds, was prepared by the U.S. Department of Agriculture (USDA) in 1990 using data collected by NOAA. USDA is updating its official map, which

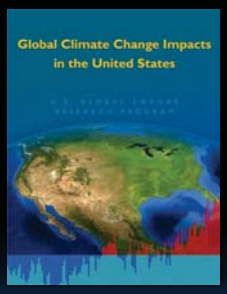
Building Partnerships to Address Complex Problems

New England Federal Partners

Previous National Climate Assessments

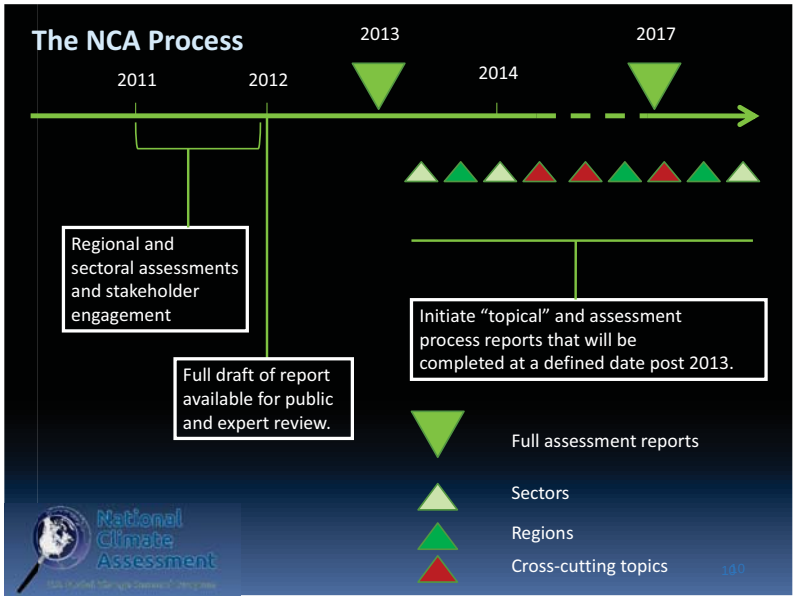
Climate Change Impacts on the United States (2000)

Climate Change Impacts in the United States (2009)



Target date for next NCA: 2013

The NCA Process



Opportunities for Participation

- Request for Information (July 13 Federal Register Notice)
  - Developing technical inputs, e.g.,
    - Literature reviews, discussion papers, and other review papers
    - Case studies
    - Modeling results, interpretation of data, and topical reports
  - Providing assessment capacity
    - Hosting meetings and workshops
    - Supporting indicator systems
    - Network partners – linking the Assessment to their constituents
- Participating in assessment activities hosted by technical input teams
- Responding to public comment and public review requests

NCA Northeast Draft Report Outline (1)

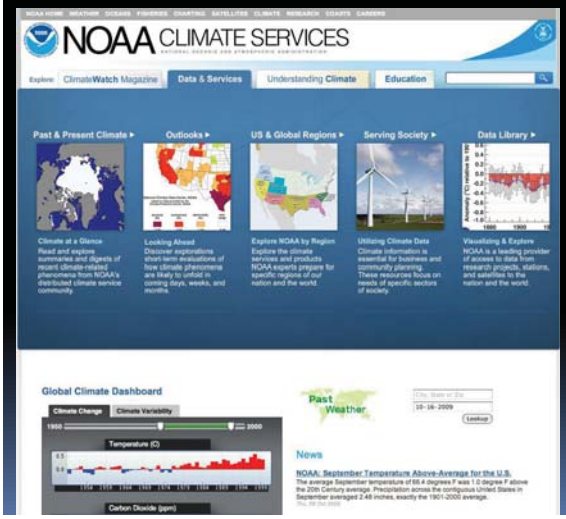
- Introduction
  - 2013 NCA framework
  - Northeast assessment vision and process
  - Brief review of 2009 USGCRP report findings
  - Summary of key updates since 2009 USGCRP report
- Topical Reports
  - Baseline climatology
  - Scenarios (Climate, land use, and socio-economic)
  - Hurricane Irene case study
  - Sector Reports (water, ecosystems, agriculture, coasts and oceans, health, and infrastructure)

NCA Northeast Draft Report Outline (2)

- State and Local Components--*How is climate change interacting with other stressors and local considerations to create vulnerabilities and opportunities and shape the development of adaptation strategies?*
  - State summaries
  - Sub-regional case studies
- Decision Support
  - Scientific tools to support communication
  - Climate-related national and international issues that may influence the Northeast
  - Indicators and monitoring
  - Synthesis and evaluation of adaptation strategies
- Summary and recommendations for priority research

NOAA's Climate Services Portal

http://www.climate.gov



The NCS Portal Prototype offers one well-integrated, online presentation of NOAA's climate data & services.

The prototype features four audience-focused sections:

- ClimateWatch for the public
- Data & Services for scientists and data users
- Understanding Climate for policy leaders
- Education for educators & students

The Dashboard is a data-driven synoptic overview of the state of the global climate system.

Past Weather allows users to easily retrieve weather data for any given location & date.

NOAA Climate Services Products & Services

Living Marine Resources and Ecosystem Issues

NOAA Products and Services
- Ocean Warming: Impacts on Distribution & Productivity of Coastal Ecosystems & Fisheries
- Impacts of Loss of Sea Ice on Living Marine Resources
- Physical and Chemical Changes to the Ocean; Ecosystem Habitat Monitoring and Restoration

Key Federal Agencies: NOAA, DOI, EPA

www.drought.gov

Water Issues

NOAA Products and Services
- Monitor and Forecast Drought and Flood Related Conditions
- National Integrated Drought Information System (NIDIS) (www.drought.gov,)

Key Federal Agencies: NOAA, DOI, Army Corps, USDA, EPA

Coastal Issues

NOAA Products and Services
- Coastal Inundation Modeling; Observations and Monitoring of Coastal Areas
- Forecasting of Coastal Storms; Information for Adaptation Planning
- NOAA sea-level standards have been adopted by the Army Corps

Key Federal Agencies NOAA, DOI, NASA, DOE, Army Corps, FEMA

Building Cooperative Scientific Research Relationships with Tribal Nations: Lessons from the Maine DITCA

Darren Ranco, PhD
Associate Professor of Anthropology
Chair of Native American Programs
University of Maine
Tribal EPA Meeting
October 27, 2011

Research and American Indians—an uneasy past/present?

"We have been observed, noted, taped, and videoed. Our behaviors have been recorded in every possible way to Western Science, and I suppose we could learn to live with this if we had not become imprisoned in [their] words. The language that [scientists] use to explain us traps us in linguistic cages because we must explain our ways through alien hypothetical constructs and theoretical frameworks."

-Cecil King

\

Research for whom and why?

Smith, *Decolonizing Methodologies* (1999):

"all investigations in our territories should be carried out with our consent and under joint control and guidance" (Smith 1999: 119).

Penobscot Indian Nation (2003):

"Does this research challenge, undermine, or jeopardize tribal sovereignty?"

A brief history of un-ethical research

- Thanks to Dr. William L. Freeman, Director of Tribal Community Health Program and Human Protections Administrator, Northwest Indian College
- Infected prostitutes and children with syphilis to test immunity by serum from syphilitic patients, without consent (Germany, 1892)
- BCG (TB vaccine) disaster--72 of 256 children died (Lubeck, Germany, late 1920s, 1930, vaccine killed them)
- Poor children, especially orphans (1800s-early 1900s, USA & others); example: Hebrew Infant Asylum, no orange juice to orphans to study development of scurvy (NYC)
- Nazis, World War II—various 'experiments' (most documented, typhus, led to the Nuremberg Code, 1947, for medical research).

A brief history of un-ethical research, cont.

- Studies with American Indians: Radioactive iodine (I131) with Alaska Natives (1950s), Navajo Uranium miners (1950s), Congentical syphilis epidemic (1980s, did not protect community identity), Hantavirus-Navajo (1993, also, did not protect community identity), Havasupai diabetes study (1990s, used sample for various other genetic research).
- Tuskegee, Alabama, 1932-1972, untreated syphilis, 405 African-American men, paid for funerals, told men that they were being treated for "bad blood," but none of them were every treated (particularly alarming due to the fact that antibiotics became a recognized cure for syphilis in the 1940s.
- Tuskegee led to the modern regime of research ethics laws, including the Belmont Report in 1979, the establishment of the Office for Human Research Protections (OHRP) and laws requiring Institutional Review Boards for the protection of human subjects, with regulatory control to OHRP and the Department of Health and Human Services (HHS).

Values present in the regulations

- Minimize harms to individuals, and maximize benefits to society
- Justice for individuals
- Respect for individuals

But the regulations [= 45 CFR part 46] **do not:**

- Minimize harms and maximize benefits to communities and tribes
- Ensure justice for communities and tribes
- Require respect for communities and tribes

Values NOT present in the regulations

- Protection of communities--except obliquely
- Respect for elders & knowledge of community--ethnographic interviews published or archived by outsiders
- Respect Native communities, strengths, and survival--much research focuses on how bad things are not on how/why people survived and do well
- Promote resiliency, help activate the community
- Respect and promote tribal sovereignty

EPA and Institutional Review Boards

- EPA has a contract with UNC-Chapel Hill for IRB services
- Also has the Office of the Science Advisor, in which projects are reviewed by the Human Subjects Research Review Official (HSRRO)
- HSRRO reviews proposal after IRB approval, but before projects start.
- Any other responsibilities?

Pursuit of an ideal: Community based Participatory Research

- Also called "participatory action research", "sustainability science," "translational research", etc.
- Research to deal with directly, and solve, community-based problems.
- Community is highly involved in all phases of research—research question/design, data collection, analysis, dissemination/publication.
- Involves understanding, and pursuing, research protocols in a particular Tribal Nation, whether they have been formalized or not. **Possible resources/guidance**: NCAI, Individual tribal research protocols, Alaska Native Science Commission, etc.
- Tends to be "problem-focused' and "action-solution-focused."

Is Tribal Governmental Partnership enough Protection for Tribal Research Needs?

- Sometimes, but not always.
- Tribes sometimes have limited jurisdiction.
- Some Tribes have Institutional Review Boards (IRBs) but many do not—these have the legal power in non-tribal courts.
- Some have research ethics codes, but many do not.
- A tribe with its own IRB, recognized by the federal government has power and influence beyond tribal borders.
- Beyond 'research cooperative agreements,' new areas of collaboration call for data sharing agreements (OSU-CTUIR). Who 'owns' or has access to the data?

Example of EPA-Tribal Research Partnership: DITCA

A Direct Implementation Tribal Cooperative Agreement (DITCA), To carry out EPA's programs in Indian Country

WITH: The Aroostook Band of Micmacs on Behalf of All the Federally Recognized Tribes in Maine

PURPOSE: To collect data that can be used towards ensuring that water quality standards applicable to waters within Indian Territories of Maine are protective of Tribal cultural practices and resource utilization patterns

PRODUCTS: Exposure Scenario Technical Report and slide presentation with exposure factors, traditional diets, and food pyramids.

TECHNICAL SUPPORT
Barbara Harper (AESE), Darren Ranco (Dartmouth College)
Internal cultural and technical advisors
External peer reviewers

Explanation of DITCA:

- DITCAs are unique funding mechanisms authorized by law and developed by EPA solely for the purpose of awarding Cooperative Agreements to Federally Recognized Indian tribes to assist the Agency in implementing Federal environmental programs in Indian Territories.
- This DITCA recognizes that EPA is required by law to have sufficient information to protect tribal designated uses when reviewing or approving water quality standards applicable to Indian territories in Maine.
- This DITCA allows EPA to work cooperatively with the Maine tribes to collect sound scientific data documenting tribal cultural practices and resource utilization patterns in the form of tribal exposure scenarios.
- These exposure scenarios will ensure that tribal cultural practices and resource utilization patterns are addressed, *no matter who develops water quality standards.*

Explanation of Products

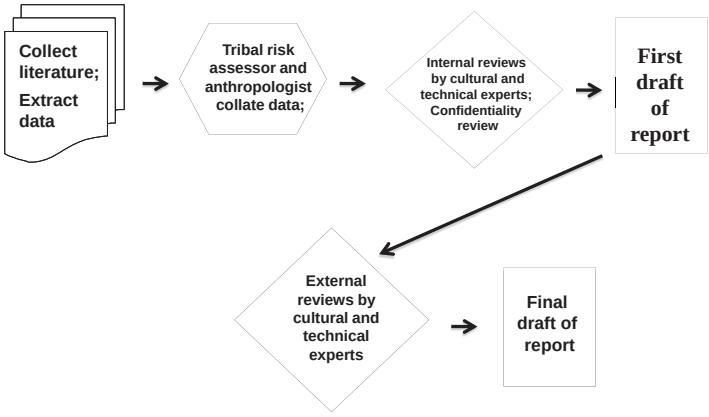
They present Wabanaki Cultural Lifeways Exposure Scenarios, numerical representations of the environmental contact, diet, and exposure pathways for traditional cultural lifeways in Maine.

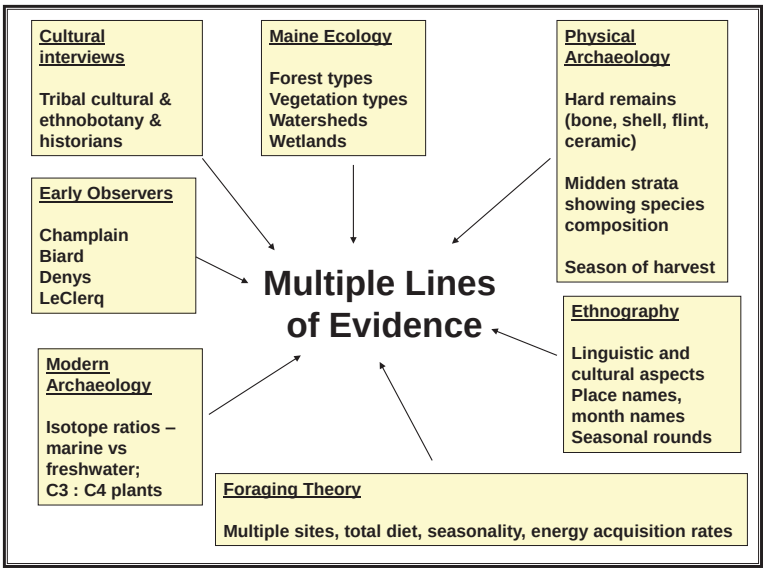
They present these lifeways in a format typically used by regulatory agencies during development of environmental standards and evaluation of baseline environmental risks.

The lifeways are not rooted in a particular time, but represent the actual diets and resource uses, if they are available, of Wabanaki people--past, present, and future.

The lifeways scenarios use data from as many scientific sources as possible to create multiple lines of evidence.

DITCA Research Process





The Maine DITCA: Lessons Learned

- Tribal Governmental Approval was most likely enough for this kind of study, coupled with the jointly constructed research process. Other kinds of research may require more tribal community partnerships.
- This kind of research takes a long time—all Tribal Councils had to agree to the project at the beginning and end, and the consultation throughout takes some time (well worth spent, in my opinion).
- Institution building within Tribes and EPA would help make projects like the Maine DITCA more common. For EPA, a clearer funding mechanism for Tribal research needs, for Tribes, more research review capabilities.

Woliwoni

Questions/Thoughts?

Tribal Science Council Update

Region 1 RTOC
Tribal Environmental Training Conference
Portland, ME
October 27, 2011

Tribal Science Council (TSC)

- Formed in 1999 at the request of the National Tribal Caucus in partnership with tribal representatives to help integrate Agency and Tribal interests concerning environmental science issues
- Provides a cross-Agency forum for tribal and EPA scientists to discuss national tribal science issues
- Seeks to increase tribal involvement in EPA's scientific activities – build bridges between tribal and Agency programs by focusing on priority tribal science issues

Tribal Science Council (cont'd)

"… the mission of the TSC is to provide a forum for the interaction between Tribal and Agency representatives of mutual benefit and responsibility to work collaboratively on environmental science issues…"

Tribal Science Council (cont'd)

- Members include one representative from each…
  - Region with Federally recognized tribes, plus a representative from the Alaska Native communities
  - Program Office and Regional Office
- Current co-chairs
  - Jeff Mears, Oneida Tribe of Indians of Wisconsin, Region 5
  - Theodore (Ted) Coopwood, EPA Office of Children's Health Protection
- Coordinates with the National Tribal Caucus to integrate science priorities into the Agency's annual planning and budget process

Accomplishments

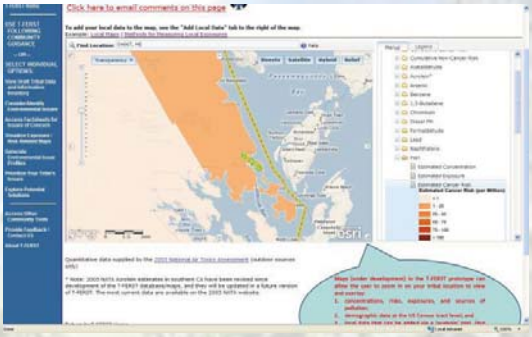
- TSC Summer 2011 Face-to-Face Meeting – Hosted by Penobscot Indian Nation in Orono, ME
  -
  -
  -
- 2010 National Tribal Science Forum
  - June 6-10, 2010 hosted by Grand Traverse Band of Ottawa and Chippewa Indians in Traverse City, MI
  - Theme: Mother Earth: Indigenous Knowledge and Science to Promote Positive Change
  - Designed to foster the sharing of knowledge and information about tribal environmental programs
  - Provided mechanism for EPA and Tribes to find common ground on complex environmental issues
- Workshop: Advancing the Science of Cumulative Risk Assessment
  - Coordinated team of EPA staff and tribal partners to explore tribal perspectives on implementing an integrated cumulative assessment (July 2009, EPA Region 5 in Chicago, IL)
  - Tribal Session focused on cumulative risk from the perspective of holistic, place-based assessments considering tribal cultural practices, exposure to chemicals, dietary data collection and spiritual health of the community
  - Workshop provided science, tools and approaches that may inform and aid EPA decision makers
- Tribal Science Webinar Series
  - TSC in partnership with EPA's National Center for Environmental Research designed the webinar series "Promoting environmental health in Native American communities" (July 2009 – December 2009)
  - Translated findings of Science To Achieve Results (STAR)-funded research on environmental health and exposure concerns in North American Native subsistence populations.
  - Webinars, summary report & audio recordings can be found at: http://www.epa.gov/osp/tribes/events.htm

Tribal-Focused Environmental Risk and Sustainability Tool (Tribal-FERST)

•Tribal-FERST is being developed as a web-based environmental decision support tool for helping to build sustainable and healthy tribes.

•The Pleasant Point Passamaquoddy Tribe is piloting Tribal-FERST.

•Tribal-FERST is available for review – please email TFERSTMail@epa.gov to request access.



National Tribal Science Priorities Process

Purpose: Establish a new set of national tribal science priorities in Indian country

Establishing National Tribal Science Priorities

- How it worked
  - Collaborative engagement between EPA and Tribes from the beginning
  - Coordinated effort among TSC Tribal Caucus and EPA Programs and Regions
  - Template submissions

- Benefits
  - Broad engagement of Tribes
  - Ability to address national priority issues at the community level

Establishing National Tribal Science Priorities (cont'd)

- Objectives (proposed priorities had to fulfill at least one)
  - Advance the field of Tribal and Alaska Native environmental science
  - Provide methods to understand and address environmental issues faced by smaller Tribal and Alaska Native populations
  - Foster a new generation of Tribal and Alaska Native researchers and scientists

Timeline for Identifying the Priorities

2010

December

Dec.2010: **TSC Tribal Caucus** establishes initial set of issues at Face-to-Face Meeting hosted by the Seminole Tribe of Florida

2011

January

February

Jan. – Mar. 2011:

TSC and **American Indian Environmental Office** launch National Tribal Science Priorities (TSP) process and distribute booklets on the process.

March/ April

Mar. - Apr. 2011: TSC engages Tribes in discussion and identification of priorities through **Webinars**, **Regional Tribal Operations Committees**, **Regional Operations Committees**, and **National Tribal Caucus**

Timeline for Identifying the Priorities (cont'd)

2011

April

Apr. 15, 2011: Tribes submit their top priorities to EPA.

May

May 2011: **TSC Tribal Caucus** reviews and prioritizes TSPs.

June

June2011: **TSC** identifies **Climate Change** and **Traditional Ecological Knowledge (TEK)** as **National Tribal Science Priorities**. Finalizes priorities at June Business Meeting for endorsement by **National Tribal Caucus.**

EPA Program and Regional Representatives inform Senior Management of TSPs.

July

July 2011: **National Tribal Operations Committee** (NTOC) -

National Tribal Caucus and EPA Administrator endorse TSPs.

National Tribal Science Priorities

- Climate Change
- Integration of Traditional Ecological Knowledge (TEK) in Environmental Science, Policy and Decision-Making

Integrating TEK and Climate Change into EPA Research

- Inclusion of TEK in the Office of Research and Development's Research Action Plans
- Development of Tribal-focused climate change curriculum in Office of Children's Health Protection climate initiative
- Emphasis on TEK in Office of Water research activities

Climate Change and TEK: Implementation in Indian Country

- What are the regional issues related to the priorities that need to be addressed?
- Identify case studies and/or current Tribal initiatives to address climate change and TEK at the community level.
- What are the ways that Tribes are already addressing environmental and health needs as they relate to TEK and climate change?

Climate Change and Traditional Ecological Knowledge

"The NTC is in our full support of the process used to identify the priorities and endorse both Climate Change and Integration of Traditional Ecological Knowledge (TEK) in Environmental Science, Policy and Decision-Making as national tribal priorities."

Clay Bravo, Chairman, National Tribal Caucus,
Letter to the Tribal Science Council, August 11, 2011

Questions?

U.S. Environmental Protection Agency
Office of Inspector General

08-P-0083
February 19, 2008

At a Glance

Catalyst for Improving the Environment

Why We Did This Review

The objective of our audit was to determine whether the U.S. Environmental Protection Agency's (EPA's) Indian General Assistance Program (IGAP) has been effective in developing tribal capacity to implement environmental programs. This work was included in the Office of Inspector General's (OIG's) Fiscal Year 2007 annual plan based on Agency leadership concerns regarding grant results.

Background

The Indian Environmental General Assistance Program Act of 1992 provides EPA the authority to award grants to Indian tribal governments to build capacity to administer environmental programs. Since its inception, IGAP has become a core program and the largest single source of funding for tribal environmental programs, with almost $455 million of funding to about 500 different tribal entities since 1992.

For further information, contact our Office of Congressional and Public Liaison at (202) 566-2391.

To view the full report, click on the following link:
www.epa.gov/oig/reports/2008/20080219-08-P-0083.pdf

Framework for Developing Tribal Capacity Needed in the Indian General Assistance Program

What We Found

The purpose of IGAP grants is to help tribes develop environmental programs, and over 70 percent of tribes have met at least one of EPA's strategic goals for improving human health and the environment in Indian country. However, only 12 percent of tribes are implementing Federal environmental programs.

Many tribes have not developed long-term plans that describe how they will build environmental capacity to operate their environmental programs. For tribes that do have plans and long-term goals, EPA has not tracked progress against the plans and goals. Six of 27 reviewed tribes that have received funding for more than 5 years had activities limited to outreach, training, and meetings; how the activities will lead to implementing environmental programs is unclear. This situation has occurred because EPA has not provided a framework for tribes to follow or adapt as they develop their capacity to implement environmental programs. As a result, it is not clear whether IGAP funding will result in tribes being able to operate their own environmental programs. EPA has awarded $455 million in IGAP funds since 1992.

EPA often uses the target funding level of $110,000 as the basis for IGAP funding instead of considering environmental capacity needs and prior progress. EPA and tribes consider IGAP funding to be essential continuing support for tribal environmental programs. When the funding is not based on tribal capacity needs or priorities, EPA cannot demonstrate that the highest human health and environmental needs are addressed.

What We Recommend

We recommend that the Assistant Administrator for Water:

- Require the American Indian Environmental Office to develop and implement an overall framework for achieving capacity, including valid performance measures for each type of tribal entity, and provide assistance to the regions for incorporating the framework into the IGAP work plans.
- Require regions to (a) negotiate with tribes to develop environmental plans that reflect intermediate and long-term goals, (b) link those plans to annual IGAP work plans, and (c) measure tribal progress in meeting plans and goals.
- Revise how IGAP funding is distributed to tribes to place more emphasis on tribes' prior progress, environmental capacity needs, and long-term goals.

EPA concurred with the recommendations and stated that the American Indian Environmental Office is committed to evaluating the IGAP program and incorporating new ways to improve the program's effectiveness.

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U.S. Code

§ 4368b. General assistance program

(a) Short title

This section may be cited as the "Indian Environmental General Assistance Program Act of 1992".

(b) Purposes

The purposes of this section are to—

(1) provide general assistance grants to Indian tribal governments and intertribal consortia to build capacity to administer environmental regulatory programs that may be delegated by the Environmental Protection Agency on Indian lands; and

(2) provide technical assistance from the Environmental Protection Agency to Indian tribal governments and intertribal consortia in the development of multimedia programs to address environmental issues on Indian lands.

(c) Definitions

For purposes of this section:

(1) The term "Indian tribal government" means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation (as defined in, or established pursuant to, the Alaska Native Claims Settlement Act (43 U.S.C.A. 1601, et seq.)), which is recognized as eligible for the special services provided by the United States to Indians because of their status as Indians.

(2) The term "intertribal consortia" or "intertribal consortium" means a partnership between two or more Indian tribal governments authorized by the governing bodies of those tribes to apply for and receive assistance pursuant to this section.

(3) The term "Administrator" means the Administrator of the Environmental Protection Agency.

(d) General assistance program

(1) The Administrator of the Environmental Protection Agency shall establish an Indian Environmental General Assistance Program that provides grants to eligible Indian tribal governments or intertribal consortia to cover the costs of planning, developing, and establishing environmental protection programs consistent with other applicable provisions of law providing for enforcement of such laws by Indian tribes on Indian lands.

(2) Each grant awarded for general assistance under this subsection for a fiscal year shall be no less than $75,000, and no single grant may be awarded to an Indian tribal government or intertribal consortium for more than 10 percent of the funds appropriated under subsection (h) of this section.

(3) The term of any general assistance award made under this subsection may exceed one year. Any awards made pursuant to this section shall remain available until expended. An Indian tribal government or intertribal consortium may receive a general assistance grant for a period of up to four years in each specific media area.

(e) No reduction in amounts

In no case shall the award of a general assistance grant to an Indian tribal government or intertribal consortium under this section result in a reduction of Environmental Protection Agency grants for environmental programs to that tribal government or consortium. Nothing in this section shall preclude an Indian tribal government or intertribal consortium from receiving individual media grants or cooperative agreements. Funds provided by the Environmental Protection Agency through the general assistance program shall be used by an Indian tribal government or intertribal consortium to supplement other funds provided by the Environmental Protection Agency through individual media grants or cooperative agreements.

(f) Expenditure of general assistance

Any general assistance under this section shall be expended for the purpose of planning, developing, and establishing the capability to implement programs administered by the Environmental Protection Agency and specified in the assistance agreement. Purposes and programs authorized under this section shall include the development and implementation of solid and hazardous waste programs for Indian lands. An Indian tribal government or intertribal consortium receiving general assistance pursuant to this section shall utilize such funds for programs and purposes to be carried out in accordance with the terms of the assistance agreement. Such programs and general assistance shall be carried out in accordance with the purposes and requirements of applicable provisions of law, including the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

(g) Procedures

(1) Within 12 months following October 24, 1992, the Administrator shall promulgate regulations establishing procedures under which an Indian tribal government or intertribal consortium may apply for general assistance grants under this section.

(2) The Administrator shall publish regulations issued pursuant to this section in the Federal Register.

(3) The Administrator shall establish procedures for accounting, auditing, evaluating, and reviewing any programs or activities funded in whole or in part for a general assistance grant under this section.

(h) Authorization

There are authorized to be appropriated to carry out the provisions of this section, such sums as may be necessary for each of the fiscal years 1993, 1994, 1995, 1996, 1997, and 1998.

(i) Report to Congress

The Administrator shall transmit an annual report to the appropriate Committees of the Congress with jurisdiction over the applicable environmental laws and Indian tribes describing which Indian tribes or intertribal consortia have been granted approval by the Administrator pursuant to law to enforce certain environmental laws and the effectiveness of any such enforcement.

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THANKS GIVING ADDRESS *(Greetings to the Natural World)*

The People

Today we have gathered and we see that the cycles of life continue. We have been given the duty to live in balance and harmony with each other and all living things. So now, we bring our minds together as one as we give greetings and thanks to each other as People.

Now our minds are one.

The Earth Mother

We are all thankful to our Mother, the Earth, for she gives us all that we need for life. She supports our feet as we walk about upon her. It gives us joy that she continues to care for us as she has from the beginning of time. To our Mother, we send greetings and thanks.

Now our minds are one.

The Waters

We give thanks to all the Waters of the world for quenching our thirst and providing us with strength. Water is life. We know its power in many forms—waterfalls and rain, mists and streams, rivers and oceans. With one mind, we send greetings and thanks to the spirit of Water.

Now our minds are one.

The Fish

We turn our minds to all the Fish life in the water. They were instructed to cleanse and purify the water. They also give themselves to us as food. We are grateful that we can still find pure water. So, we turn now to the Fish and send our greetings and thanks.

Now our minds are one.

The Plants

Now we turn toward the vast fields of Plant life. As far as the eye can see, the Plants grow, working many wonders. They sustain many life forms. With our minds gathered together, we give thanks and look forward to seeing Plant life for many generations to come.

Now our minds are one.

The Food Plants

With one mind, we turn to honor and thank all the Food Plants we harvest from the garden. Since the beginning of time, the grains, vegetables, beans and berries have helped the people survive. Many other living things draw strength from them too. We gather all the Plant Foods together as one and send them a greeting and thanks.

Now our minds are one.

The Medicine Herbs

Now we turn to all the Medicine Herbs of the world. From the beginning, they were instructed to take away sickness. They are always waiting and ready to heal us. We are happy there are still among us those special few who remember how to use these plants for healing. With one mind, we send greetings and thanks to the Medicines and to the keepers of the Medicines.

Now our minds are one.

The Animals

We gather our minds together to send greetings and thanks to all the Animal life in the world. They have many things to teach us as people. We see them near our homes and in the deep forests. We are glad they are still here and we hope that it will always be so.

Now our minds are one.

The Trees

We now turn our thoughts to the Trees. The Earth has many families of Trees who have their own instructions and uses. Some provide us with shelter and shade, others with fruit, beauty, and other useful things. Many peoples of the world use a Tree as a symbol of peace and strength. With one mind, we greet and thank the Tree life.

Now our minds are one.

The Birds

We put our minds together as one and thank all the Birds who move and fly about over our heads. The Creator gave them beautiful songs. Each day they remind us to enjoy and appreciate life. The Eagle was chosen to be their leader. To all the Birds—from the smallest to the largest—we send our joyful greetings and thanks. *Now our minds are one.*

The Four Winds

We are all thankful to the powers we know as the Four Winds. We hear their voices in the moving air as they refresh us and purify the air we breathe. They help to bring the change of seasons. From the four directions they come, bringing us messages and giving us strength. With one mind, we send our greetings and thanks to the Four Winds.

Now our minds are one.

The Thunderers

Now we turn to the west where our Grandfathers, the Thunder Beings, live. With lightening and thundering voices, they bring with them the water that renews life. We bring our minds together as one to send greetings and thanks to our Grandfathers, the Thunderers.

Now our minds are one.

The Sun

We now send greetings and thanks to our eldest Brother, the Sun. Each day without fail he travels the sky from east to west, bringing the light of a new day. He is the source of all the fires of life. With one mind, we send greetings and thanks to our Brother, the Sun.

Now our minds are one.

Grandmother Moon

We put our minds together and give thanks to our oldest Grandmother, the Moon, who lights the nighttime sky. She is the leader of women all over the world, and she governs the movement of the ocean tides. By her changing face we measure time, and it is the Moon who watches over the arrival of children here on Earth. With one mind, we send greetings and thanks to our Grandmother, the Moon.

Now our minds are one.

The Stars

We give thanks to the Stars who are spread across the sky like jewelry. We see them in the night, helping the Moon to light the darkness and bringing dew to the gardens and growing things. When we travel at night, they guide us home. With our minds gathered together as one, we send greetings and thanks to all the Stars.

Now our minds are one.

The Enlightened Teachers

We gather our minds to greet and thank the enlightened Teachers who have come to help throughout the ages. When we forget how to live in harmony, they remind us of the way we were instructed to live as people. With one mind, we send greetings and thanks to these caring Teachers.

Now our minds are one.

The Creator

Now we turn our thoughts to the Creator, or Great Spirit, and send greetings and thanks for all the gifts of Creation. Everything we need to live a good life is here on this Mother Earth. For all the love that is still around us, we gather our minds together as one and send our choicest words of greetings and thanks to the Creator.

Now our minds are one.

Closing Words

We have now arrived at the place where we end our words. Of all the things we have named, it was not our intention to leave anything out. If something was forgotten, we leave it to each individual to send such greetings and thanks in their own way.

And now our minds are one.

This translation of the Mohawk version of the Haudenosaunee Thanksgiving Address was developed, published in 1993, and provided here, courtesy of: Six Nations Indian Museum.. All rights reserved: Thanksgiving Address: Greetings to the Natural World; English version: John Stokes and Kanawahienton (David Benedict, Turtle Clan/Mohawk); Mohawk version: Rokwaho (Dan Thompson, Wolf Clan/Mohawk); Original inspiration: Tekaronianekon (Jake Swamp, Wolf Clan/Mohawk)

EPA Region 1 – Tribal Environmental Training Conference
Hosts: Houlton Band of Maliseet Indians – Penobscot Indian Nation
Holiday Inn by the Bay, Portland, Maine
October 26- 27, 2011
Notes prepared by Sue Young, Houlton Band of Maliseet Indians

Opening Prayer: led by Elder Jim Sappier, Penobscot Indian Nation.

Opening Remarks: Chief Brenda Commander, Houlton Band of Maliseet Indians
Chief Kirk Francis, Penobscot Nation

Moderator: John Banks, Natural Resources Director, Penobscot Nation.

Elders Panel: Jim Sappier – Moderator
Iona Vaas, Narragansett Indian Tribe
Janice Spears, Narrangansett Indian Tribe
Richard Silliboy, Aroostook Band of Micmacs
Teresa Sappier, Penobscot Nation

Jim Sappier spoke as to how the Maine tribes represent the oldest continuous government in the world. The blessing offered asked that no evil be allowed in, that each of us has the gift of healing, and that each of us have a piece of all of creation within us. Women are especially blessed with PMS – Physical, mental and spiritual.

Iona Vaas and Janice Spears are both members of the Silver Clouds, Narragansett women who are the keepers of the traditional ways. The Narragansetts have over 1800 acres, portions of which have never been out of tribal hands. They have watched the beach erosion over several years and are now bringing sand in each summer to maintain beaches. The fish are no longer running, the ocean is quickly reclaiming the beaches.

Richard Silliboy spoke of how the Aroostook Band of Micmacs were not recognized in 1980 with the other Maine tribes. They had no formal community and their people were spread out over 23 communities. They did not obtain federal recognition until 1991. Their land base monies did not appreciate well over the years. In 1993 they fought for possession of Loring Air Force Base after it was closed down. They wanted to use the schools, hospital and 300 housing units. The property also boasted a 9 hole golf course, pond etc. In the late 1990's the tribe was given 800 acres of land, which was a dump, oil drum dumping ground, heavily contaminated area. He has major concerns about the waters in Northern Maine, the cancers and diseases prevalent in the area. Richard is a basket maker, a trade passed down through his family. Richard is really concerned about the brown ash die back. He spoke of the Ice Storm in the late 1990's that stripped dead branches from the trees making them appear healthier, but doing nothing to improve the ash stands.

Teresa Sappier – raised on Indian Island and spent many years in Alaska working in health care. She expanded on Jim's statement about PMS but said we needed to add another component. PMSS – Physical, mental, spiritual and social. We cannot leave out the social component. It connects us to everyone and everything on the planet.

Fate of Nitrogen in Fresh and Estuarine Waters –
Matt Liebman Environmental Biologist
Phil Colarusso, Environmental Biologist EPA Region 1 Office of Ecosystem Protection, Oceans & Costal Protection Unit.

Our nitrogen problem is increasing. Bio-available reactive nitrogen has been increasing over the last 100 years. It has doubled in North America, tripled in Europe. He went on to discuss the nitrogen cycle. Larger numbers of legumes being planted worldwide is increasing NH_3. Nitrous Oxide is holding heat and adding to global warning.

Our goal should be to de-nitrify the environment. Every time combustion occurs, nitrates are released into the atmosphere. Agriculture greatly increases nitrogen run off, more export of carbon, nitrogen and phosphorus. Nitrogen and Potassium are important to coastal waters with Potassium being more important in fresh waters.

Increased levels of nutrients favor algae over native sea grasses. 60% of US estuaries are eutrophic. The Northeast fares better than other parts of the country. Cobscook Bay has some issues, and there are much bigger problems further south in New York and Rhode Island. Frenchman's Bay showing signs of eutrophication.

Non-point source issues predominate in most watersheds. We need to maintain/increase riparian buffers and increase flushing in coastal areas. EPA Office of Research Strategy has more information available on line.

Phil Colarusso presented – Eelgrass 2.0

He pointed out just how important eelgrass is to the environment.

- Provides spawning and nursery habitat
- Primary producer of carbon, bottom of the food chain. No eelgrass – no scallops.
- Root/rhizomes bind sediments, helps prevent erosions, leaves encourage particle deposition.
- Filters water
- Is an indicator species – young bay scallops use leaves to hide out, improves their position within the water column and increases their ability to filter feed.
- Occupies a narrow geographical niche along the coast.
- Eelgrass is a coldwater plant that does best at 5°C and is greatly impacted by global warming.
- It is an angiosperm and is one of the most studied plants on the planet. It is a true flowering plant.
- Aeration of sediment improves the quality of the sediment along with the eelgrass stands.

- Eelgrass absorbs nitrogen from the water column through it leaves, and from the sediment through its roots.
- Nitrogen is essential to the production of proteins and other compounds.

The impact of too much Nitrogen can be seen by looking at the Chesapeake Bay Model. The nitrogen stimulates algal blooms and epiphytic growth. The algal blooms block light from reaching the eelgrass reduces classic meadow response to shoot density. Too much Nitrogen also has a direct toxic effect. Plants will grow themselves to death until they exhaust the carbon reserve.

We are losing eelgrass habitat at a rate of about 3.7% per year. In Massachusetts the rate is a bit better, only 2.9% per year.

There have been some success stories. Tampa Bay, Chesapeake Bay, Boston Harbor, Gloucester Harbor, New Bedford Harbor, Mumford Cove, CT. These improvements can generally be traced to the upgrades in sewage treatment.

Eelgrass needs a lot of sun. Their color is a good indicator of the plant's health, the darker the better. Declines in Brant geese population can be attributed to the decline in healthy eelgrass stands. The Brant geese have adapted their diet to now feed on blue mussels as well.

Success rates for transplantation of eelgrass are not good. The act of harvesting the grass for transplantation is extremely stressful on the plant, greatly depleting its carbon reserves. Water quality must be improved before attempting to transplant eelgrass. Improvement in water quality and clarity is largely responsible for the increases in eelgrass stands. Study is underway to address the effects of music on the plants.

Question posed – are there EPA resources available to key out algal blooms? Not currently available at EPA. Various university partners available to help, long delays in analysis reported. Need to find a way to make the identifications in a more timely manner.

Tribal Presentation – Wampanoag Tribe of Gay Head Aquinnah
Brett Stearns, Natural Resources Director
Jim Miller

Everything they do revolves around sustenance resources, enhancing and protecting them. They run the only lab on Martha's Vineyard. They operate a state certified drinking water and microbiology lab. Lab can currently evaluate mercury on land and in fish. Perform real time ozone analysis, export data to the state of Massachusetts. Air quality date uploaded to www.airnow.gov.

They have an active lead program, conduct extensive outreach. Non-traditional sources of lead have been addressed. Tribe implemented a program to introduce stone sinkers to replace lead sinkers for local fishermen.

Larval Identification Hydrographic Data Telemetry (LIHDAT) currently in use. The equipment was funded by a Tribal Wildlife Grant from the US Fish & Wildlife Service. The Wampanoag LIHDAT is one of only a few operating in the world.

The bay scallop restoration project has been successful in increasing the yield from 800 bushes to 3500 bushels. Scalloping is a large part of the winter economy of the area, in addition to being a large part of the culture. It brings people together, initiates conversation and helps keep history alive.

The non-point source pollution prevention program has focused on road maintenance and has installed an oil/grit separator. They have also introduced a single stream recycling program.

The tribe has partnered with the Dukes County Fisherman Association to grow winter flounder that will be released into Nememsha Pond. The tribe also has a marine mammal recue team in addition to their rangers, EMTs, and police officers. They have worked with IHS and the TransAm program, which refurbishes ambulances and gets the ambulances into tribal communities.

Tribal Presentation – Mashpee Wampanoag
Quan Tobey, Natural Resources Director
Chuckie Green

Tribal lands are located within the Mashpee National Wildlife Refuge. WHIP program and the Landscape Conservation Cooperative have helped them to reduce fuel loads for wildlife, enhancing habitat and protecting the eastern cottontail. They are also working on an integrated waste management program.

Chuckie Green – The tribe is working on an aquaculture project with ribbed mussels. They are instructing the kids on how to harvest the mussels and protect the resource. It is conducted in conjunction with the Aquinnah Quahog Day.

Working on oyster propagation project to help reduce nitrogen in the bay and to help recreate the wild population

Tribal Presentation – Narrangansett Indian Tribe
Dinalyn Spears – Natural Resources Director

Tribe is involved with PPG, CWA, GAP and Clean Air Act monies. Fish tissue in the area has high levels of mercury. Working on plans to conduct a fish consumption survey, need to develop QAPP.

EPA Safe Drinking Water program is working on corrosion control. Tribe has had some total coliform bacteria hits on the Administration Building water supply but mitigation

efforts have been somewhat successful. Tribe is working to provide a community well to provide water to tribal facilities, or alternatively is looking into updating individual wells.

Tribe instituted a roads program to address maintenance issues while protecting wetlands. Tribe is working with NRCS to eradicate phragmites. Tribe planted 300 black ash tress it obtained from the Mohawk Nation. Lost about 160 of those trees to flood in 2010, hope to replant in 2011.

T-FERST
Steve Crawford, Environmental Director Passamaquoddy Tribe, Sipayik
Ken Bailey, USEPA Office of Science Policy

T-FERST is a user friendly, interactive, geo-spatial web based tool: Tribal-Focused, Exposure, Risk & Sustainability Tool. https://cfpub.epa.gov/tferst. Some of the uses of T-FERST could be:

- Prioritize environmental issues for the tribe
- Compare info across locations
- Inform sustainable solutions and actions
- Assess impacts of decisions and actions
- Good tool for planning/land management

C-FERST Community Focused, Exposure, Risk & Sustainability Tool was the predecessor of T-FERST. EPA, CDC, BIA databases included.

Native American Scholars Panel
Cassius Spears – Narragansett Indian Tribe
Suzanne Greenlaw – Houlton Band of Maliseet Indians
John Pells, Mashpee Wampanoag Tribe
Erik Sappier, Penobscot Indian Nation
Danny Rodriguez, EPA Special Emphasis Coordinator
Moderator John Daigle, Professor, University of Maine School of Forest Resources

Cassius Spears – Senior, University of Rhode Island, Kingston. Major: Environmental Science and Management. He grew up in the woods, exposed to cultural and traditional ways. Participated in Native American Fish & Wildlife Society's summer youth practicum for multiple years.

Suzanne Greenlaw – State University of New York – SUNY-ESL grad student. She is working on modeling black ash with an emphasis on basket quality ash. She models information with FIA data and incorporates traditional knowledge with science. Spent time with various native basket makers and created a hypothesis based on those interviews. She is researching pollutants in the environment that are impacting the quality of black ash.

John Pells- is studying environmental earth and ocean science. He is researching water treatment shortfalls, including excessive chemicals and pesticides that are still making it through into the public drinking water supply.

Erik Sappier – is a traditional wood carver who has taken some college classes and began learning traditional crafts from his elders and is working to pass the knowledge on. Climate change is changing the information he has learned from elders. He is working to preserve what is cultural/natural to our world.

Danny Rodriguez – He has been with EPA for 11 years. Worked with Green Space Committee and started when he was 15, EPA internship at 16. In school was a criminal justice major with an interest in the many environmental disasters in the greater Boston area. Now EPA Region 1 Special Emphasis Project Coordinator dedicated to following the "bad guys who break environmental laws."

Challenges faced:

Cassius – Information as to what opportunities are available is not readily accessible. Just going to college can be a huge obstacle for native students.

Suzanne – School in NY was very lonely with few native student peers. On the employment front there are limited opportunities in forestry for tribes. Much of the schooling training is focused on timber values, not traditional tribal values and finding a niche is challenging.

Erik – Losing/lack of elders to gain knowledge from. Much of the traditional knowledge is now watered down. There is a general lack of knowledge of the woods and surrounding environment. Agencies need to build bridges with tribes and encourage tribal college students to look to EPA.

Cassius – Native American Fish & Wildlife Society Youth Practicum (NAFWS-Summer Youth Practicum) opened his eyes to the opportunities in Natural Resources. Additional information about federal programs such as SCEP, STEP would be a huge help.

Discussion. Need more information/internships with Federal agencies. The American Indian Science and Engineering Conference matches students to available opportunities. EPA should model BIA's western resources program. Students can work – are paid to work at their tribes for a period of time.

October 27, 2011

Tribal Presentations
Dan Kusnierz, Water Resources Manager, Penobscot Indian Nation

With a 319 program competitive grant the Tribe is working on bank erosion on Indian Island. The Tribe is losing both soil and artifacts. The Tribe implemented bank armoring and stabilization that coincided with low water levels due to dam maintenance and built steps into walls to improve river access. Identified 11,200 feet of eroding riverbank, stabilized 2,300 feet to date, stabilized 1,600 feet with 319 funding. 700 feet stabilized through FERC agreement.

The Tribe completed T3R1 Bridge work, included 2 miles of ditching and the replacement of 14 culverts. The program conducted Non-point source training for Penobscot Nation and general community. Put on 3-day highway crew training for municipal road crews in Penobscot Watershed. Training included engineering for non-engineers, covering culvert issues and designs, road slope stabilization, proper turn outs and buffers and focused on hands-on learning.

Beaver deceiver devices were installed on tribal lands to help improve/protect water quality and prevent washouts. Use of the deceivers helps maintain wetland habitat function/lower maintenance costs.

Penobscot Nation data node- completed successful submission to EPA WQX in July of 2011. Test submission to USET node was made before final test submission to Maine DEP and mapping to EGAD. Tribe hopes this work will be beneficial to other tribes that want to share their data with Maine DEP.

TPA – Trading Partner Agreement
Only data in EGAD system is going to be used for state level water quality decisions.

Other program accomplishments:
Involved with Penobscot Watershed MEDES licensing
Penobscot River Water Quality Model
Penobscot River Phosphorus waste load allocation
Phosphorus ambient monitoring plan
Penobscot Nation reviewed and commented on 7 MPDES license applications. Several of the comments resulted in license changes.

Tribe is performing pre-dam removal monitoring with funding from NOAA to gather benthic data before dam removal along with continuous temperature monitoring, DO, conductivity etc.

Air program – a single-person program monitoring ambient acid wet deposition, mercury wet deposition regional haze particulate matter and ozone. Indoor air program monitors mold, CO_2, particulate.

Steve Crawford, Environmental Director, Passamaquoddy Indian Tribe – Sipayik

Tribe has drilled 3 wells in hard rock aquifer producing 300 gallons/minute.
Solid waste – procured a garbage truck with IHS funds
Tribe installed solar furnaces. Solar panels added to some tribal homes generating 30% of home's energy at a cost of $3000 each. Expected payoff is within 3 years.
Installed 3 wind spires on tribal lands and tribe is growing algae for oil.

Conscious Universe – our consciousness affects the behavior of subatomic particles –or- Particles move backwards as well as forwards in time and appear in all possible places at once – or – the universe is splitting every Planck-time (10e-43 seconds) into billions of parallel universes – or – the light is interconnected with faster than light information transfer.

Sharri Venno – Environmental Planner – Houlton Band of Maliseet Indians
Challenges water quality, algal blooms, nutrients, pesticides, dissolved oxygen, air quality, indoor air quality. Successes include our many partnerships and our work on Pearce Brook with a focus on legacy contamination.

Fred Corey – Environmental Director – Aroostook Band of Micmacs.
Tribe obtained federal recognition in 1991 and owns approximately 3,000 acres in Aroostook County. The start of the Environmental Department was driven by health concerns. Respiratory illness is a huge problem in the tribal community. Tribe received funding for an air program that now provides real time, continuous air quality monitoring. They are able to monitor regional events and other environmental justice issues. Northeast is the "tailpipe of the nation, downwind from the entire country."

They are able to monitor local air quality issues, localized events in the winter is a problem. Cold air inversions trap pollutants close to the ground, which can cause problems for those with respiratory issues. It is not a large air quality concern for most of the Aroostook County residents. When these inversions occur, a haze is visible over the surrounding towns.

A new baseline monitoring system has been installed on a ridge in Littleton, Maine to compare air quality data between this location and the base system in Presque Isle, Maine. All the air data is uploaded into EPA's AirNow database. They are considering better ways of getting this air quality information out to the public.

The Tribe is also erecting a high tunnel greenhouse with the help of NRCS and the Dept. of Energy for a wind turbine for aquaculture.

The lack of access to natural resources is ravaging the health of their community. The Micmac Natural Resources Department is housed with the tribe's Health Department.

The tribe has a 69% obesity rate, 10% diabetes, 50% hypertension/cardio vascular disease. Current fish stocks are limited due to high mercury concentrations. The loss of traditional food ways is contributing to the loss of tribal health. The tribe wants to start producing its own food that is healthier and will help lessen dependency. They are looking into a tribal economic development venture that will include a tribal farmers market program. They are also constructing a brook trout facility. The farm project will help address PMS-S as Teresa Sappier discussed earlier in the conference. By making field available for harvest, you are encouraging people to gather to harvest the crops, get fresh air and exercise, bring back harvesting traditions.

Emerging areas of concern for the tribe – Caribou has 8 homes with elevated nitrate levels in the drinking water. The water level test lab has identified high nitrate concentrations and persistent bacterial problems in the ground water. Tribe is currently looking for funding to do a small drinking water system that would serve all 8 homes, instead of treating each home individually.

Mold is an issue in tribal homes. The older homes are deteriorating – mold levels increasing structures are rotting out. It has become a massive problem, Tribe hopes that the cast of federal partners will help fund mitigation of this issue. It has become a major priority of the newly elected Chief and Tribal Council.

Overview of EPA Chelmsford Lab
Katrina Kip , Ecosystems Assessment Unit
Ernie Waterman – Investigations and Analysis Unit

Chelmsford Lab provides support to tribes. There are 3 units in the lab:
the Ecosystems Assessment Unit, Investigations and Analysis Unit, and Quality Assurance Unit.

40+ action items identified through conference calls. The lab provides training and QA support. They will send out emails to all tribal contacts asking for lab assistance. Requests will be due February 2, 2012. Requests will be analyzed and info back out to tribes by May 1 to identify services the lab can provide.

Discussion comments –

- Poll tribes on needs, IPA.
- Work with individual tribes on their specific issues.
- Designate a person to travel from tribe to tribe to address specific issues in the field.
- Make funding available for tribal personnel to travel to the labs for more detailed, specific training.
- Pool training resources with USGS
- Conduct nutrient training in winter months instead of later in the spring or field seasons (summer).
- Next steps to identify nutrient sources.
- Help tribes identify what equipment/methods would best serve to address the tribe's concerns/issues.

- Training should be with different people on methodologies of nutrients in sediments, isotoping, and understanding of new equipment and new methods
- Need to get tribal water people together to discuss science issues not funding or jurisdictional issues.
- Chelmsford lab may not have expertise, but can partner with others to provide expertise
- Opportunities for tribes to be part of larger meetings in upcoming years, such as NEAB.

Federal Partners Panel
Brigitte Ndikum-Nyada - FEMA
Melville P. Cote, Jr. EPA Region 1
D.J. Monette, USFWS Region 5 Tribal Liaison
Juan Hernandez, USDA NRCS, State Conservationist, Maine
Ellen Mecray, NOAA
Robert Lent, Director, USGS Maine Water Science Center
Christina Stringer, Hydrologist, Bureau of Indian Affairs
BetsyNicholson, NOAA

Federal Partners is made up of 16 federal agencies working on climate change. New England Federal Partners evolved from the Northeast Regional Ocean Council of Federal partners. Their focus is inter-agency climate change adaptation/mitigation, coastal and marine spatial planning.

Brigitte Ndikum-Nyada
Future activities:
NE Chapter National Climate Change Assessment
NE Municipal Sustainability Network
HUD/DOT/EPA Sustainable Communities Partnership

Betsy Nicholson – Ocean Planning
Presented an invitation to co-lead a National Ocean Policy. Current ocean laws do not address cultural needs or issues. Looking for tribes to take a seat at the table to work on a regional plan to help inform management priorities, will not create new regulations.

Working on a Northeast Ocean Data Portal, no tribal data levels currently included. National Ocean Council Website www.whitehouse.gov/oceans

Discussion – Sharri Venno mentioned that these maps need to extend into Canadian waters. Steve Crawford said the lack of international info needs to be addressed. John banks offered a proposal: to facilitate dialog with tribes so that federal partners can learn of tribes' needs and tribes can learn from federal agencies. Let's do it again. Next time, initiate an agreement for a forum to continue the exchange.

Ellen Mecray – NOAA, current chair of climate adaptation panel.
Recommended book by Randy Olson, - "Don't Be Such A Scientist".

With climate change the concentrations of biomass is moving northward. The issue of sea rise is very real. Plant hardiness zone maps are changing. (Interactive maps www.usna.usda/govhardzone/ushzmap.html . Changes in plants becoming evident, with new species arrivals and some species going extinct.

National Climate Assessment – Northeast Chapter covers Maine to Virginia. Special chapter on tribes, trying to get tribes in the southeast involved. National climate assessment takes place really quickly. Creation of an ongoing group to streamline this data is planned.

Request for information published in the July 13, 2011 Federal Register, and tribal input in assessment activities is being solicited.

NOAA's climate portal www.climate.com

Funding is available to do a 2-day workshop in New England. Steve Crawford would like to incorporate this with a USET meeting.

Juan Hernandez, USDA NRCS, Maine State Conservationist.
They have worked extensively with Maine tribes, helping to reduce carbon footprint and carbon sequestration. NRCS is quick to implement projects. EQIP is a very important program at NRCS providing monies and technical support for environmental goals.

For 2012, they are promoting no-till practices. No-till supports energy conservation, crop residue management, irrigation water management.

- CSP - Conservation Stewardship Projects "reward the best, encourage the rest."
- Wetland reserve programs – carbon sequestration
- WHIP – crop lands to permanent cover
- Conservation Innovation Grants (CIG) – greenhouse grants. Biochar grant project funded.
- Nationwide carbon soil assessment underway to develop baseline date to use to evaluate effectiveness of conservation projects.

NRCS commissioned Northeast Climate Center to update plan for NRCS to use to help adapt conservation practices. Current data plans are over 50 years old. Hydrological data can be found at www.precip.net

D.J. Monette, USFWS Region 5, Tribal Liaison
Discussed USFWS involvement in landscape conservation cooperatives, strategic habitat conservation, and climate change.

Questions:

Sharri Venno - Where do you think the Federal partners are going? Have the Federal Partners been effective? (Ellen Mecray) Federal duplication of effort is a concern. (Bob Lent) from the Federal perspective, the federal partners are getting better at working together, not necessarily working better for the tribes. (DJ Monette) Federal agencies are charged with bringing tribes to the table per President Obama's order.

Sharri Venno asked if the partners are hooked into decision-makers who can facilitate this process when barriers are encountered? Mel Cote said that this is why they are bringing all of the federal agencies together. Sharri Venno: What about the US Forest Service? Ellen Mecray stated that the partners are trying to bring on other agencies. Mel Cote mentioned the challenge of some federal agencies that are geographically separated and structured differently, but diversity is a strength.

John Banks offered another proposal: the green corn dance of the Penobscot heritage is a replica of the DNA of corn. Native people have been around for 10,000 years. He suggested doing a pilot project with tribes by pooling federal dollars.

Ellie Kwong (EPA) – need to use technology more efficiently to get more people to the table and remove travel hurdles. Use video conferencing to further facilitate projects and discussions.

Angie Reed – Create a central unit where when can go to get a problem addressed instead of going to each individual partner separately. Need USGS made available for tribes. Federal partners need to work together to solve problems, pool resources to work on larger scale projects. Need to bring together money and resources more cohesively. Consultation opportunities should be conducted with tribes as a group rather than individually.

NTOC Priorities and Path Forward
Sharri Venno, Environmental Planner, Houlton Band of Maliseet Indians
Luke Jones, Senior Advisor US EPA Indian Environmental Office, Washington, DC, represents and works for Michelle DePass under Lisa Jackson current EPA Administrator.

National Tribal Operations Committee (NTOC) is an advisory committee to upper level EPA. They address the recommended budget for EPA, budget and program priorities and the impact of EPA Budgets. 2011-2012 showed and increase for tribal programs and existing grants. No current EPA budget, working on a continuing resolution for the past 2 years. Some programs that have come up as a result of the tribal caucus:

- National Tribal Air Program
- National Tribal Water Program
- National Tribal Science Council

NTOC/RTOC are not proxies for government to government relationship. They are an advisory board to help EPA better address the issues.

Sharri Venno – Time and money spent to re-invigorate the NTOC process etc., is working – the group is gearing up to be even more effective.

Sharri Venno was recognized by Michelle DePass for 10+ years of service on NTOC.

Luke Jones – New guidance for GAP program, EPA's largest assistance program for tribes. Why are they doing it? 2008 inspector general audit report recognized significant projects in Indian Country. The report identified a lot of strengths and many opportunities for improvement. This was not an audit of tribal programs it was an evaluation of EPA systems overall. Recommendations – Commitment to current resources and expanding tribal environmental protection programs.

John Banks commented – OMB was reminded of treaty obligations and how lands were taken and were to be provided for and perfected for perpetuity. Trust responsibility not being upheld with regards to tribal monies and resources.

Luke – PART review – OMB used it to evaluate relative strength of federal agency development. GAP rated very well in 2002. In 2006 GAP one of many programs, scored second in Office of Water programs. GAP has continued to see significant increases in the in-house controls in place. GAP has an on-line workplace development tool. Attorney General is concerned with performance indicators, no nationally consistent way to track. PPGs pull projects out of GAP.

Brett Stearns: Tribes are being told they have to justify their existence. But good news is that tribes give greatest bang for the buck. Tribes can do much with few resources. Tribes need to find ways to continue what they are doing now, and to express tribal needs and goals through the process.

Trevor White: Trines are the most "parented" group in the country. What is the proportion of tribal funding as compared to state funding?

Chuckie Green: Tribes are treated differently than states.

National Tribal Science Council
Dan Kusnierz, Water Resource Manager, Penobscot Nation
Steve Crawford, Passamaquoddy Indian Tribe, Sipayik

National Tribal Water Council – extremely effective group from the outset – supporting contract funding ended. RFP went out soliciting proposals for some one to organize, provide logistic support, etc. There currently is no logistical support. An entity has been selected to run the Council, USET will provide logistical support on a 5-year contract.

Tribal Science Council – Mission is to provide a forum for the interaction between tribal and EPA representatives. Identified tribal science priorities, developed a template to receive submissions to help streamline action items, etc. Primary focus is on national issues that are implementable at local levels. Another objective is to advance field of tribal environmental science. Develop methods to understand and address issue and foster involvement from younger generations. Current priorities – climate change, incorporating Tribal Ecological Knowledge (TEK) into policy and EPA research. Identify case studies or current implementation of TEK.

Cheryl Scott – EPA Grants Manager

Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS) www.fsrs.gov . Federal Transparency Act came into play as a result of stimulus monies.

Grants management office will be looking at unliquidated obligations. Is a grant 7 years old? If so, do you really need the money? If a grant is exceeding 7 years, the tribe must apply for a waiver.

Indirect Cost Policy – EPA had deemed that as of 10/1/11 Interim IDC policy is place. Old IDC rate will no longer be accepted. They must have been negotiated within 3 years or take a 10% flat fee. The 10% provisional rate will apply to salary and wages.

Contact info: scott.cheryll@epa.gov 617-918-1174

Suggestion from Lois Adams, EPA should begin a quarterly call to all tribal finance directors to check on drawdowns when dealing with un-liquidated obligations.

Wrap-Up
John Banks, Natural Resources Director, Penobscot Indian Nation
Sharri Venno, Environmental Planner, Houlton Band of Maliseet Indians
Michael Stover, EPA Indian Program

Mike Stover – takeaways from this conference.

- Tribal leaders meetings should happen every 6 months with fall meeting followed by a technical conference.
- More work/attention to Native Scholars
- Nitrogen issues – testing – need for more discussions
- Lab and field training needs:
    - Nutrient testing
    - Manufacturer-led equipment training on an annual basis

Sharri Venno – Asked for assistance in reviewing GAP Guidebook. Please call/e-mail with comment and concerns as it is really important to get our voices heard.

John Banks – theme of this conference. ONE – One environment – one earth – one mother. On ever of new consciousness and changing times we need to work on doing away with differences and work more together. Don't forget the wisdom of the youth.

Closing story of western science and TEK.

When John went to work for the tribe 30 years ago, he believed, Harry Francis, elder, tribal councilor knew everything about the natural world. John fresh out of college with his degree was the "go-to guy" for science questions.

One day John was having a conversation with Harry about ash trees. Harry stated that there were 6 types of ash here, John with his degree corrected him to say there were only three – Black ash, green ash and white ash. Harry then corrected him to say there were six, basket ash, yellow ash, river ash, sponge ash, (couldn't remember the rest) Harry explained that each name referred to where it grew and the different uses for the ash tree.

Harry's knowledge came from 6,000 years of traditional knowledge. Why can't we use this knowledge to highlight both?

The conference concluded with a ceremony/prayer led by John Banks.

Photo Album

2011 Tribal Environmental Conference
October 26-27, 2011
Portland, Maine

• Absorbs nitrogen fro
water column throug
• Nitrogen is essential
proteins and other c
• Evolved in a low nitr
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