



State/EPA Environmental Information Exchange Network – Overview

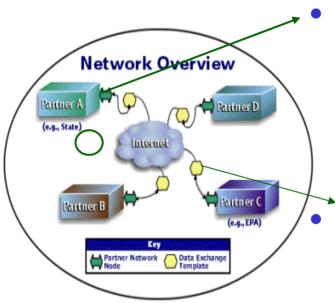
February 16, 2005 XML Community of Practice (XML CoP)





letwork

Exchange Network (EN) Core ande Components



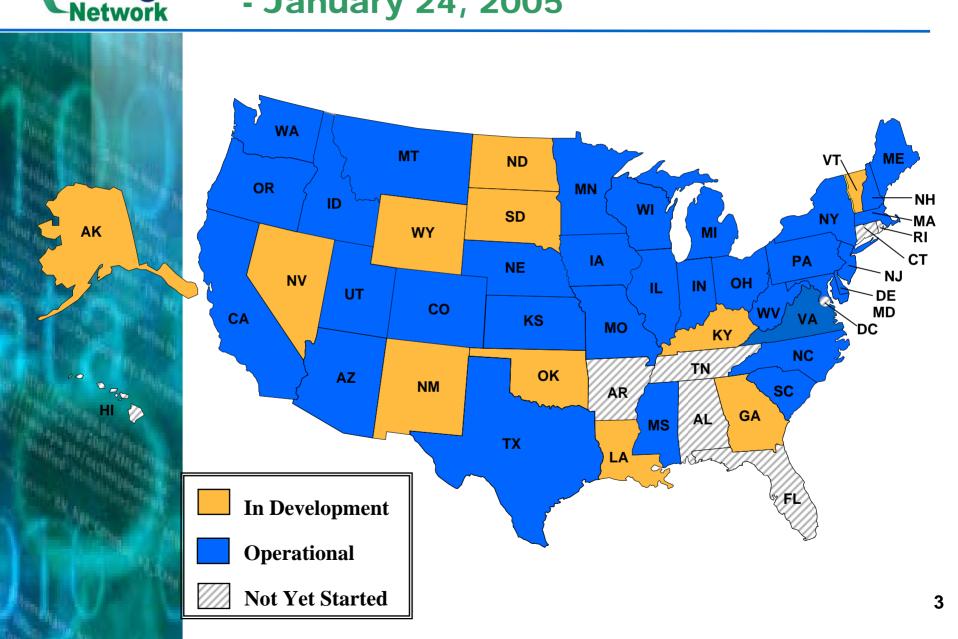
- **Nodes**
 - Hardware and software used to exchange information on the Network
 - Transfer point on the Network
 - Specially configured web-server
 - Data Exchange Templates
 - Describe format of data being exchanged
 - Consist of XML schema
 - **Incorporate Data Standards**
 - XML Schema for flows found in the Registry

Environmental Information

e

nde

Status of State Nodes - January 24, 2005



de

Data Flowing on the Exchange Network

- Facility Data from States to EPA
- Water monitoring data between states and EPA
- Air emissions data between states (state to state) and to EPA (state to EPA)
- Waste data between states (state to state) and EPA (state to EPA)

Change Example of leveraging



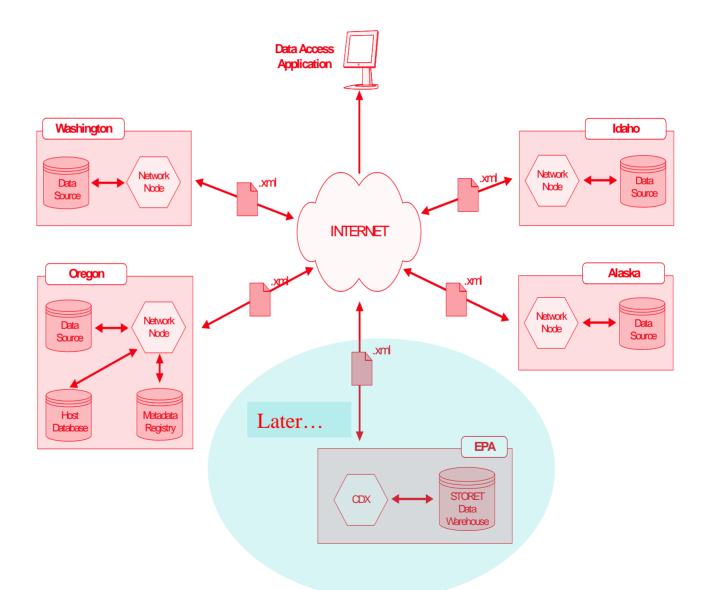
A Quick Case Study....leveraging data published (web service) on Node

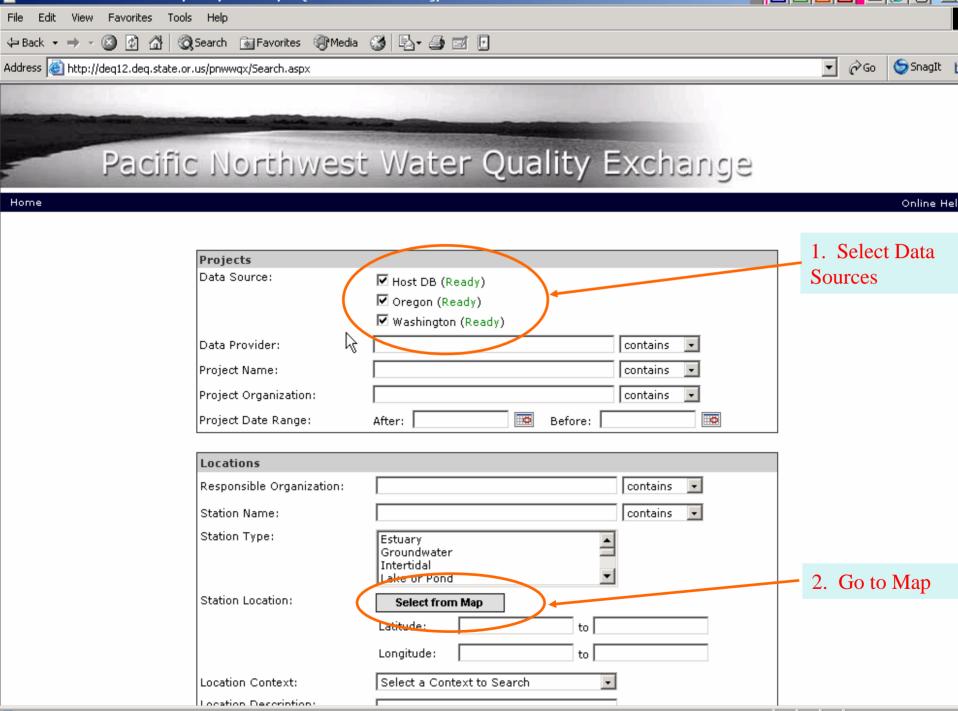
The Pacific Northwest Water Quality Exchange

- Washington Department of Ecology Partners with Oregon, Idaho, and Alaska to share water sampling results.
- Washington Dept of Health wants subset of that data related to fish tissue sampling.
- Reuse, Node and XML to easily provide this data

e Change Exchange Data Flow Model







🍘 ArcWeb Site Starter Viewer - Microsoft Internet Explorer provided by DEQ Information Tech... 📃 🗖 🔀





🚰 Search - Microsoft Internet Explorer provided by DEQ Informat	on Technology		3 2 🔤	/₽	<u>- 8 ×</u>
File Edit View Favorites Tools Help					
\Rightarrow Back \bullet \Rightarrow $-$ 🙆 😰 🖓 🔯 Search 💽 Favorites \textcircled{P} Media	3 B- 3 I B				
Address 🙆 http://deq12.deq.state.or.us/pnwwqx/Search.aspx			▼ 🔗 Go	🌀 SnagIt	2
Station Location:	Select from Map			-	
Coordinates	Latitude: 44.44318181818182 to 47.10227272727273				
Returned from map	Longitude: -118.505681818181 to -114.960227272727				
Location Context:	Select a Context to Search				
Location Description:					
	Т				
Results					
Sampling Organization:	contains 💌				
Sampling Date Range:	After: 01/02/2003 📴 Before: 01/01/2004 छ	>			
Taxon Name:	Acarina Ameiurus nebulosus				
Choose More	Ameletus Filter List	_			
Parameters	Anagapetus Astacidae Attenella margarita				
Media Name:					
Media Marrie,	Biological (population) Biological (tissue) Sediment				
Analyte Name:					
Analyte Name:	1,2-Propanediol dinitrate				
	NITRATE (AS N) Nitrate Nitrogen				
	Nitrate/nitrite Nitrate/nitrite as N				
C Projects					
C Projects & Stations	and				
Projects, Stations, & Mea	surements search				
Results/Page: 50	Search	Reset			_
e)			👩 Inte	rnet	

	it Internet Explore	provided by DEQ Informatio	n Technology			2 🔤	3	_
Edit View I	Favorites Tools He	elp						
ack 🔹 🔿 👻 🙆) 😰 🚮 🔯 Sear	ch 🔝 Favorites 🍘 Media 🤅	3 B-3 I B					
ess 🙆 http://de	q12.deq.state.or.us/p	nwwqx/Results.aspx			-	• 🔗 😡	SnagI 🌀	t (
- All Card of	The Party of the P		and the second s					
- ALANA								
-	Pacific I	Vorthwest	Water Ou	ality Exchan	cle			
		1010111000			50			
ne				ĸ			Online	He
Data Sources	5			~				
Organization Id		Name		Contact	Tele	phone Nurr	nber	1
Idaho-DEQ	on and a	Idaho Department of Enviro	ormental Quality	Jake Duplessie		373-0161	1901	l
Tuano-DEQ		Tuano Department or Enviro	annentar quanty	Sake Duplessie		503-229-6086		
OregonDEQ		Oregon Department of Envi	ronmental Quality	Curtis Cude	503-			
-		•	ronmental Quality	•	503-	229-6086 407-6258		
OregonDEQ		Oregon Department of Envi	ronmental Quality	Curtis Cude	503-			
OregonDEQ	s (7)	Oregon Department of Envi	ronmental Quality	Curtis Cude	503- ator 360-		New Sea	rch
OregonDEQ WADOE Project		Oregon Department of Envi Washington State Departme	ronmental Quality ent of Ecology Results (250)	Curtis Cude	503- ator 360-	407-6258 Search	Page 1 of	1
OregonDEQ WADOE Project Previous Reco		Oregon Department of Envir Washington State Departme Locations (47)	ronmental Quality ent of Ecology Results (250)	Curtis Cude	503- ator 360-	407-6258 Search	Pagelof くくl みる	1
OregonDEQ WADOE Project Previous Reco Provider	rdset Next Reco	Oregon Department of Envir Washington State Department Locations (47) rdset Download Full Datas Project Organization Oregon Department of	ronmental Quality ent of Ecology Results (250) set	Curtis Cude Chris Neumiller / EIM Data Coordin	503- ator 360- Refine	407-6258 Search 	Pagelof くくl みる	1
OregonDEQ WADOE Project Previous Reco Provider OregonDEQ	rdset Next Recor	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of	ronmental Quality ent of Ecology Results (250) set Project Name	Curtis Cude Chris Neumiller / EIM Data Coordin sin	503- ator 360- Refine Start Date	407-6258 Search 	Pagelof くくl みる	1
OregonDEQ WADDE Project Previous Reco Provider OregonDEQ OregonDEQ	rdset Next Recor Identifier 220	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of Environmental Quality Oregon Department of	ronmental Quality ent of Ecology Results (250) set Project Name WQ AmbNet - Powder Ba:	Curtis Cude Chris Neumiller / EIM Data Coordin sin onde Basin	503- ator 360- Refine Start Date 8/18/1998	407-6258 Search 	Pagelof くくl みる	1
OregonDEQ WADOE Project Previous Reco Provider OregonDEQ OregonDEQ OregonDEQ	rdset Next Recor Identifier 220 221	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of Environmental Quality Oregon Department of Environmental Quality Washington State	ronmental Quality ent of Ecology Results (250) set Project Name WQ AmbNet - Powder Ba: WQ AmbNet - Grande Ro	Curtis Cude Chris Neumiller / EIM Data Coordin sin onde Basin onde LT NPS	503- 360- Refine Start Date 8/18/1998 8/18/1998	407-6258 Search 	Page 1 of « « 1 » »	1
OregonDEQ WADDE Project Previous Reco Provider OregonDEQ OregonDEQ OregonDEQ WADOE	rdset Next Recor Identifier 220 221 383	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of Environmental Quality Oregon Department of Environmental Quality Washington State Department of Ecology Oregon Department of	ronmental Quality ent of Ecology Results (250) set Project Name WQ AmbNet - Powder Bas WQ AmbNet - Grande Ro WQ AmbNet - Grande Ro	Curtis Cude Chris Neumiller / EIM Data Coordin sin onde Basin onde LT NPS	503- 360- Refine 8/18/1998 8/18/1998 8/18/1998 6/22/1993	407-6258 Search F Bnd Da	Page 1 of « « 1 » »	1
OregonDEQ WADOE Project	rdset Next Recor 220 221 383 582513	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of Environmental Quality Oregon Department of Environmental Quality Washington State Department of Ecology	ronmental Quality ent of Ecology Results (250) set Project Name WQ AmbNet - Powder Bas WQ AmbNet - Grande Ro WQ AmbNet - Grande Ro WQ AmbNet - Grande Ro	Curtis Cude Chris Neumiller / EIM Data Coordin sin onde Basin onde LT NPS d pH TMDL er Basin	503- 360- Refine 8/18/1998 8/18/1998 8/18/1998 6/22/1993 5/1/2002	407-6258 Search F Bnd Da	Page 1 of < < 1 > > te 004	1
OregonDEQ WADDE Project Previous Reco Provider OregonDEQ OregonDEQ WADOE OregonDEQ	rdset Next Recor 220 221 383 582513 643	Oregon Department of Envir Washington State Department Locations (47) dset Download Full Datas Project Organization Oregon Department of Environmental Quality Oregon Department of Environmental Quality Washington State Department of Ecology Oregon Department of Environmental Quality Washington State	ronmental Quality ent of Ecology Results (250) set Project Name WQ AmbNet - Powder Bas WQ AmbNet - Grande Ro WQ AmbNet - Grande Ro Walla Walla Bacteria and WQ AmbNet - Snake Rive Statewide River and Stress	Curtis Cude Chris Neumiller / EIM Data Coordin sin onde Basin onde LT NPS d pH TMDL er Basin	503- 360- Refine 8/18/1998 8/18/1998 8/18/1998 6/22/1993 5/1/2002 10/14/2003	407-6258 Search End Da 	Page 1 of < < 1 > > te 004	1

Email Support



•



	Weak's star Otata Description at a final and
Data Source:	Washington State Department of Ecology
Name:	Walla Walla Bacteria and pH TMDL
Identifier:	582513
Description:	Conduct bacteria and pH TMDLs on 303(d) listed waters along the Walla Walla and Touchet Rivers and Mill Creek.
Study Area Description:	
Start Date:	5/1/2002
End Date:	7/15/2004
Contact:	Joe Joy Washington State Department of Ecology State or Provincial P.O. Box 47600, Olympia, WA 98504-7600 (360)407-6486 jjoy461@ecy.wa.gov

Email Support

Edit View Favo	orites Tools Help		<i></i>			
	ck ▼ → → 🙆 🖉 🚰 😡 Search 📷 Favorites 🛞 Media 🧭 🔂 + 🎒 🗹 🖪					
ss en http://deq12	.deq.state.or.us/pnwv	wqx/Results.aspx			•	∂Go (SnagIt
Projects (7) L	ocations (47)	Results (250)		Refine Sea	rch New Search
Previous Records	et Next Records	et Download Full Dat	taset			Page 1 of 1 < < 1 > >
Provider	Station Identifier	Station Name		Station Type	Well	Map Selected
DregonDEQ	10410	Wallowa River at Minam	ו	Stream or River		
DregonDEQ	10719	Grande Ronde River at	Hwy 82 (North Elgin)	Stream or River		
DregonDEQ	10720	Grande Ronde River at	Hilgard Park	Stream or River		
DregonDEQ	10724	Powder River at Hwy 86	(E Of Baker City)	Stream or River		
WADOE	1120772	WALLA WALLA AT DETO	UR RD	Stream or River		
DregonDEQ	11457	Minam River at Minam		Stream or River		
DregonDEQ	11490	Powder River @ Hwy.7 (In Baker City)	Stream or River		
DregonDEQ	11521	Grande Ronde River at	Peach Lane (Island City)	Stream or River		
DregonDEQ	12055	Mccoy Creek at D/S End	d Of Middle Bio Reach	Stream or River		
DregonDEQ	12057	Meadow Creek at D/S E	nd Of Lower Bio Reach	Stream or River		
DregonDEQ	12059	Dark Canyon Creek at I	D/S End Of Lower Bio Reach	Stream or River		
DregonDEQ	12182	Limberjim Cr at D/S End	d Of Upper Bio Reach	Stream or River		
DregonDEQ	12183	Limberjim Cr at D/S End	d Of Lower Bio Reach	Stream or River		
DregonDEQ	12997	Mccoy Creek New Chanr	nel Bio. Reach - D/S End	Stream or River		
WADOE	134640	SNAKE RIVER AT INTERS	STATE BRIDGE	Stream or River		
WADOE	1411001	N Fork Touchet R at S F	ork confluence	Stream or River		
WADOE	1483131	COLLEGE PLACE WASTE	WATER TREATMENT PLANT	Source		
WADOE	2220772	YELLOWHAWK CREEK W	/EST	Stream or River		
WADOE	2311001	Mill Cr at Swegle Rd		Stream or River		
WADOE	2473861	Touchet R @ Dayton Cit	ty Park	Stream or River		
DregonDEQ	29295	Mccoy Creek Lower Res	tored (T-1)	Stream or River		
WADOE	3120772	GARRISON CREEK		Stream or River		
WADOE	322011	Mill Cr @ Mission St		Stream or River		
WADOE	3311001	- Mill Cr at Wallula Ave		Stream or River		



DOH EIEIO Application

Fish Tissue Contamination and Birth Defects Assessment Application

Leveraging information published for multiple purposes..how does WA DOH access and store WA DOE data...

e change wa DOE and DOH...

- Version of WA DOE Node installed at DOH
- DOH allowed to use this to Query WA DOE Node for water sampling/fish tissue sampling projects and results published on the DOE Node
- DOH integrates this Node client (node that can call up the other Node with a simple command) into their application
- DOH can now query real time sampling from DOE and download into their application to look for trends.
- Illustration....



DOH EIEIO Application – Screen Shot 1 Query Results – List of Studies

EIEIO Fish Meal Limits Analysis Application	06. Laurence Nugent - Dav	e White's, Just	Cruzing (Reels	s) - 00:47 📃 🗖 🗙		
Projects Edit Admin Help Testing						
Data Acquisition Preliminary Analysis Analysis Scenarios	Final Analysis QueryTesting					
🕐 New Query 🔪 📓 Complete Data Aquisition						
E- 📓 Query Results	List of Studies from EIM Query					
🛛 🕀 📓 Walla Walla River Chlorinated Pesticide and PCB Tł	Project Name	Start Date	End Date	Study Area Descript		
🗄 📲 Washington State Toxics Monitoring Program 2003	Walla Walla River Chlorinated Pesticide and PCB TMDL	5/13/2002	9/3/2003			
Verification of 303(d) RCB Listing for Inner Budd Inle	Washington State Toxics Monitoring Program 2003	1/1/2003	10/23/2003			
Screening Survey of Mercury Levels in Fish Tissue	Verification of 303(d) PCB Listing for Inner Budd Inlet	9/6/2002	4/1/2003			
E LONG LAKE	Screening Survey of Mercury Levels in Fish Tissue	7/1/2002	11/26/2002			
Micropterus salmoides - 2098462	Arsenic in fish, sediments, and waters from four lakes, 2002	4/1/2002	5/31/2003			
Micropterus salmoides - 2000-02	Spokane River PCB TMDL	2/1/2003	7/14/2004			
Micropterus salmoides - 2088467	Walla Walla Bacteria and pH TMDL	5/1/2002	7/15/2004			
Micropterus salmoides - 2088469	Washington State Toxics Monitoring Program 2002	1/1/2002	8/16/2004			
Micropterus salmoides - 2088465	Inorganic Arsenic Levels in Puget Sound Fish and Shellfish	1/1/2002	12/1/2002			
Micropterus salmoides - 2088470	Verification of 303(d) Listed Sites in NWRO, CRO and ERO	10/9/2003	12/3/2003			
	B+LWetland Landfill	3/1/2002	11/1/2002			
Micropterus salmoides - 2088471						
Micropterus salmoides - 2098464	Query Button triggers Node client					
Micropterus salmoides - 2088468						
	Query Button 1155010 110000 entent					
	Dequest for figh tiggue compling data					
BANKS LAKE	Request for fish tissue sampling data					
	From WA Dept of Ecology					
AMERICAN LAKE BLACK LAKE DUCK LAKE						
			, SJ			
Selected Studies						
Erreger SHILESHOLE BAY	Start Date End Da	te Study Are	a Description			
SHILESHOLE BAY Walla Walla River Chlorin	ated Pesticide and PCB_TMDL 5/13/2002 9/3/200	3				
🖶 🌌 WENATCHEE BINEAE						
				Þ		
Work Space Analysis Project Details						

e change Network

DOH EIEIO Application – Screen Shot 2 Query Results Date Range, Location, Taxon, Analyte

EIEIO Fish Meal Limits Analysis Application	
Projects Edit Admin Help Testing	
Data Acquisition Preliminary Analysis Analysis Scenarios	Final Analysis QueryTesting
New Query 😰 Complete Data Aquisition	
⊡⑦ Query Results ⊕ KAH TAI LAGOON	Stations in Walla Walla River Chlorinated Pesticide and PCB TMDL
Walla Walla River Chlorinated Pesticide and PCB TMC	Station ID Station Name Station Location Description 9590911 UPPER WALLA WALLA FISH AREA OF FISH COLLECTION FROM THE MOUTH OF DRY CREEK (RM 2)
DEPER WALLA WALLA FISH	5521911 LOWER WALLA WALLA FISH AREA OF FISH COLLECTION FROM THE MOOTH OF DAT CREEK (RM 2.
	EIEIO Query Criteria
🕀 📓 WA State Toxics Monitoring Program-Exploratory Monil	Date Range Tuesday , January 01, 2002 💌 Thursday , November 18, 2004 💌
⊕ Stillaguamish River Watershed Fecal Coliform, Dissolve	
	Project Name November, 2004
Arsenic in fish, sediments, and waters from four lakes, 2	Location Canal Lake Sun Mon Tue Wed Thu Fri Sat 31 1 2 3 4 5 6
⊕- 😰 Okanogan River DDT/PCB TMDL Assessment ⊕- 😰 Spokane River PCB TMDL	7 8 9 10 11 12 13
🗄 📲 Metals and PCBs in Long Lake Fish	Taxon Bridgelip Sucker 14 15 16 17 19 20 Brown Bullhead 21 22 23 24 25 26 27
⊕	Brown Trout 28 29 30 1 2 3 4 Burbot 5 6 7 8 9 10 11
	Channel Catfish Chinook Salmon
⊕	Chinook Salmon - fall
⊕ Source Arsenic Levels in Puget Sound Fish and She ⊕ Source Arsenic Levels in Puget Sound Fish and She ⊕ Source Arsenic Arsenic Levels in Puget Source Arsenic Arsen	Analyte beta-endosulfan
Chambers Creek Mussels 2001 PCB Data	Arsenic (inorganic) Cadmium
⊕ 🖓 WA State Toxics Monitoring Program - pre-QAPP Tren ⊕ 🖓 B+L Wetland Landfill	Mercury (methylmercury) Selenium
	Tributyltin
	Query Cancel Help
Selected Studies	Studies to be Included in this Analysis Project
⊡ Verification of 303(d) Listed Sites in NWRØ, CRO and	Project Name Start Date End Date Study Area Description
	Verification of 303(d) Listed Sites in NWRO, CRO and ERO 10/9/2003 12/3/2003
Can retine query	search. Results brought back into database
Work Space Analysis Project Details	

Change What is the end result?

- Using the Exchange Network.....
 - Much better quality data being exchange
 - Data Standards embedded in XML Schema
 - Closely working with State/EPA Data Standards Council for new standard adoptions to incorporate
 - Machine to machine no human data entry mistakes
 - More data can be exchanged among new partners
 - Infrastructure can be applied to new data exchange types
 - New State to state exchanges already occurring
 - More timely data
 - Data can be published and exchanged as soon as partners agree. Machines do the work!

Change Reflections and Learning

- No longer dependent upon making sure systems can talk – web services are interoperable
- Provided an infrastructure and mechanism to support new data flows between existing and new partners!
- Publishing data in a secure place on the Exchange Network has proven far easier and sets a new <u>paradigm</u> for future data exchanges.

190 Other Exchanges Under Development – Partners are growing Fast!

- Pesticide-related illness surveillance data exchange
 - California Environmental Protection Agency Office of Environmental Health Hazard Assessment and California Dept of Pesticide Regulation

• Hazardous Materials data exchange

 California, Environmental Protection Agency's Unified Program Office working with certified local agencies who have authority for some inspections

Biodiversity Data exchange

 Delaware Department of Natural Resources and Environmental Control (DNREC), Washington Department of Ecology, and NatureServe (non-profit)

Watershed Data exchange

 Kentucky, Governor's Office for Technology, KY Dept of Environmental Protection, KY Office of Geographic Information, KY Commonwealth Office of Technology, USEPA Region IV, Open GIS Consortium

Other Exchanges Under

- Generic Homeland Security Exchange
 - Michigan Department of Environmental Quality, Maine Department of Environmental Protection, New Jersey Department of Environmental Protection, New Hampshire Department of Environmental Services
- Hydrographic Related Geospatial Data Exchange
 - Minnesota Pollution Control Agency, Minnesota Department of Administration's Land Management Information Center through the Minnesota Governor's Council on Geographic Information Hydrographic Committee
- Research and Metadata Exchange
 - University of Minnesota

Other Exchanges Under Development

- Air Monitoring Data Exchange
 - New Jersey Department of Environmental Protection, New York Department of Environmental Conservation, Delaware Department of Natural Resources and Environmental Control
- Best Management Practice installation and implementation data exchange for the Chesapeake Bay
 - Pennsylvania Department of Environmental Protection, Maryland Department of Environment, Maryland Department of Natural Resources, Maryland Department of Agriculture, Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, USEPA Chesapeake Bay Program Office

Ambient Air Quality Exchange

 Washington Department of Ecology (lead), pacific northwest states and tribes

Change 2005 and Beyond....

- Many new partners and projects underway
 - Suggestions for new data standards will most likely be found; open to adopting other standards already in place in other agencies.
- Looking at interoperability issues with other Networks
- More robust XML Registry or UDDI registry with validation routines is needed



network basics

build a node

data flows

evelop schema

etwork registry

progress

grants

press room

nessage board

workgroups

Welcome to the National Environmental Information Exchange Network website. The Exchange Network is a partnership between state environmental departments and the U.S. Environmental Protection Agency that is revolutionizing the exchange of environmental information. Partners on the Exchange Network share data efficiently and securely over the Internet. This new approach is providing real-time access to higher quality data while saving time, resources, and money for partner states, tribes, and territories.

news

State IT Profiles Available on ECOS Website more details...

Node Mentoring Workshop February 28 - March 1 more details...

eDWR XML Schema-to-SDWIS/State Converter Available more details...

See Michigan's eDMR Success Story more details...

new to the network?

Visit our network basics section to learn more about the exchange network and how it can help your state save money and improve its environmental data.

building a node?

The build a node section contains guidance to help you through the implementation process.

ready to flow data?

The data flow section lists available data flows and provides resources to get you started.

status of state nodes

A total of 31 states now have operational Nodes on the Exchange Network! Click the map for more details.



•

e change Contact Network





Molly O'Neill ECOS 202-624-3507



Pat Garvey U.S. EPA 202-566-1687

www.exchangenetwork.net