

GREAT LAKES REGIONAL COLLABORATION

Maumee Bay State Park

February 22-23, 2005

Day 1

Plenary Session (All Teams): 1:30 pm – 3 pm

Jim Zorn of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) welcomed attendees to the plenary session of the Great Lakes Regional Collaboration (GLRC) meeting. GLRC Executive Committee representatives and strategy team co-chairs were asked to stand up and introduce themselves. After introductions were made, team co-chairs were invited to make presentations to the group.

Persistent Bioaccumulative Toxics (PBT) Reduction Strategy Team

The PBT Team's mailing list contains 165 people. To date, the team has had four conference calls, with roughly 70-75 people participating on each call. They have organized a single drafting team of 22 people; this team will prepare the draft PBT action plan and submit it for comments to the rest of the group. Draft organizing concepts, goals, and an outline for the action plan have already been developed. The drafting team has also produced ten white papers addressing various aspects of the PBT problem. During this retreat, the team will meet to review those white papers, which describe current programs in place to deal with PBTs, and compare these programs to the goals the team plans to accomplish to identify any gaps that may exist. The team plans to have a draft plan complete by April 21, 2005.

Sustainable Development Strategy Team

The charge of the Sustainable Development (SD) team is to promote sustainable use practices that protect environmental resources while enhancing recreational and commercial value. The full team (220+ members) has participated in two conference calls and has divided into six work groups to address the six categories of human use activities identified in the Great Lakes Basin: land use and development; agriculture and forestry practices; transportation; industrial activity; water infrastructure, use, supply, and return; and recreation, tourism, and fisheries.

SD team members plan to interact with other strategy teams. They will produce a statement of current uses and future trends within the Basin by the first week of March, based on the six categories of human activities described above. Other teams can use this product to assess current uses and trends. The SD team will also create a liaison to establish a more direct partnership with some other teams. By April 21, the SD team plans to have completed a "raw" draft of a strategy document. Elements of this document will be integrated into one report by the next conference, scheduled for the end of April.

Nonpoint Source Strategy Team

The team's mailing list consists of 157 people. Of that number, a core group of 20 or 25 people has been established. Four conference calls have been conducted, in addition to the December meeting. The core group has developed a problem statement, which breaks the larger issue of nonpoint sources into five stressor issue areas. The group hopes to move forward with goal and objective setting in order to develop real action items. Currently, they are considering whether they have the scientific and monitoring data necessary to develop specific goals or whether they should focus on more general goals. One option is to divide the environments surrounding the Great Lakes and establish goals on a geographic basis. The team plans to work out these issues and spend time mapping out a collaboration strategy during this retreat.

Indicators and Information Strategy Team

Of the 145 people associated with this team, 25 to 30 will be particularly active members. The team's objective is to focus on standardizing and enhancing the methods by which information is collected, recorded, and shared throughout region. To do this, the team will focus on three steps: 1) describing existing programs and activities to collect observations, operate monitoring networks, and assess progress towards goals; 2) evaluating options for addressing identified needs; and 3) recommending specific actions to implement improvements to the indicator systems already in place.

The team is divided into five workgroups: indicators, data and information management (with an emphasis on standardization), research and monitoring, decision support, and communications. The team is also focusing on identifying people who could provide liaison services to other teams.

Aquatic Invasive Species Strategy Team

Team leaders have been selected by the co-chairs, and team calls are held on Tuesdays and Thursdays. Subgroups are currently working on reports describing five vectors of aquatic invasive species into the Great Lakes Basin. Once these reports are complete, the team plans to reassemble as a full group. By April 21, the team plans to submit draft reports on each of the five vectors of concern, rather than an integrated report.

Coastal Health Strategy Team

This team has held several conference calls, with 25 to 35 people participating on each call. Coastal health has been defined as human health risk caused by biological and chemical contamination released into near-shore tributary waters. This definition excludes some issues that need to be resolved by other teams. The team has developed a problem statement and six goals targeting specific causes of coastal health problems and risks.

The team plans to refine its goals by February 28 and develop an alternatives analysis by mid-March. A rough draft will be ready by April 21. The team will also continue working on pertinent appendices for each issue. During this retreat, the team plans to formulate an outline for a draft report, which will be complete by April 21.

Habitat/Species Strategy Team

About 212 people have signed up for the team so far. The team has had several conference calls. A small group was developed to create a problem statement, which was then proposed to the full group during a conference call. The team agreed to examine the entire ecosystem in the drainage basin to ensure that both terrestrial and aquatic issues were covered. The team also agreed to develop an analysis of environmental issues, stressors, and the status of programs to deal with those stressors. A workgroup is currently developing a matrix to assess the following geographic boundaries: uplands, tributaries, coastal wetlands and near-shore areas, and the open lake. The team then plans to perform a gap analysis and identify issues of overlap, such as contaminants in sediment that enter the food chain; siltation, sedimentation, and nutrients from nonpoint source management; and prevention and control strategies for exotic species. The team is also looking at issues that have more of a protection or prevention focus, particularly those related to threatened or endangered species.

Areas of Concern (AOC) and Contaminated Sediments Strategy Team

This group meets by conference call every two weeks. The charge of the team is to restore to environmental health AOCs that have been identified as being in need of remediation. To do this, the team is focusing on three key topics: Remedial Action Plan (RAP) program implementation, contaminated sediment remediation and the Great Lakes Legacy Act, and delisting/desired state. Key messages related to each of these topics were discussed. During the retreat, the team plans to work on its problem statement, concentrate on the costs of sediment remediation and program support, and determine a context for priority setting. By March 9, the team will have reports by each drafting team. By March 23, an overall draft will be submitted to the entire AOC team for comments. Comments are due back from the team by April 6, and the AOC draft report will be submitted to the Executive Committee by April 21.

Q&A Session:

Q: Decisions or recommendations for restoration by any team may affect the progress that another team might be making. Has anyone considered making a list of potential conflict areas and sharing it among all the teams?

A: The Executive Committee and team co-chairs met that morning to discuss this issue. They decided to create a matrix listing all teams and identifying the connections between them. In part, this exercise was designed to ensure that there were no gaps in what was being addressed by overlapping issues. The Executive Committee and co-chairs realized that the development of recommendations and actions will be an iterative process. One

reason the first drafts are due by April 21 is so that all teams can assess the potential impacts of other teams' actions. The Executive Committee and co-chairs agreed to keep a list of specific overlapping issues so that these can be addressed in one particular place.

Q: How will the Sustainable Development Team predict future human activities and resource use, and to what extent will that prediction impact their actions?

A: The team will borrow from existing documents and trend analyses rather than try to do novel work. It will simply be an exercise in compiling future trend analyses and then asking "what does that mean as far as sustainable use practices, and how does that influence our prioritization of alternatives that we want to encourage?"

Q: Communication is an overarching problem. Web pages have been developed, but will they be fully incorporated into the process over the next six months? Instant access to information generated by collaborators is needed. Also, the process does not address education and outreach; each focus area needs to incorporate needs for information exchange across the region.

A: One of the PBT white papers deals with education and outreach. Those issues will have to be put on the agenda for the upcoming meeting of the Executive Committee. This morning, the Committee discussed whether the general public should have access to team websites and concluded that the time is not yet appropriate for that.

Q: Will the Executive Committee provide guidance on how attachments or appendices will be included in the final report? Will they be accepted, and is there a limit to their size?

A: No details are available yet, but teams should work to develop a broad base of information into a four or five-pager. Once they see how the four or five-pager develops, they may have a sense of what appendices will look like. Teams should keep creating materials and accumulate a resource base. Guidance on the issue of appendices should be provided as soon as possible so that a common approach is taken by all teams. By tomorrow, the Executive Committee hopes to have an accepted format for the layout of the four to five-pager.

PBT Team Breakout Meeting - Afternoon Session, Day 1

Gary Gulezian, Director of the U.S. EPA Great Lakes National Program Office (GLNPO), welcomed the group and made introductory comments. Breakout session facilitators were introduced: Marcia Damato and John Perrecone from U.S. EPA Region 5. Those attending the session introduced themselves, and the facilitators reviewed the agenda for the two-day retreat.

Gary explained that the purpose of the breakout session was to review the team's short and long-term goals and compare these goals to the issue papers that have been

developed to see whether current programs would be sufficient to meet them. Any gaps identified would serve as the basis for new actions that may be necessary.

Melissa Hulting of U.S. EPA Region 5 reminded the group that the problem statement will be boiled down to a small part of the final strategy. Therefore, the group should not dwell on the goals or the problem statement, since time will be better spent discussing priority pollutants and recommendations for the strategy.

Presentations on the issue papers proceeded as follows, with key topics highlighted in bullet form. A flipchart was used to record important concepts for the team; these ideas are shown in **bold** text:

1. Regulatory Controls - Sue Brauer, U.S. EPA Region 5

- Numerous governmental agencies have influence over regulatory controls, including ATSDR, FDA, EPA, USDA, OSHA, and the Department of Homeland Security
- Many statutory authorities address the production, use, emissions, and cleanup of toxic pollutants in the U.S., including:
 - Clean Air Act
 - Clean Water Act
 - Comprehensive Emergency Response, Compensation, and Liability Act
 - Resource Conservation and Recovery Act
 - Emergency Planning & Community Right-to-Know Act
 - Food Quality Protection Act
 - Toxic Substances Control Act
- Burden rests on EPA to identify a substance as toxic in order to regulate it, which can be very difficult when scientists do not know what to look for

2. Pollution Prevention and Voluntary Programs

- Pollution prevention (P2) can influence persistent toxics management
- Successful P2 programs have been conducted by both government and industry, for example:
 - Household hazardous wastes
 - Mercury-free hospitals and schools
 - Pesticide Clean Sweep Programs
- Elimination of waste in the design of products is becoming a driving factor for the adoption of P2 by industry
- A large-scale, coherent P2 plan is needed, along with more integration between involved parties

Discussion:

Q: It is frequently effective to have a carrot/stick approach to environmental issues. Why is P2 not required more often?

A: In some cases, companies are unable to invest in P2. One of the team's short term goals could be to **find ways to encourage P2 up-front.**

3. Existing PBT Programs

- Great Lakes-based, nonregulatory programs were discussed:
 - Lakewide Management Plans (LaMPS)
 - Great Lakes Binational Toxics Strategy (GLBTS)
 - Remedial Action Plans (RAPs) for Areas of Concern (AOCs)
- Program approaches and accomplishments were covered

Discussion:

Dale Phenicie commented that a lesson learned from these programs is that it takes a long time to see results, sometimes longer than participants are willing to wait. The key to success is to keep working.

Q: Has there been any documentation of improvements in environmental condition as a result of program actions?

A: Fish, water, and air were analyzed to see if the GLBTS was affecting the levels and trends of toxic substances in the Great Lakes. In some cases, an impact could be observed. In others, none could be found.

Gary suggested that the group consider to what degree future programs should be national, international, or specific to the Great Lakes region. The team needs to think about the most effective way to solve the problem of PBTs in the Great Lakes. **Is this best addressed nationally, or in a Great Lakes focus?**

The group discussed emerging chemicals of concern and how these substances can be incorporated into existing programs. **Existing Great Lakes programs deal with existing chemicals of concern – how to address emerging chemicals?** It was also noted that **detection doesn't necessarily equal risk.**

4. Cleanup and Remediation

- Issue overlaps with other groups
- Existing remediation drivers include federal laws, real estate and port development, private-public partnerships, and voluntary actions
- Sources of funding for remediation include industry, Superfund, insurance settlements, and state/municipal/local funds

- Sediment remediation is in progress at 14 of the 26 U.S.-only AOCs
- Volume of sediment removed from Great Lakes Basin
- Processes used for remediation include monitored natural recovery, capping, and dredging (most common but most expensive)

5. *Education and Outreach*

- Efforts are currently ongoing, with a wide variety of organizations, endpoints, and delivery mechanisms
- Great Lakes Workgroup and Forum activities
 - Fish consumption advisories
 - Educational Tools for Educators – online resource
 - NOAA National Sea Grant Program
- Other programs were discussed
 - Federal Programs
 - Great Lakes Mid-Atlantic Center for Hazardous Substance Research
 - National Pollution Prevention Roundtable
 - Great Lakes Tribes
 - Canadian Centre for Pollution Prevention – Burn Barrel subgroup
- Any outreach efforts omitted from this discussion should be submitted to Murphy.elizabeth@epa.gov.

Discussion

The group discussed how recommendations can/should be communicated to people who will be affected by the information, particularly tribal and at-risk populations (e.g., pregnant women). **Communication/outreach should be considered for cross-cutting issues.** The group also discussed the **question of whether fish consumption information is really getting to the medical community, especially OB/GYNs.**

6. *Chemical Screening Programs*

- Summary table of U.S./international chemical screening programs was circulated
- Many programs were discussed in terms of what they evaluate and what types of data they collect, including:
 - TSCA
 - FIFRA
 - EPA OPPTS
 - EPA High Production Volume (HPV) Challenge
 - Toxic Release Inventory
 - PBT Profiler
 - EPA Endocrine Disruptor Screening Program

Discussion

Q: Is the PBT Profiler based on chemical characteristics and not volume/use in society?

A: The PBT Profiler only investigates whether a chemical is problematic on the basis of its structure. Volume is not considered.

7. Toxicology and Research

- Epidemiological studies investigating the human health impacts of exposure to persistent toxic substances were discussed
 - History of studies, particularly with respect to fish consumption in at-risk populations (e.g., Native Americans, pregnant women)
 - Limitations of studies
 - Current areas of research
- Environmental toxicology research
 - Observations made by past studies
 - Changing focus of ongoing efforts (e.g., use of biomarkers)
 - Current areas of research
- Collective weight of evidence across disciplines indicates that persistent toxic substances can cause neurobehavioral, developmental, and reproductive problems, despite limitations and weaknesses of evidence
- Information gaps include effects of multiple stressors, prediction of impact of new contaminants, and research to predict bioavailability and subsequent exposure

Discussion:

Some research is being done to identify the effects of persistent toxics on impaired populations (e.g., study of how exposure to contaminants affects autistic children uncovered significant impacts). **Consideration of effect upon population already ‘impaired’ – example of autistic children’s exposure**

Mike Murray of the National Wildlife Federation (NWF) commented that direct exposures should also be considered in the context of this topic. Exposure is not always a result of chemical buildup in the food web. **Keep in mind multiple exposure routes (e.g., occupational exposure).**

8. Current Great Lakes Toxic Monitoring Programs

- Most major programs are national; Great Lakes are fortunate in terms of how much monitoring is conducted in the region
- National emissions inventories:
 - U.S. TRI
 - Canadian NPRI
 - Great Lakes Air Toxic Emissions Inventory

- U.S. NEI
- National and state monitoring programs in the U.S. and Canada
 - Air monitoring
 - Water and sediment monitoring
 - Fish monitoring
 - Other biota (e.g., Canadian programs for birds, amphibians)
 - Humans (e.g., NHANES, which is focused on entire U.S., not Great Lakes)
 - Food (national only, none with Great Lakes focus)
- Data gaps
 - No regular feed of Great Lakes monitoring data into modeling exercise
 - NHANES data specific to Great Lakes would be very helpful
 - Not all sources covered in emissions inventories
 - Geographic and chemical coverage gaps in Great Lakes
 - Lack of AOC-specific monitoring

Discussion

The group discussed the need for monitoring information to be made available. **Note lack of modeling/monitoring at AOCs.**

Break for Dinner (5:30 pm to 7:00 pm)

PBT Team Breakout Meeting - Evening Session, Day 1

9. Value of Mass Balance Modeling in Formulating a PTS Reduction Strategy for the Great Lakes

- Mass balance modeling is one of three tools that can be used to formulate a PBT reduction strategy (along with research and monitoring)
- Quantitative connection must be made between sources and effects on humans
- Models can perform several important functions:
 - Serve as repositories for monitoring data
 - Help identify significant pathways to exposure within the system
 - Quantify relative contributions of pathways
- Mass balance and bioaccumulation models were described, along with specific examples of how these models can be used
 - Value of models for persistent toxic substance policy and management
 - Processes for using models to evaluate chemical reduction strategies and screen chemicals of emerging concern

Discussion

Q: How much would it cost to develop a basin-wide modeling framework?

A: There are different levels of sophistication, but a screening-level framework can be achieved within a couple of years at a cost of approximately \$200,000.

10. Indicators of PTSs in the Great Lakes Basin

- This topic should be closely coordinated with the Information and Indicators group
- Purpose of indicators (assess trends and evaluate progress towards goals)
- Four indicator categories
 - Concentrations in environmental compartments, biota, and humans
 - Emissions, loadings, and out-of-basin transport
 - Human and wildlife health impacts and biomarkers
 - Institutional or societal response actions
- Indicator programs in the Great Lakes
- Data quality and the role of information management in the use of indicators
 - Modeling can be used to fill data gaps
 - Better information management needed
 - Quality data needed to perform accurate trend assessments

Discussion:

The use of indicators is daunting, since all indicators are not equal. The team needs to determine what questions we face in order to figure out what the key indicators are. An indicator is something that is understood well enough that its measurement can shed light on the state of the environment; we **should not [consider an] indicator program [to be] a replacement for monitoring.**

A general comment directed at all the presentations was that we have focused on individual chemicals up to this point, but the team needs to move beyond that. Real-world exposures are not limited to individual chemicals.

Evaluation of Program Status

Jim Zorn and Gary Gulezian thanked everyone for their work on the white papers and asked the PBT Team to consider the goals that have already been developed by the writing team. If everyone agreed with the goals, the rest of the retreat would be spent discussing whether current programs and activities are sufficient to meet them.

The following long and short term goals were posted at the front of the room:

<u>Long Term Goals</u>	<u>Short Term Goals</u>
<ol style="list-style-type: none">1. Virtually eliminate the release of any or all persistent toxic substances to the Great Lakes2. Prevent the release of toxic substances in toxic amounts to the Great Lakes Basin3. Identify and prevent the release of any or all newly-identified sources of persistent toxic substances and toxic substances in toxic amounts...including working with other parties to prevent releases4. Remove all G.L. fish and wildlife consumption advisories based on toxic constituent concentrations5. Remediate all sediments contaminated with persistent toxic substances in the G.L. Basin6. Remediate other historical/reservoir sources of persistent toxic substances which impact the G.L. Basin7. Protect the public from toxic substances through effective and consistent outreach and education	<ol style="list-style-type: none">1. Completely integrate Great Lakes States' standards consistent w/40 CFR 132-G.L.W.Q. Guidance into NPDES Permits2. Universal compliance with the criteria set forth in the Great Lakes Water Quality Agreement, as amended3. Implement the toxic substances goals and objectives of the Binational Toxics Strategy, the Lakewide Management Plans & the 2002 Great Lakes Strategy4. Produce & communicate consistently protective fish consumptive advice

Long term goals were considered first. Gaps have been identified in these statements. First, there is no predictive element to identify the impact of new materials as they enter the system; such an element would allow the group to identify new materials requiring action. Second, there is no framework for prioritizing among emerging chemicals. The goals need to be worded to reflect the “state” the team eventually wants to achieve. Team members stressed the importance of including an exploratory element; the goals should not suggest that everything is known about these substances.

Sue Brauer suggested rewriting the goals to reflect a main “endpoint” goal, followed by subsidiary goals. The endpoint goal should be, “To restore and maintain the chemical integrity of the Great Lakes Basin.” Subsidiary goals could be written to correspond with the beneficial uses set forth in Annex 2 of the Great Lakes Water Quality Agreement. The team generally agreed with Sue’s suggestion of an overarching goal, maintaining that there is no need for the PBT Team to rewrite goals that have already been developed in historical Great Lakes documents. Gary pointed out that the team’s goal also needs to reflect a specific endpoint (i.e., when reduction and remediation activities will be considered successful/complete).

Dr. Joe DiPinto from Limno-Tech, Inc., suggested adopting two or three long term goals, at most. The first could be the one Sue suggested; another could be related to public outreach and education with respect to persistent toxic substances.

The team reached a consensus that the goals already put forward by the team's foundational documents are the ones that should be pursued. The drafting team can work on the specific wording of these goals, but the whole team is needed to determine what actions should be taken (e.g., modeling, education/outreach tools) to achieve them.

The group tentatively agreed to adopt a main goal with four subsidiary goals, as follows:

1. To restore and maintain the chemical integrity of the Great Lakes Basin through:
 - A. Prevention of new releases
 - B. Restoration of reservoirs
 - C. Identification of human health and ecological effects
 - D. Education and outreach

Sue Brauer commented that human health seems to be separated from ecosystem health and that ecological effects should be added to our goal statement. Joe asked if the team needed to qualify the term "chemical integrity" to reflect the persistent toxics of concern; he also asked if the goal referred to all chemicals in the lakes or to toxic substances only. Gary stated that the team is charged only with addressing toxic chemicals. Joe responded that, to avoid confusion, the statement should be qualified to reflect that specific charge. Gary suggested giving license to the drafting team to make the goals more elegant and responsive to historical documents. All other details can be addressed in the action plan.

The team debated the differences between short term goals, long term goals, and objectives. Gary suggested adopting whatever convention is adopted by the other teams so that common terms are used throughout the strategy. The most important step now is to conceptualize where the team wants to be; the terminology can be decided later. Specific comments related to short and long term goals are summarized below:

- With regard to fish, "Produce & communicate consistently protective fish consumption advice" (short term goal 4) is achievable in theory. However, "Remove all G.L. fish and wildlife consumption advisories based on toxic constituent concentrations" (long term goal 4) is unrealistic.
- "Completely integrate Great Lakes States' standards consistent w/40 CFR 132-G.L.W.Q. Guidance into NPDES Permits" (short term goal 1) is a legal requirement that should already have been met. However, NPDES is backlogged, and states are just now trying to get caught up. States have been adopting variances, or industries have been conducting other activities to mitigate emissions. Regulatory controls are part of the process, and this goal represents one such control. Dale Phenicie suggested that the goal be reworded to identify whatever institutional barrier is delaying the process (e.g., "Monitor and ensure compliance with Great Lakes...").
- The question was raised as to whether short term goal 2 (Universal compliance with the criteria set forth in the Great Lakes Water Quality Agreement, as amended) was the same as short term goal 1. Someone suggested adding "ambient" to the goal, but Gary responded that adding the word would modify the fundamental concept.

- Short term goal 4 (see above) could possibly be expanded to include other communication-related issues (e.g., education on burn barrels, removal of mercury and other persistent toxics from consumer products). There should be some way to measure the success of this goal.
- All goals will need to be associated with some sort of quantitative measure in order to ensure accountability.
- Tribes should be included in short term goals 1 and 2, since they are not subject to U.S. governmental regulations.
- Short term goal 3 (Implement the toxic substances goals and objectives of the Binational Toxics Strategy, the Lakewide Management Plans & the 2002 Great Lakes Strategy) was eliminated by consensus. However, salient elements of the documents referenced in short term goal 3 should be reviewed to see if they make sense in the context of what the team is doing. This review should be complete by the next conference call. The team should consider recommendations made by each of the LaMPs for persistent toxics to see if they would be appropriate for the PBT Team. Sue Brauer will work with the LaMPs to make this determination. Jon Dettling will take the lead on the Binational Toxics Strategy, and Jamie Shardt will cover the 2002 Great Lakes Strategy. By March 16, the team should be prepared to explore these recommendations.
- One of the team's actions should be to figure out where these goals overlap.
- The last short term goal (regarding fish advisories – see above) should be pulled out as a separate goal. It is important to produce consistent fish and wildlife consumption advisories, which currently are not standardized. However, a major problem is that many people are not following the advisories that are currently in place. Many have no idea that advisories exist, often due to language barriers. Communication of information is critically important, and a comprehensive system is needed to convey fish advisories to “marginal” groups.

Following the debate on goals, the team discussed plans for the next day's breakout session. Melissa Hulting asked white paper authors to write down gaps that exist between goals and current programs so that the team would have a starting point for discussion in the morning. Gary asked everyone to think about what actions they would like to see in the plan, as the team still has not come up with a satisfying construct for performing analyses. It may be easier to consider gaps after discussing these actions.

PBT Team Breakout Meeting - Morning Session, Day 2 (8:30 a.m. – 12:00 pm)

Jim Zorn welcomed the group to the second day of the retreat. After a brainstorming session on both existing chemicals of concern and emerging chemicals, a conference call would be made to update the rest of the PBT Team on progress made during the retreat.

PBT Brainstorming Session

The following suggestions were made during the brainstorming session. Ideas highlighted on the flipcharts are shown in **bold** text:

EXISTING CHEMICALS

- At some point the team can **work from the gaps identified in the white papers.**
- Ideas need to have an **international component.**
- There are numerous **screening programs (RCRA, TSCA, FIFRA, etc)** – **need to gather information from the various federal and state agencies** and store it in a central clearinghouse.
- The behavior and long-term exposure trends of chemicals in the lakes should be assessed in the same way that PCBs have been analyzed. Tools need to be applied to understanding the long term effects of these other chemicals.
- The behavior of individual and multiple contaminants in humans needs to be assessed. There is little biomonitoring data available, since it is difficult and expensive to obtain. A Great Lakes-specific NHANES would be very useful.
- Existing programs must be fully implemented for existing pollutants (e.g., residual risk assessment under the Clean Air Act and reassessments under FIFRA). Models and monitoring may be useful in assessing whether MACT standards have been met, but there is no need to wait eight years (the regulatory specification) to do that.
- A regulatory threshold should be established for PCBs under RCRA's land disposal regulations.
- Fish consumption is the route of greatest concern for human exposure, so adequate monitoring of fish tissues for PBTs is needed to evaluate progress. Beth Murphy, who runs a 30-year fish tissue monitoring program, requested that specific recommendations to monitor certain fish or add certain chemicals be forwarded to her. **Need more specificity to make this effective.** Sue Brauer commented that it would be helpful to know which chemicals were monitored and which were not. Archived samples can be used to track trends. Matt Hudson suggested relating biochemical markers at low biological levels to the population level.
- **To reduce PCBs in open lake fish – models show we would need to reduce current loads by 80-90%.** Regardless of what happens to contaminant loads, toxic substance levels will not decline significantly in fish within the next 5 to 10 years, due to sediment feedback. Models show that many PCB loads coming into Lake Erie are residual and not controllable point sources. Even if all point sources were eliminated, modeling indicates that only a minimal benefit would be achieved relative to no change in loads.
- Sue Brauer asked if every pollutant would have to be modeled individually to figure out how it should be managed. Joe DePinto responded that one chemical is not necessarily representative of large groups of priority pollutants.
- The group agreed that mercury is an important chemical to model. Additional funding is needed to complete mercury modeling for the Lake Michigan Mass Balance study. **Perhaps we should focus on contaminants driving fish advisories (mercury – next big one).**
- Recommendations were made to **conduct a source analysis for Lake Erie** to find PCB sources and to **continue to do modeling for other contaminants.**
- It is important to assess the effects of exposures to multiple compounds, instead of focusing on PCBs or any one substance. The tools discussed during this retreat

(e.g., mass balance modeling) can be used to conduct risk-based assessments of the team's action items. The team should be applying a process to each chemical, since **risk-based assessments of our action items will help us prioritize.**

- States may not be looking for all chemicals of concern. **Let's ensure we include voluntary programs in the suite of regulatory programs.**
- There is an international aspect to what the team is trying to accomplish. There is an opportunity to contribute to pollution prevention in areas beyond the Great Lakes. **Mercury – international sources: chlorine, mining**
- The Superfund tax should be reauthorized so more cleanups can be conducted; nearly all Superfund sites are contaminated with PCBs. Another option would be to push for mandatory phase-out of in-use PCB equipment and hydraulic fluids.
- **#1 goal – our actions should be driven by protection of human and ecosystem health.**
- Certain limitations may be impeding the team's progress: 1) available land in which to place remediated sediments, and 2) the concern over long-term liability in the Superfund program. Efforts should be made to rethink other disposal options and to work more cooperatively with Potentially Responsible Parties.
- The AOC/Contaminated Sediments Strategy Team is taking the lead on recommendations to deal with sediments. A need for **research on remedial technologies of sediment loads** was identified. The AOC team plans to prioritize AOCs in terms of inputs to loads. **Can our modeling in their group help inform their decision to prioritize AOCs?**
- No one is paying attention to PCB fluid used in small capacitors, which basically go unregulated. Non-utility owners purchase a large proportion of PCB transformers; these owners pose a greater problem than utilities.
- The team was asked if burn barrels should be addressed. Is it possible to decrease the dioxins being produced in burn barrels by looking at what is going into them? The GLBTS has established that burn conditions are more important than source materials. A great deal of information is available in Wisconsin, northern Michigan, and Ontario. It might be helpful to encourage people to take on burn barrels at a national level, since small towns may not have sufficient funds for proper garbage disposal. Successful model ordinances should be shared with other communities. The team should also **encourage implementation of national burn-barrel scale up via PBT program or other program.**
- The level of uncertainty in mass balance models was discussed. Joe DePinto is very confident of the Lake Ontario models.
- The team discussed the process of mercury methylation in different bodies of water **this can have an effect on the design of a monitoring program.**
- **Fish consumption advisories should have monitoring data in place to make decisions.** It is important to determine fish consumption advisory levels for chemicals other than mercury and PCBs.
- An outreach package should be developed for municipalities explaining how they can reduce releases of PBTs. Examples of successful programs should be included, such as automobile switch removal, burn barrels, and mercury reduction programs.

EMERGING CHEMICALS

- The team should **create a list of emerging chemicals – what we know about them: properties, behaviors.**
- Neither the states nor GLNPO is always able to fund monitoring of emerging contaminants. More funding is needed for routine contaminant monitoring in fish – this could encompass a wide variety of emerging contaminants.
- Current screening programs may not fully capture the risks certain chemicals pose (e.g., PBT Profiler looks mainly at aquatic life toxicity, not wildlife toxicity). Some chemicals are more toxic to wildlife than to fish, but this may not be captured.
- The team needs to determine if pharmaceuticals and other endocrine disruptors pose a significant risk; if so, a robust and economical method of removing them from wastewater is needed.
- A systematic method of prioritizing emerging pollutants is needed.
- Consistent messages must be used when communicating the threat of emerging contaminants to the public; also, there should be a way to measure the impact of advisories. Before giving advice, risk assessments should be conducted to prioritize the greatest threats. **Translate science into good communication.**
- Dale Phenicie asked if there is any difference between a ranking system for emerging contaminants and one for existing contaminants of concern. He suggested that it is important to flesh out in the report the methods used for ranking. However, it was also pointed out that emerging chemicals need to be identified first.
- The difference between existing chemicals and emerging chemicals is the amount of data available about them. A systematic approach to gaining this information is needed so that we can be more proactive instead of reactive. We should respond more quickly to known threats, but it is of even greater importance to respond more intelligently. Models can be used to start gathering the necessary data for emerging chemicals but may be insufficient for predicting health/ecosystem effects.
- In making recommendations for screening programs, we **need to determine if we address issues nationally or on a regional basis (recommendations should consider which focus).**
- We should **encourage development of green chemistry and Design for the Environment (DFE) principles** in the manufacture of new chemicals.
- It is important to communicate with those working in chemical screening programs; these people are usually absent from the conversation. Program gaps should be identified so that we can examine how the gaps impact our recommendations. A chemical screening workgroup was formed with members to include: Seth Dibblee, Frank, Dale, Will, Mike M., Rachel, Melissa, and Sue.
- U.S. EPA headquarters does not necessarily have the resources or analytical methods necessary to screen emerging chemicals. Dale suggested that the companies that developed these chemicals should have methods for analyzing them. However, it was noted that lack of funding often hinders the development of analytical methods for compounds in all matrices. Sue Brauer suggested that regional EPA laboratories could be helpful in developing protocols.

- Gary reminded the group that the draft report is due April 21, but recommendations should be put together long before that. Initial ideas for specific actions are due by March 15.
- We need to **improve recycling programs now in order to be prepared for emerging contaminants**. The Coastal Health team is also working heavily on these issues (e.g., combined sewer overflows).
- Quantitative Structure-Activity Relationships (QSARs) are not necessarily well developed when it comes to how they act in non-target receptor organisms. Improved QSARs should be developed.
- Since funding is frequently the limiting factor in obtaining monitoring data, current funding should be used more effectively (e.g., reduce frequency of monitoring for chemicals that are of declining concern, pursue cheaper technologies, such as passive sampling). However, it was noted that many samples over a long period of time are needed to establish trends and to achieve statistical robustness.
- **Need analytical guidelines from EPA that accurately reflect current technology/lab techniques/methods.**
- An action item suggested for the team was a literature review to see what chemicals have been detected throughout the Great Lakes Basin. Then, the team can evaluate whether the chemicals may be harmful, based on what is known about them. The newly formed chemical screening subgroup can do this. (There may have been a paper on this topic in IAGLR within the past two years.)
- We must understand the path from source to the environment, especially for emerging chemicals. TSCA and RCRA programs may be good sources of information (except for imported products and inorganic chemicals).
- It might be helpful to assess the relative effectiveness of mandatory and voluntary programs so that successful activities can be identified and imported to other areas.
- Emission controls are needed on fossil fuel power plants (new source review). Coal-fired power plants are the largest remaining source of mercury air emissions. Some states are developing their own rules for coal-fired power plants, and there is room for Great Lakes states to adopt more stringent rules.
- The report should address the fact that power plants are the largest air emission source of mercury and that these emissions need to be controlled. The writing team will generate a draft report based on the ideas discussed here. EPA will issue a final rule on mercury on March 15.
- Another action item could be to **support PBT phaseout programs**.
- A valuable product of this breakout session would be a list of action items for every level of government. **We need to be able to delineate at each level of government what they can realistically do and what it would take to do those actions.**
- The group agreed to develop a matrix describing steps that could be taken at each stakeholder level for each category of activities. Stakeholders were identified as follows:

Levels of government:
 International/binational
 Federal

State
Tribe
Municipal

Industry
NGOs
Citizens
Health Professionals
Academia
Science
Community Groups (could be NGOs)

Categories of action to be included in the matrix were identified:

Outreach
Research
Enforcement
Assessment
P2
Remediation
Monitoring
Regulatory Programs

- The drafting team will take a stab at developing the matrix. The next step will be to identify priorities for actions that need to be taken. The highest priorities will be included in our report. Priorities should be broken down into short-term and long-term issues; the Executive Committee has developed criteria that can be applied to help make priority decisions. The time frame for short-term priorities is within five years; long-term priorities extend beyond that period.

Conference Call (12:00 PM – 1:00 PM)

Marcia Damato initiated the conference call to update the rest of the PBT Team on progress made during the retreat. Melissa Hulting summarized the activities of the past two days:

1. Authors presented white papers; these will be sent to Jon Dettling for posting on the PBT website.
2. Reviewed goals and concluded that we did not need to renew past battles; agreed that drafting team would revamp goals based on existing goals in past documents. The drafting team will send revised goals to the whole group.
3. Brainstormed possible actions we would want in the strategy document. Melissa will provide list of brainstorm actions to the rest of the group. Team members should review list and use e-mail to send any new ideas to Melissa or Ted Smith. They will try to have actions ready for the group conference call on March 16.

4. Actions must be divided among different responsible groups (government, citizens, etc.). We will map out which level can contribute to realizing each action. Actions will be grouped by broad category.
5. Realized we do not know what national screening programs have done to screen chemicals already in commerce or screen new chemicals; a subgroup has been formed to look at what has been done at that level.

Gary Gulezian reported on the previous day's meeting with all strategy teams and co-chairs. Three issues were highlighted:

1. Overall schedule for report to be produced by collaboration: the Executive Committee endorsed a schedule leading to the release of a draft for public comment in early July. An important milestone to meet this date is to have a rough draft finished by April 21.
2. Overlapping issues among strategy teams: one exercise we will undertake is to create a matrix that will be a guide to overlapping issues among the team; this matrix will clarify which team will be addressing issues most directly and which will be cross-referencing issues in its report.
3. Communication: recognized need for much better communication between and within teams. We need to make sure we have websites or other means to communicate where things stand so people know where we are and how we can contribute.

Jim Zorn reviewed the general schedule for PBT Team activities:

- Next full team call is March 16
- Next opportunity for team to meet is April 28-29, when all rough drafts will have been submitted. This meeting is scheduled for Traverse City, Michigan.
- The July 7-8 summit will be held in Duluth, but it is unclear whether the PBT Team will have an opportunity to work at this time.
- Another meeting opportunity (post-public comments) will be October 6-8.
- Ultimate release date is December 12.

Gary ended the conference call and thanked everyone for attending.