Dioxins and Furans

Work Group Co-Chairs:

Anita Wong, Environment Canada

Erin Newman, U.S. EPA

Dioxin/Furan Challenges

Canada

- 90% reduction *
- by 2000

* All media within Great Lakes Basin

- Progress: 87% reduction on total release within GL Basin

United States

- 75% reduction *
- by 2006

* Aggregate of air releases nationwide and water releases within the Great Lakes Basin

- Progress: Goal most likely has been met**

** Dependent on release of final reassessment

Environmental Analysis Conclusions

Trend

- **Long-term historic decline in sediments (30 years), decline in herring gull eggs, urban air (Canada), pork and poultry, human body burden, human serum and breast milk**
- **Unclear trend in rural air, open water, fish tissue, commercial food supply, beef and dairy**

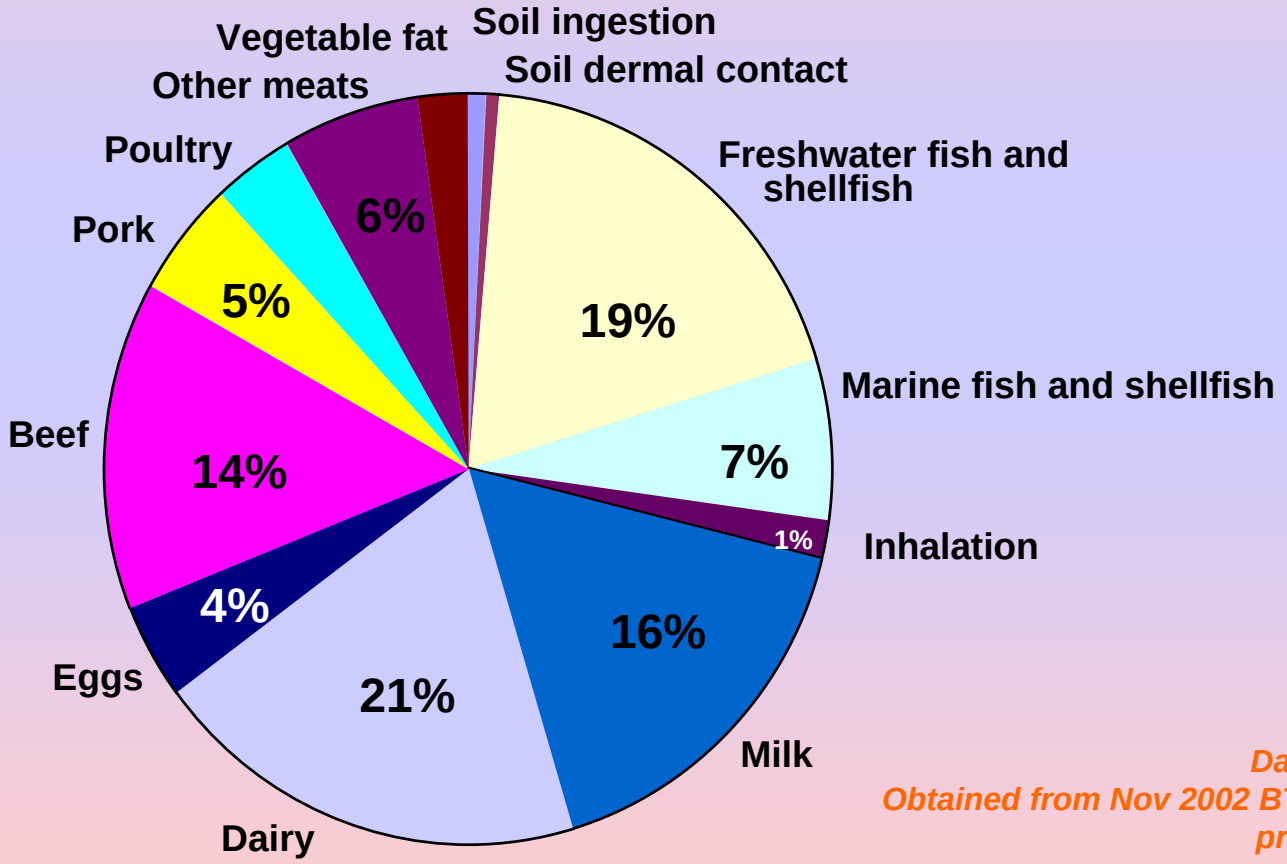
Environmental Analysis Conclusions

Exposure

- Meat and dairy represent 50% of exposure and fish represent the next major food exposure pathway
- Unclear whether exposure is driven by industry sources or uncontrolled burning/reservoir sources

U.S. Adult Average Daily Intake of CDDs/CDFs/Dioxin-like PCBs

2000 Draft Estimate: ~ 65 pg TEQ_{DFP}-WHO_{98}/day



Data Source: Obtained from Nov 2002 BTS Plenary presentation

Environmental Analysis Conclusions

Impact

- **Despite declining trend, dioxins and furans continue to have an impact on human exposure and the GL ecosystem**

  e.g. criteria exceedances in sediment, issuance of fish advisories, St. Clair-Detroit river

Ability for the BTS to Affect Further Reductions?

Opportunities

- Continue activities identified in workplan:
  - Burn Barrel is “greatest opportunity”
  - Report on Sources Addressed via National Programs, such as PCP Treated Wood
  - Characterize Sources of Concern Within the Basin
  - Outreach to Sources/Sectors of Interest
  - Explore Pathway Intervention
  - Identify Joint Priorities Between Workgroups
  - Investigate Coplanar PCBs
  - Science – track trends and levels in environment
  - GLBTS still has ability to influence dioxin issues

Ability for the BTS to Affect Further Reductions?

Considerations

- Within BTS scope to address pathway intervention to reduce exposure?
- How to engage interested stakeholders (states, province, municipal, health, agriculture), resource constraint an issue
- Level of input expected from workgroup members
- Resource availability to conduct studies/programs
- Value of BTS efforts to national dioxin programs

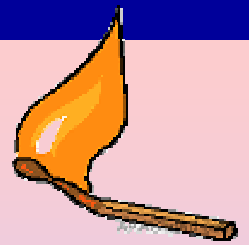
Current Known Sources of Dioxins and Estimated Releases in Ontario

Known Ontario Sources (2004 estimates)	Percent Release Estimate (g/TEQ/year)
Open Burning Household Waste (Barrel Burning)	23% (7.6)
Motor Vehicles	16% (5.6)
Nonferrous Foundries (smelting, refining)	10% (3.4)
Federal Waste (incineration)	8% (2.7)
Sewage Sludge (land application)	*8% (2.6)*
Mining & Smelting (base metal smelting)	5% (1.9)
Iron Manufacturing (sintering)	5% (1.7)
Iron & Steel (electric arc furnaces)	5% (1.6)
Thermal Power Generation (fossil fuel)	4% (1.3)
Waste Wood (steam plant)	3% (1.0)
Municipal Solid Waste (landfill fires)	3% (1.0)
Other	10% (3.4)
TOTAL	**100% (33.7)**

Current Known Sources of Dioxins and Estimated Releases in U.S.

Known US Sources (2002/2004 estimates)	Percent Release Estimate (g/TEQ/year)
Open Burning Household Waste (Barrel Burning)	57% (628.0)
Sewage Sludge (land application)	*7% (76.6)*
Residential Wood Burning	6% (62.8)
Coal-fired Utilities	5% (62.1)
Diesel Trucks	3% (35.5)
Secondary Aluminum Smelting	3% (29.1)
2,4-D (land application)	3% (28.9)
Iron Ore Sintering	3% (28.0)
Industrial Wood Burning	2% (27.6)
Cement Kilns (non-hazardous waste)	2% (17.8)
Sewage Sludge Incineration	1% (14.8)
EDC/Vinyl Chloride (includes land, water, and air)	*1% (12.3)*
Municipal Solid Waste Combustion	1% (12.0)
Bleached Pulp & Paper Mills (water release)	1% (12.0)
Oil-fired Utilities	1% (10.7)
Crematoria	1% (9.1)
Cement Kilns (hazardous waste)	1% (7.7)
Medical Waste Incineration	1% (7.0)
Unleaded Gasoline	1% (5.9)
Other	2% (19.9)
TOTAL	**100% (1105.8)**

Poorly Characterized Sources



- Secondary metal smelting
- Coke production
- Ceramic manufacturing
- Clay processing
- Foundries
- Asphalt mixing
- Petroleum refineries
- Textile and leather dyeing
- Diesel vehicles*
- Industrial Boilers
- Residential wood burning
- Crematoria
- Forest fires
- Brush fires
- Range fires
- Agricultural burning
- Landfill Fires
- Structural fires
- Ash Disposal
- Copper wire smoldering
- Rural soil erosion
- Urban runoff
- Utility poles and storage yards
- Landfill fugitive emissions
- Transformer storage yards
- PCP wood preservative

* Off-road stationary and small trucks and buses

Ability for the BTS to Affect Further Reductions?

Pursuing additional opportunities may be beneficial for the following reasons:

- National dioxin activities reduced, further GLBTS actions would continue the momentum for reducing dioxins in the GL Basin
- Opportunities for joint workgroup collaboration would combine resources to impact multiple Level 1 substances
  - BaP/HCB workgroup – uncontrolled combustion
  - PCB workgroup - on coplanar PCB, pathway intervention
  - Source characterization
  - Reservoir sources
- Linkage with CEC-NARAP and Stockholm Convention

Management Outcomes

Not Feasible:

- **Set new quantitative challenge**
  - **Emissions low, not practical for remaining sources**
- **LaMP - specific**
  - **Issue not lake specific**

<u>Recommendation</u>

- **Continued Active Level 1 status**
- **Frame new qualitative challenge goals**
- **Continue to address issues identified in workplan**

Management Outcomes

Recommendation (cont.)

- Consider structural changes
  - Annual meeting for co-chairs to provide progress
  - Revisit the need for a D/F workgroup; may have co-chairs or a core group oversee a few workgroups (e.g. pathway intervention, source characterization, uncontrolled combustion, burn barrel, source/sector specific WG)
  - Revisit WG members and structure (engage local government officials, reps from health and agriculture)

Management Outcomes

What does the substance workgroup specifically require from the Integration Workgroup in order to realize the suggested management outcomes?

Advice on:

- **Consideration points under "Ability for BTS to affect further reductions" (Slide 8)**
- **Items under "consider structural changes" in Management Outcomes (Slide 13 & 14)**
  - **E.g., Meeting frequency, WG structure**

Ability for the BTS to Affect Further Reductions?

Considerations

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