

South River Science Team Human Exposure Pathways Evaluation

Activities Update
Expert Panel Meeting
October 7, 2009



Human Exposure Evaluation

The key objectives:

- **better identify potential exposure,**
- **define potential risks and uncertainties,**
- **communicate information to the public.**

Human Exposure Evaluation

Exposure Team Members

DEQ: Don Kain, Calvin Jordan, Bill Hayden

EPA: Betty Ann Quinn

VDH: Doug Larsen, Jonathan Falk, Ram Tripathi, Dwight Flammia, Julia
Murphy

DGIF: Steve Reeser, Paul Bugas, Nelson Lafon

DACS: David Brown

DuPont: Mike Liberati, Ralph Stahl, Annette Guiseppi-Elie, Tim Ireland

Human Exposure Evaluation

Exposure scenarios to be evaluated

- √ Fish Consumption
- √ Recreational Use of River
- √ Potential Drinking Water exposures
- √ Contact with soils on the floodplain
 - Potential dietary exposures
 - Domestic consumption, e.g., Garden crops, Beef, Poultry
 - Hunting consumption, e.g., waterfowl, small game

Communicating to public on these issues

Human Exposure Evaluation

Floodplain soils

- Potential exposure evaluated:
 - √ direct contact (soil sampling);
 - √ ingestion of garden crops (2-year garden study);
 - √ ambient air (2 rounds of ambient air sampling)
- Next steps – communicating results
 - √ General conclusions included in fact sheet,
 - Letters to landowners in final review,
 - Specific results on soil samples
 - General conclusions
 - Fact sheet on soil sampling in review
 - Peer review publication of garden crop study in final review

Human Exposure Evaluation

Potential dietary exposures

- Domestic consumption, e.g., Beef, Poultry
- Hunting consumption, e.g., waterfowl, small game
- √ Literature review of tissue levels completed
 - Includes domestic & game animals, total and methyl mercury
 - In general, results consistent with expectations
- √ Waterfowl samples results available
 - 10 Canada geese, 10 Mallards, 2 Wood ducks
 - In general, results consistent with expectations
- √ Results of small game analysis
 - Muskrats, squirrels available
- Next steps: develop plans to evaluate potential consumption

Human Exposure Evaluation

Potential dietary exposures

- For wildlife evaluation, sampling plan for deer that graze on the floodplain based on likely exposure scenarios will be developed. Considerations for developing the plan include:
 - Rationale for choosing deer (versus, for example, raccoons, mourning doves, opossum, turkey, etc)
 - Supplemental sampling of Wood ducks.
 - Results of prior wildlife (waterfowl, squirrels, muskrats, snapping turtles)
- Sub-team (Jordan, Quinn, Bugas & Guiseppi-Elie) to develop plan
 - Draft in development
 - Study to take place in the next six months.

Human Exposure Evaluation

Potential dietary exposures

- For livestock evaluation, sampling plan for cattle that graze on the floodplain based on likely exposure scenarios will be developed. Considerations for developing the plan include:
 - How cattle are used and consumed
 - How milk from cattle is used/consumed
 - Defining which cattle actually graze on the floodplain
 - Use of the VDACS post-mortem facilities for determining general background levels as well as potential floodplain animals
 - Incorporating background levels in supermarket beef products
 - Rationale for choosing cattle (versus goats, sheep, pigs, poultry)
- A sub-team (Jordan, Quinn, Brown & Guiseppi-Elie) will draft plan for review by rest of team, implementation 2010

Human Exposure Evaluation

Health survey at local clinics

- √ Local physicians (explicitly made aware of issue) have not reported any signs/symptoms
- √ Local health clinics have been provided literature (in both Spanish and English)
- Health survey to address effectiveness of consumption advisories
 - Survey completed
 - Data being analyzed

Human Exposure Evaluation

Communication

- Disseminate information to the public
- Opportunities:
 - √ Fish advisory signs/information kiosks
 - √ New signs in English & Spanish
 - √ Information to local health clinics
 - √ Information to local physicians (Newsletters)
 - Fact Sheets (2 completed, 1 in review)
 - Communications to landowners (in progress)
 - Meetings with local officials
 - Public presentations (rotary, schools)
 - Community advisory panel (in progress)

WARNING

Health advisory on eating fish

Fishing near fish farm sites may be harmful to your health. These fish may contain mercury. Eating fish contaminated with high levels of mercury over time can permanently damage the brain, kidneys and unborn child.

At some fish farm operations, water is treated with antibiotics and young fish are fed fish oil. Fish should follow the directions in the table on the type and amount of fish to eat.

For more information:
Vermont Department of Health
800-845-6102
www.vermont.gov



Table 1
Mercury Advisory Levels

Fresh Water Sites: No Consumption of fish or shellfish is advised at these sites. Do not consume fish from these sites.

Offshore (Atlantic Ocean and Long Island Sound): No Consumption

The following applies to the fish listed below:

Do not eat:
any fish species from these sites. Do not eat any fish from these sites.

¡CUIDADO!

RECOMENDACIONES DE SALUD SOBRE EL CONSUMO DE PESCADO

Puede que los pecados de estas aguas contengan mercurio. El mercurio puede ser peligroso para su salud. Si los pescados de estas aguas, solo deben consumirse las truchas. Las truchas repetidas han sido examinadas y son aptas para el consumo.

VDH VERMONT DEPARTMENT OF HEALTH
804-864-6102
www.vermont.gov

Human Exposure Evaluation

Fact Sheets

√ Initial fact sheets completed

√ Fact Sheet 1: General Introduction

– *About the South River Science Team*



Fact Sheet 1

√ Fact Sheet 2: Exposure Summary

– *People, Mercury, and the River*



Fact Sheet 2

– Other Fact Sheets, as warranted

- Potential for 2009

- Soil sampling results (as relevant to human exposure) in review

- Wildlife