

South River Science Team Human Exposure Pathways Evaluation

Activities Update
July 13, 2010



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, Dwight Flammia, Karen Gruszynski

DGIF: 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

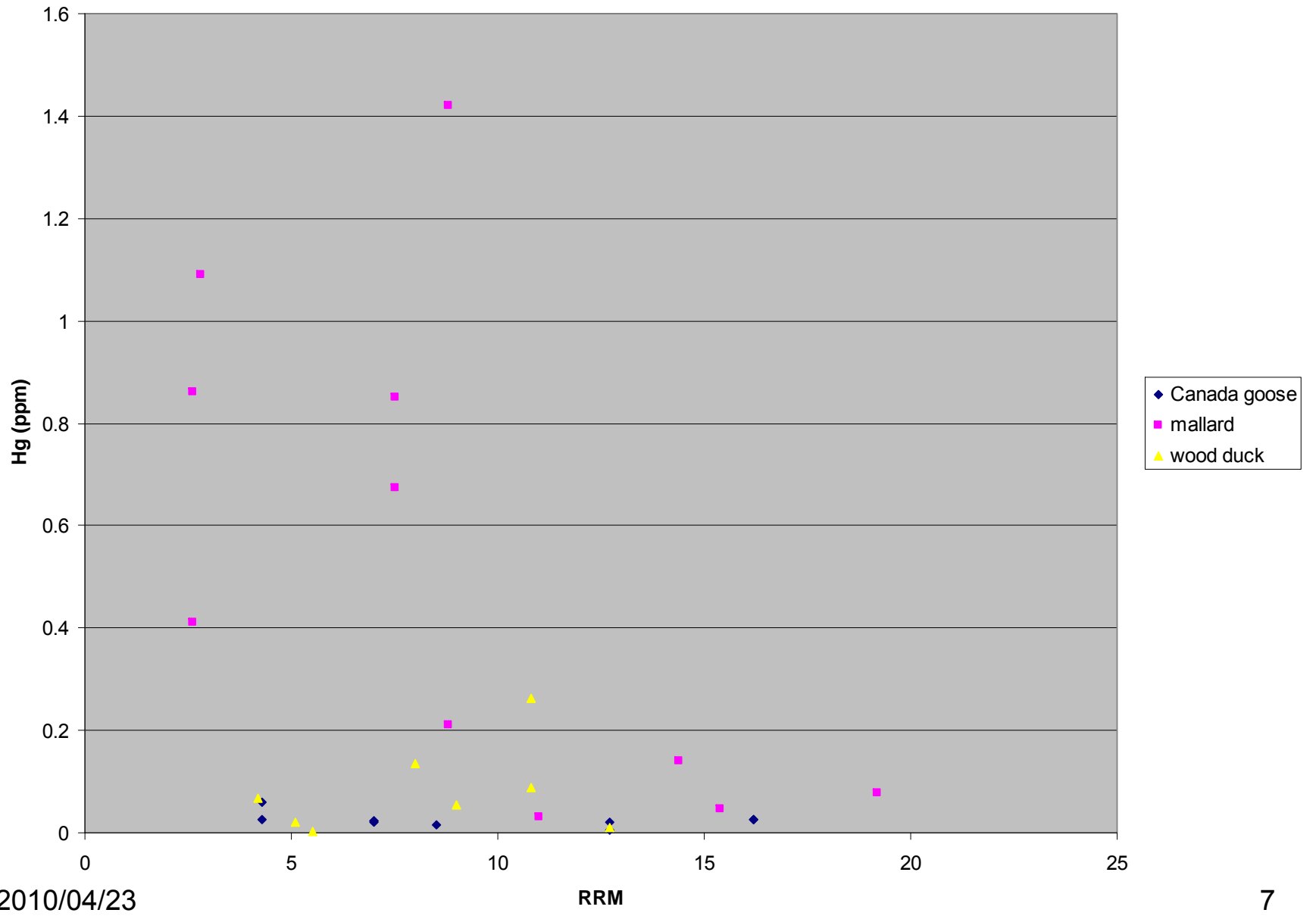
- Potential exposure evaluated:
 - √ direct contact (soil sampling);
 - √ ingestion of garden crops (2-year garden study);
 - √ ambient air (2 rounds of ambient air sampling)
 - Next steps – communicating results
 - √ General conclusions included in fact sheet,
 - √ Letters to landowners sent, follow up phone calls
 - Specific results on soil samples
 - General conclusions
 - √ Fact sheet on soil sampling completed
 - Some additional soil sampling at specific locations, including ponds
 - Peer review publication of garden crop study being revised per reviewer comments

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, 11 Mallards, 8 Wood ducks
 - In general, results consistent with expectations
- √ Results of small game analysis
 - Muskrats, squirrels available
- Next steps: develop plans to evaluate potential consumption

Waterfowl Muscle Tissue Total Hg



2010/04/23

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, Lafon & Guiseppi-Elie)
 - Workplan complete.
 - Research permit obtained.
 - Study in progress.
 - Two deer (1 control, 1 Forestry Center)
 - Plans for collecting others this fall

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, Gruszynski & Guiseppi-Elie) will draft plan for review by rest of team, implementation 2010
 - Meeting this summer to advance the plan

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)
 - √ Communications to landowners
 - Fact Sheets (3 completed, 1 in review)
 - Garden Study Fact Sheet in progress
 - Meetings with local officials
 - Public presentations (rotary, schools)
 - Community advisory panel (in progress)

Human Exposure Evaluation

Fact Sheets

√ 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

√ Fact Sheet 3: Soil Sampling Results

– *Summary of South River Floodplain Soil Survey*



Fact Sheet 3

– Other Fact Sheets, as warranted

• Potential 2010/2011

– Garden study (in progress)

– Wildlife