

***Developing Delisting Criteria
for the Detroit River Area of
Concern***

**Dave Dolan, Natural & Applied
Sciences, University of Wisconsin
- Green Bay**

Acknowledgements

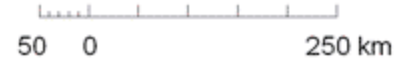
- Commissioned by the Detroit River Canadian Cleanup Committee
- Funding from Environment Canada's Great Lakes Cleanup Fund and the Great Lakes Sustainability Fund
- Workshop Hosted by the Great Lakes Institute for Environmental Research at the University of Windsor
- Proceedings Edited By Pat Murray, University of Windsor

Great Lakes Drainage Basin - St. Lawrence River



Legend

- Lake Huron Drainage Basin
- Lake Michigan Drainage Basin
- Lake Erie Drainage Basin
- Lake Superior Drainage Basin
- Lake Ontario Drainage Basin
- US/Canada Border
- Cities/Towns



Detroit River



Detroit River AOC

- One of Five International RAPs
- Stage 1 Review: 1992
- Stage 2
- Delisting Criteria (Stage 3)
- Workshop on Delisting Criteria for the Detroit River Area of Concern
 - April 26-27, 2002

Criteria Development

- Draft Detroit River Delisting Criteria
 - Two Binational Meetings in 2000
 - Scientists, Resource Managers, Citizens
- Public Review and Consultation
 - Three Binational Meetings in 2001
 - Identified Eight Primary BUIs

Primary BUIs for the Detroit River Area of Concern

- Restrictions on fish and wildlife consumption
- Degraded fish and wildlife populations
- Fish tumours and other deformities
- Bird or animal deformities or reproductive problems

Primary BUIs for the Detroit River Area of Concern (Cont'd)

- Degradation of benthos
- Degradation of phytoplankton and zooplankton populations
- Loss of fish and wildlife habitat
- Exceedance of water quality objectives

Detroit River



Workshop Planning

- Identify Detroit River Experts for each BUI
- Charge to Experts:
 - Present technical summaries of the eight primary BUIs
 - Recommend specific delisting criteria
 - Identify monitoring needs and sampling protocols

Detroit River Experts

- Paul Baumann (US Geological Survey and Ohio State University)
- Jan Ciborowski (GLIER, University of Windsor)
- Ken Drouillard (GLIER, University of Windsor, previously with Environment Canada)

Detroit River Experts, Cont'd

- Keith Grasman (Department of Biological Sciences, Wright State University, Dayton, OH)
- Al Hayton (OMOE's Sport Fish and Habitat Program)
- Russell Kreis, Jr. (US EPA, ORD, Large Lakes Research Branch, Grosse Ile, MI)

Detroit River Experts, Cont'd

- Bruce Manny (US Geological Survey and RAP Habitat Committee member)
- Scott Painter (Environment Canada)
- Mike Whittle (Department of Fisheries and Oceans)

BUI # 4: Fish tumours and other deformities

- Liver tumor incidence is less than 5 percent for brown bullhead aged years three and up;
- External tumor incidence is less than 12 percent for brown bullhead aged three years and up;
- The incidence of barbel anomalies is less than 12 percent for brown bullhead three years and up;
- The above criteria are met at the 10 percent significance level in all areas of the Detroit River; and
- The above criteria are met during at least three sampling periods spaced two to three years apart.

BUI #15: Exceedance of water quality objectives

- The geometric mean for RAP-critical pollutants found at the upstream/downstream water quality index stations during the “ice-free” season complies with the most stringent Canadian and US guidelines.

Delisting Criteria Needs

- Monitoring
 - Baseline
 - Verification of Remediation
- Sampling
 - Regular Annual Programs
- Research
 - Better Indicators, More Sensitive Tests

Next Steps

- Publish Workshop Report
 - Environment Canada Publication
- Establish Baseline Monitoring Programs
- Apply Criteria as Stage 2 Proceeds
- Verify Target Achievement

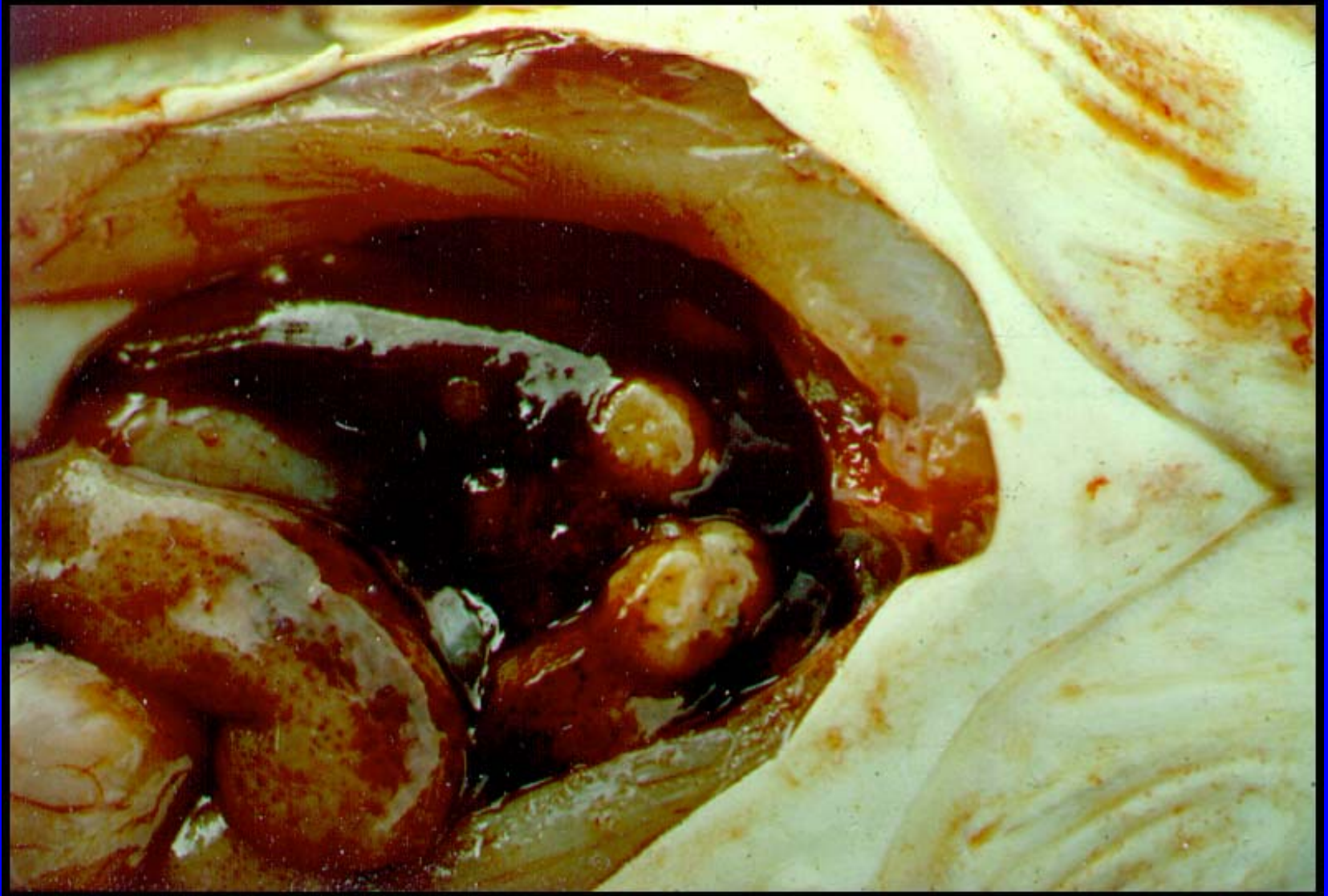
Questions?

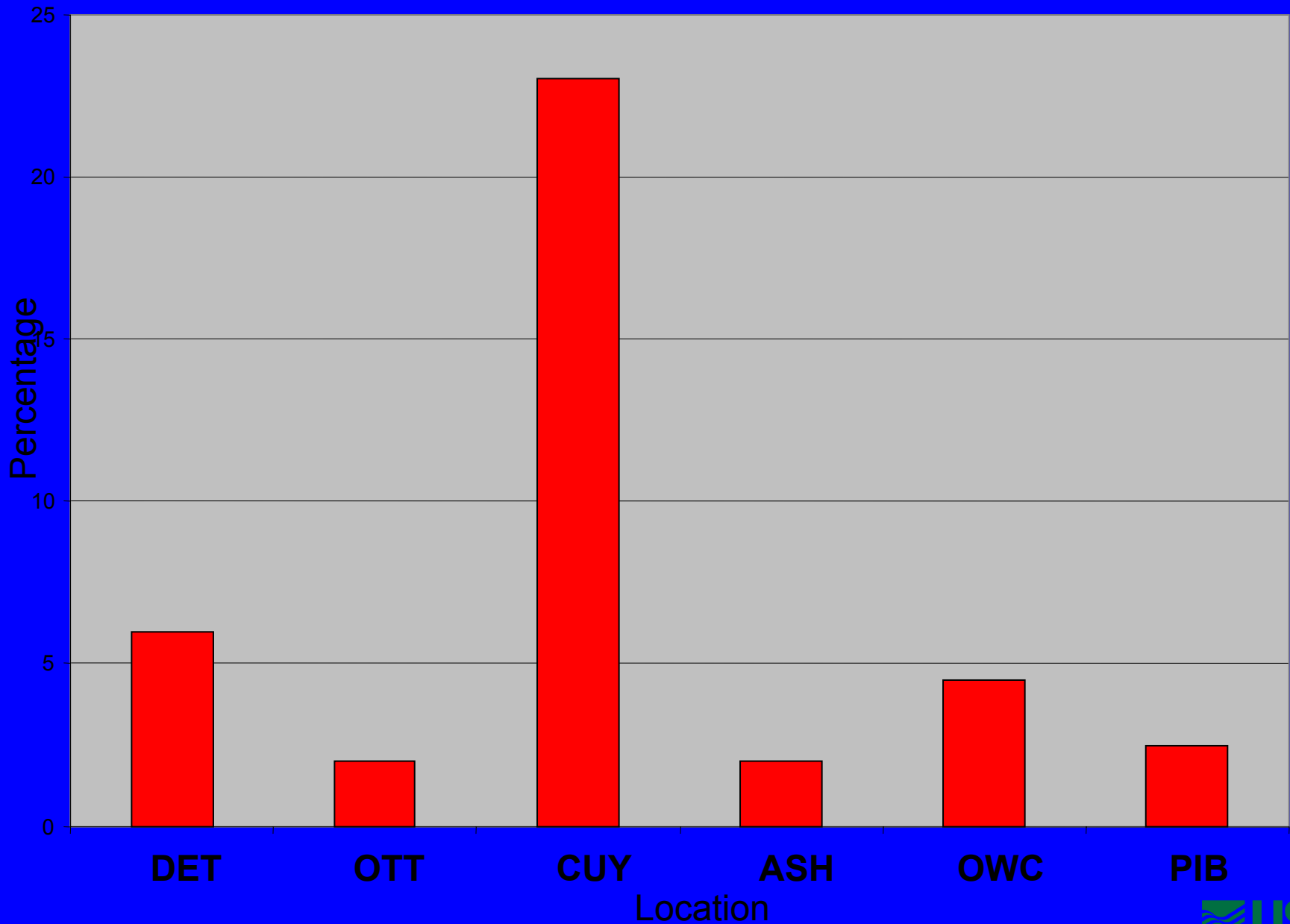
- To Request a copy of the **Workshop on Delisting Criteria for the Detroit River Area of Concern Proceedings**, e-mail Sandra George, Environment Canada at:
- Sandra.E.George@ec.gc.ca

Pathology Indices

- **Liver Tumors**
 - Liver Cell or Bile Duct Cell
 - Foci or Neoplasms or Cancer
- **Skin Tumours**
 - Oral lesions or Melanistic lesions
- **Barbel Pathology:**
 - Shortened or knobbed

Internal Pathology

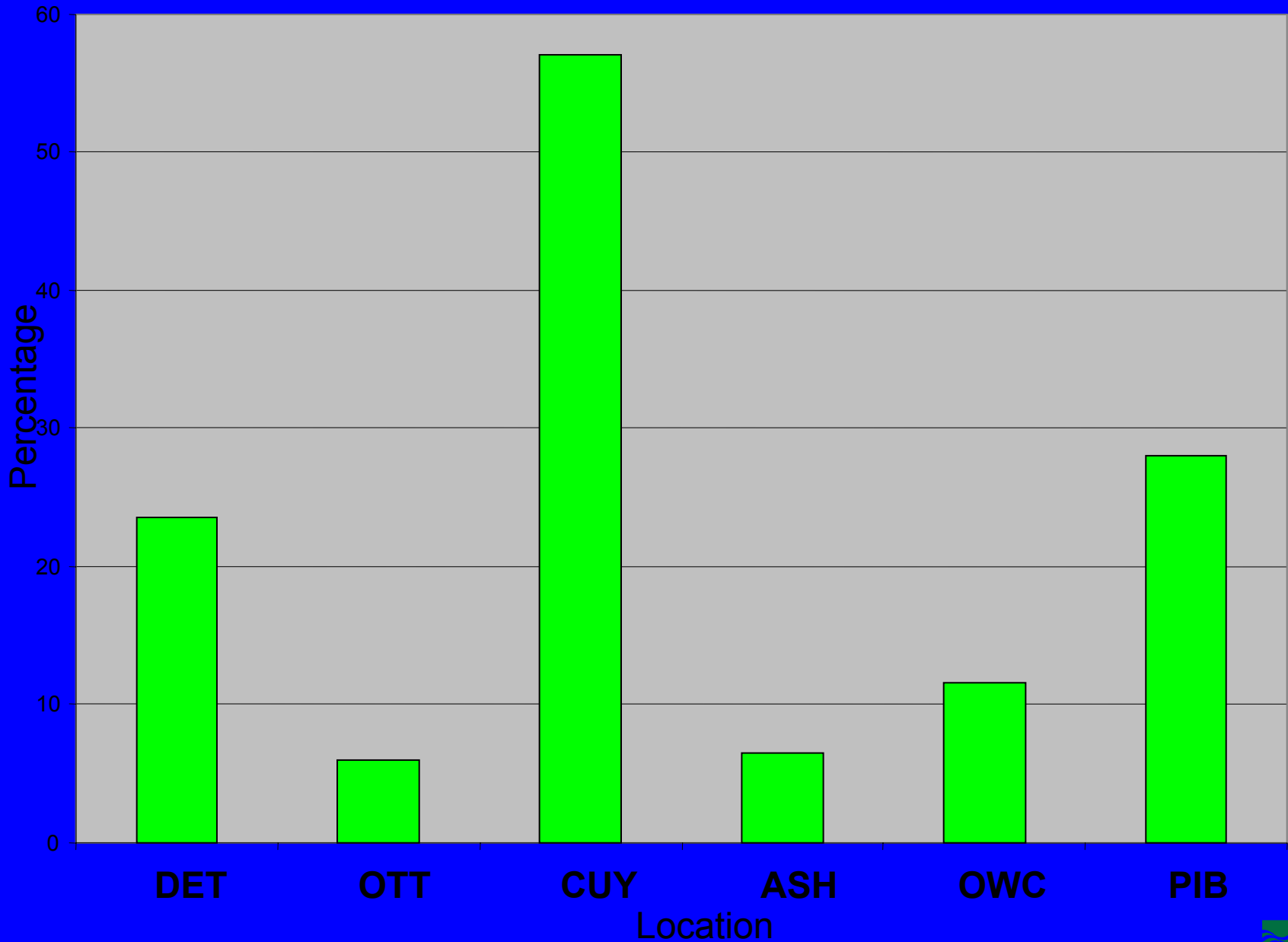




External Abnormalities and Tumors



External Tumors



Barbel Abnormalities

