This presentation is for informational use and may not reflect views shared by the Department of Pesticide Regulation

CWA-FIFRA Common Effects Characterization Methodology

Patti TenBrook, EPA Region 9

PREC, March 18, 2011

United States
Environmental Protection
Agency

Outline

- Background
- EPA activities to date
- Next steps

Background

- Both the Office of Pesticide Programs (OPP) and the Office of Water (OW) assess the effects of pesticides on aquatic ecosystems
  - High quality data
  - Peer-reviewed methodologies
- There are a few key differences
  - OPP assesses all pesticides; for OW pesticides are one of many contaminants that need water quality criteria
  - OPP assessment can be done with less data than is required by OW criteria derivation methodology

Stakeholder concerns

- Need consistent and timely Federal input to help gauge whether pesticides represent a concern for aquatic life—criteria/benchmarks/reference values
- Want OPP and OW to have a consistent and common set of effects characterization methods.
- Want OPP and OW to use species of similar sensitivity, and/or to include uncertainties about sensitivity in characterizations of potential adverse effects.

Freshwater Fish--Acute

	FIFRA (40 CFR Part 158); **pesticide registration**	CWA (40 CFR Part 136 & Methods); **no toxics in toxic amounts**
Preferred	**Rainbow trout** **Bluegill sunfish**	Most sensitive (in CA Basin Plans)
Others	Atlantic salmon **Brook trout** Channel catfish Coho salmon Common carp **Fathead minnow** Guppy Red killifish Threespine stickleback Zebrafish	**Fathead minnow** Bannerfin shiner **Rainbow trout** **Brook trout** **Bluegill sunfish**

Freshwater Inverts--Acute

FIFRA (40 CFR Part 158)	CWA (40 CFR Part 136)
Daphnia magna ***Daphnia pulex***	Most sensitive (in CA Basin Plans) among: *Ceriodaphnia dubia* ***Daphnia pulex*** ***Daphnia magna*** Stoneflies Crayfish Mayflies *Hyalella* spp. *Chironomus* spp.

Freshwater Sediment--Acute

FIFRA (40 CFR Part 158)	**EPA ORD Method**
Hyalella azteca ***Chironomus dilutus* (formerly *tentans*)** *Chironomus riparius*	***Hyalella azteca*** ***Chironomus dilutus* (formerly *tentans*)**

What does this mean?

Example: bifenthrin water exposures

Daphnia magna = 1.4 ug/L
Ceriodaphnia dubia = 0.107 ug/L
Hyalella azteca = 0.0093 ug/L

LC_{50} values (from ECOTOX database)

→NPDES permittees have to comply with CWA "no toxics in toxic amounts" using most sensitive species

Scoping Document (April 2009)

- Goal: common basis for achieving water quality protection goals established under CWA and FIFRA
- Focus on data-limited situations
  - Insufficient data for Office of Water Criteria
  - Sufficient data for risk quotient approach used by Office of Pesticide Programs
- Potential uses of the common methodology
  - Derivation of benchmarks/criteria/reference values
  - Interpretation of monitoring data
  - Assessment of uncertainties in interspecies sensitivity

Note: Formal revisions to existing OW and OPP assessment methodologies are not being proposed as part of this process.

Public Meetings

- Regional (Jan 2010)
  - Region 9 meeting in Oakland
  - Stakeholder input on initial thinking

------White Papers drafted------

- National (Dec 2010)
  - Washington, DC
  - Stakeholder input on draft white papers

White Papers

- "Exploration of Methods for Characterizing Effects of Chemical Stressors to Aquatic Animals"
  - Explores approaches that rely on empirical toxicity test results to derive community level benchmarks for aquatic animals
- "Predicting the Toxicities of Chemicals to Aquatic Animal Species"
  - Overview of predictive methods that can generate surrogate values
- "Exploration of Methods for Characterizing Effects of Chemical Stressors to Aquatic Plants"
- Introduced new term: Aquatic Life Screening Value (ALSV)

Current Status & Next Steps

- EPA working to analyze approaches and develop methodology
- SAP/SAB review
  - Tentatively scheduled for November/December 2011
  - Papers will be combined into one document
  - SAP/SAB will evaluate proposed methodology and assess approaches and tools

Websites, Dockets

- Google: epa common effects methodology
  - http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/cem.cfm
  - Best site
- Google: epa opp ow common effects methodology
  - http://www.epa.gov/oppefed1/cwa_fifra_effects_methodology/
- Docket for Regional Stakeholder meetings
  - EPA-HQ-OPP-2009-0773
- Docket for National Stakeholder meeting
  - EPA-HQ-OW-2010-0818

Contacts

- Joe Beaman, EPA Office of Water
  - beaman.joe@epa.gov
- Mark Corbin, EPA Office of Pesticide Programs
  - corbin.mark@epa.gov
- Cindy Roberts, EPA Office of Research and Development
  - roberts.cindy@epa.gov
- Patti TenBrook, EPA Region 9
  - tenbrook.patti@epa.gov