UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

February 28, 2007

MEMORANDUM

SUBJECT: Effects Determinations for Atrazine Relative to Eight Listed Freshwater Mussel Species and Designated Critical Habitat

FROM: Anita Pease
ERB III
Environmental Fate and Effects Division

TO: Arthur-Jean B. Williams, Associate Director
Environmental Fate and Effects Division

Attached is the assessment of potential effects to eight listed freshwater mussel species (pink pearly mucket, rough pigtoe, shiny pigtoe, fine-rayed pigtoe, heavy pigtoe, ovate clubshell, southern clubshell, and stirrup shell) and designated critical habitat for the ovate and southern clubshell mussels, from uses of the herbicide atrazine. While the Endangered Species Act requires we assess uses of pesticides relative to any potentially affected listed species, this assessment focuses only on the eight identified species, including designated critical habitat, addressing provisions of a settlement agreement entered into by the federal government to resolve claims made by plaintiffs against EPA in a court case (NRDC v. EPA[1]).

The attached assessment was conducted consistent with the Agency's Overview Document[2]. Effects determinations for this assessment are summarized below:

- The effects determination for the stirrup shell mussel is "no effect" because this species is presumed to be extinct.

- A likely to adversely affect ("LAA") determination was concluded for seven of the eight assessed species based on indirect effects to habitat and water quality via sedimentation resulting from direct effects to herbaceous/grassy riparian vegetation. However, atrazine is not likely to adversely affect listed mussels in watersheds with predominantly forested riparian vegetation because woody shrubs and trees are generally not sensitive to environmentally-relevant concentrations of atrazine.

---

[1] Settlement agreement of March 28, 2006: Natural Resources Defense Council v. United States Environmental Protection Agency. Civ. No: 03-CV-02444 RDB.

[2] Overview of the Ecological Risk Assessment: Process in the Office of Pesticide Programs, U.S. Environmental Protection Agency: Endangered and Threatened Species Effects Determinations: January 23, 2004.

- "LAA" effects determinations were also concluded for the following primary constituent elements associated with potential adverse modification to critical habitat for the ovate and southern clubshell via atrazine-related impacts to herbaceous/grassy riparian vegetation: alteration of host fish spawning habitat, increase in sedimentation and resulting impact on silt-free substrates and turbidity-related water quality parameters, and alteration of streambank stability.

- An "LAA" determination was concluded for indirect prey and habitat effects to the pink pearly mucket, rough pigtoe, and fine-rayed pigtoe that occur in highly vulnerable watersheds of the action area, based on potential direct aquatic plant community-level effects. This determination was based on the results of recently submitted atrazine monitoring data from vulnerable watersheds; however the degree to which the targeted monitoring data represents exposure in occupied streams that co-occur with vulnerable watersheds is not available. If further analysis reveals that the monitoring data are not representative of atrazine concentrations in vulnerable watersheds where these listed mussels occur, the "LAA" effects determination will be revisited and could be changed to "NLAA" for these species.

As required by the Alternative Consultation Agreement EPA entered into with the U.S. Fish and Wildlife Service and National Marine Fisheries Service (Services), I have been trained by the Services to make such determinations. Additionally, this assessment was subjected to internal Agency peer review throughout its development. The review panel included two other scientists who have been trained by the Services to make such determinations (Dr. Edward Odenkirchen and Dr. Melissa Panger).

Please let me know if you have any questions regarding this assessment and effects determination for atrazine relative to these eight listed freshwater mussels and designated critical habitat.

cc: Steven Bradbury
Debbie Edwards

Attachments