United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region

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MAY 18 2009

Carol Rushin, Acting Administrator
U.S. Environmental Protection Agency
1595 Wynkoop Street
Denver, Colorado 80202-1129

Dear Ms. Rushin:

We are writing to provide you with U.S. Fish and Wildlife Service's (Service) input regarding a proposed numeric water quality selenium standard for the Great Salt Lake recently submitted to your office by the Utah Division of Water Quality (Division). Our comments reiterate issues brought up by members of my staff raised via their participation in the Great Salt Lake Science Panel, Great Salt Lake Steering Committee and Water Quality Standards Workgroup. Our comments are provided pursuant to the Migratory Bird Treaty Act (MBTA) and consultation directed under the Clean Water Act (CWA) (33 U.S.C. 1314(a)(2)). We are concerned that the proposed selenium standard submitted for your approval would result in the "take" of migratory birds in violation of the MBTA (16 U.S.C. 703-712); therefore, we are providing the following comments and recommendations to assist you in your review and subsequent action upon the proposed selenium standard.

HISTORY

In 2004, the Division initiated a significant effort to develop a selenium standard for the open, saline waters of the Great Salt Lake. Although numeric water quality standards, including criteria for selenium, exist for the wetlands surrounding the Great Lake Salt Lake, numeric standards have not been established for the open, saline waters of the Great Salt Lake. The absence of a standard is due, in part, because typical environmental conditions and aquatic species used to derive numeric water quality criteria do not exist in the lake.

Avian and fish reproduction are two of the most sensitive endpoints for selenium. In freshwater systems, the toxicity of selenium to fish is used to develop water quality criteria. There are no fish in the Great Salt Lake. Avian reproduction was subsequently selected as a suitable endpoint.

Using water quality standards to protect avian resources of the Great Salt Lake is appropriate because designated beneficial uses for the lake include "waterfowl, shore birds [sic] and other water-oriented wildlife including their necessary aquatic organisms in their food chain" (Utah Administrative Code R317-2-6.5). The use of avian reproduction is a valid approach for establishing a numeric selenium standard for the Great Salt Lake.

Executive Order 13186 (January 10, 2001) clarifies responsibilities of Federal agencies to protect migratory birds. The executive order directs executive departments and Federal agencies to promote conservation of migratory bird populations. The order also instructs Federal agencies to avoid or minimize adverse impacts on migratory bird resources when conducting agency actions and to prevent or abate pollution or detrimental alteration of the environment for the benefit of migratory birds.

The Division has proposed setting a selenium standard for the Great Salt Lake as a geometric mean concentration in avian eggs of 12.5 mg/kg, dry weight, a concentration that represents a 10 percent reduction in hatchability of mallard eggs based on a modeled estimate (also known as an EC^1). Adoption of this standard would mean that mortality of approximately 10 percent of mallard eggs is likely. As you are aware, take of this type is prohibited by the MBTA.

We also are concerned that applicability of mallard data to other avian species at the Great Salt Lake is uncertain. Toxicity profiles are available for very few of the species among the full spectrum of breeding birds that occur at the Great Salt Lake. While we know mallards are more sensitive to selenium than American avocet, black-necked stilt, and snowy plover, we also know American coots are more sensitive than mallards [2 3 4]. There are species of grebe, phalarope, and waterfowl utilizing the Great Salt Lake for which we have no data. Therefore, we recommend approval of a selenium standard be based upon a no effect standard, which would avoid prohibited mortality and take under the MBTA.

The Division has developed the proposed selenium standard for the Great Salt Lake based on their belief that the wildlife criteria developed in 1995 under the Great Lakes Initiative supports the Division's proposed EC^1. However, we believe the Great Lakes Initiative is more stringent than the proposed selenium standard for the Great Salt Lake. Criteria for the Great Lakes

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[1] Ohlendorf, H.M. 2003. *Ecotoxicology of selenium.* Pages 465-500 *in* D.J. Hoffman et al., eds. *Handbook of Ecotoxicology,* Second Edition, Lewis Publishers, Boca Raton, FL.

[2] Ohlendorf, H.M. R.L. Hothem, C.M. Bunck, T.W. Aldrich, and J.F. Moore. 1986. *Relationships between selenium concentrations and avian reproduction.* Trans. N. Am. Wildl. Nat. Res. Conf., 51:330-342.

[3] Ohlendorf, J.H. 1989. *Bioaccumulation and efffects of selenium in wildlife.* Pp. 133-177 in: "Selenium in Agriculture and the Environment", Soil Science Society of America, Special Publication No. 23.

[4] DuBowy, P. 1989. *Effects of diet on selenium bioaccumuation in marsh birds.* J. Wildl. Manage., 53:776-781.

Initiative were developed using a No Observed Adverse Effect Concentration (NOAEC) rather than an EC^1. While a NOAEC may approximate an EC^1 in some cases, it also may represent a wide range of effect levels including a no effect concentration. Thus, we believe there should be a distinction between standards that are based on a lack of observed effects (i.e., NOAEC) and standards that are based on an explicit 10 percent effect. To our knowledge, your agency has not previously proposed or approved a standard explicitly based on an avian EC^1.

AVIAN USE OF THE GREAT SALT LAKE

The national and international importance of the Great Salt Lake ecosystem to avian fauna is well documented. The lake's location, size, and ecological features make it an irreplaceable and immitigable ecosystem. The fourth largest terminal lake in the world[5], it is situated approximately midway within an avian migration route between northern Canada and South America. Located between the arid desert to the west and rugged mountains to the east, the Great Salt Lake and its associated wetlands are a vital staging area in an otherwise arid region.

The Great Salt Lake is part of the Western Hemispheric Shorebird Reserve Network (Network), a distinction afforded to only five areas in the lower 48 States[6]. To meet requirements of the Network, an area must support more than 20,000 shorebirds, or 5 percent of a flyway population. The Great Salt Lake ecosystem easily exceeds those standards: Wilson's phalarope (500,000; largest staging concentration in the world), red-necked phalarope (240,000), American avocet (250,000; exceeds any other wetland in Pacific flyway), black-necked stilt (65,000; exceeds any other wetland in Pacific flyway), and marbled godwit (30,000; the only staging area in interior USA)[7].

MIGRATORY BIRD TREATY ACT

The MBTA implements the United States' commitment to four bilateral treaties for the protection of migratory birds. A list of birds protected by the MBTA can be found in 50 CFR § 10.13 and includes most species commonly found at the Great Salt Lake. The MBTA prohibits "take" of migratory birds, their nests or their eggs unless permitted by regulation (16 U.S.C. 703(a)). The Service administers a permit program to regulate activities involving migratory birds and we issue permits to qualified applicants for import/export, scientific collecting, taxidermy, waterfowl sale and disposal, educational use, game bird propagation, salvage, falconry, raptor propagation, rehabilitation, control of depredating migratory birds, and miscellaneous or special purpose activities (50 CFR 21).

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[5] Arnow, T. and Stephens, D. 1990. *Hydrologic chracteristics of the Great Salt Lake, Utah*: 1847-1986. *U.S. Geological survey Water-Supply Paper 2332*. Salt Lake City, Itah. 32 pp.

[6] Manomet Center for Conservation Science. (*Great Salt Lake Western Hemisphere Shorebird Reserve Network Site* [Web {age] URL http://www.manomet.org/WHSRN/viewsite-new.php?id=36 [2007, September 14]

[7] Utah Division of Wildlife Resources. 2008. *Great Salt Lake's importance to birds*. [Web Page]. URL http://wildlife.utah.gov/gsl/waterbirdsurvey/RPT07Importance.htm#Anchor-Table-33869. [2009, January 20].

Unlike some other laws that require intent, the MBTA is a strict liability statute, which means no intent is required for there to be a violation and as a result, even the unintentional take of migratory birds is prohibited. Furthermore, there is no permit available to allow for the unintentional take of migratory birds that would result from this proposed standard.

In this case, it is foreseeable that the proposed standard will result in the prohibited take of migratory birds in violation of Federal law. The prohibition of take should be an important consideration when developing and evaluating any water quality standard involving migratory birds, particularly when the take is likely or as in this case, an inevitable outcome. Recent case law has affirmed Federal agencies are subject to the MBTA (*Humane Society v. Glickman*, 2000) and that intentional and unintentional take of migratory birds is a violation of the MBTA (*Center for Biological Diversity v. Pirie*, 2002).

PROPOSED SELENIUM STANDARD AND TAKE OF MIGRATORY BIRDS

The proposed selenium standard for the Great Salt Lake would result in the take of migratory birds (i.e., the mortality of embryos), as predicted by the aforementioned modeling. Such take would be in violation of the MBTA and also would be inconsistent with the responsibilities stipulated in Executive Order 13186.

Previous water quality standards approved by the Environmental Protection Agency were based on effects to fish and aquatic invertebrates, which are not subject to Federal authorities like the MBTA and Executive Order 13186. We acknowledge these previous numeric standards have allowed for up to a 20 percent effect on fish and aquatic invertebrates; however, no water quality standard has ever been approved that explicitly would result in the take of migratory birds.

RECOMMENDATIONS

Your approval of the proposed selenium standard for the Great Salt Lake would result in the take of migratory birds. Additionally, implementation of the standard would be insufficient toward long-term conservation of the Great Salt Lake's migratory bird resources. We recommend the selenium standard be set at a no effect concentration (i.e., an EC_0; 5 mg/kg) rather than at a 10 percent effect level[8]. Setting the standard at a no effect level would avoid anticipated harm to avian reproduction, would address uncertainties in the effect models and ecosystem processes, would avoid detrimental alterations of the environment, and would still allow current and additional discharges of selenium to occur.

We encourage you to review the no effect recommendation from the Great Salt Lake Science Panel, the no effect recommendation by the Service, and four other members of the Great Salt Lake Steering Committee, and Service comments submitted to the State of Utah (August 20, 2008) on proposed changes to the water quality standards. These recommendations and documents provide a solid scientific basis for selecting a no effect selenium standard for the Great Salt Lake.

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[8] Skorupa, J. 2008. *Great Salt Lake selenium standard: written recommendation to the Steering Committee*, in *"Development of a selenium standard for the open waters of Great Salt Lake." State of Utah, Utah Department of Environmental Quality, Utah Division of Water Quality. Salt Lake City, Utah.*

We appreciate the opportunity to provide these comments and look forward to future collaboration. If further assistance is needed or you have any questions, please contact Larry Crist in the Service's Utah Field Office at (801) 975-3330, extension 126.

Sincerely,

Acting Regional Director

cc: Walt Baker
Utah Division of Water Quality
Salt Lake City, Utah

Karen Hamilton
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