SOCIETY OF WETLAND SCIENTISTS

It is the Society's objective to increase public understanding of wetland issues and promote sound public policy through the development and communication of information based on the best available information.

April 16, 2003

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SUBJECT: U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers
Advance Notice of Proposed Rulemaking
EPA Docket # OW-2002-0050; January 15, 2003

Dear Ms. Downing and Mr. Rugiel:

The Society of Wetland Scientists (SWS) is a Society of individuals who seek to advance public enlightenment concerning the Nation's and the world's wetland resources, and who encourage and evaluate the advancement of all branches of wetland science and practice (SWS Bylaws, Article 1.4).Our perspective is scientific.As such, the Society wishes to provide information on how wetlands which may be jurisdictionally defined as "isolated" contribute to the regional landscape ecologic function in terms of water quality, hydrology and species biology, to aid in the decision-making process for the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers' (Corps) Advance Notice of Proposed Rulemaking (EPA Docket # OW-2002-0050; January 15, 2003).

Definition of a Wetland

The National Academy of Sciences, at the request of Congress, conducted a study of wetlands and their definitions (National Research Council, 1995). That report titled, *Wetlands: Characteristics and Boundaries*, defines a wetland as:

> "An ecosystem that depends on constant or recurrent, shallow inundation or saturation at or near the surface of the substrate.The minimum essential characteristics of a wetland are recurrent, sustained inundation or saturation at or near the surface and the presence of physical, chemical and biological features of recurrent sustained inundation or saturation. Common diagnostic features of wetlands are hydric soils and hydrophytic vegetation. These features will be present except where specific physiochemical, biotic, or anthropogenic factors have removed them or prevented their development."

A wetland habitat can take many forms and provide a variety of functions, dependent upon its position in the landscape, geomorphic differences and ecological relationships. Recently, the term "isolated" wetland has been used to categorize a type of wetland determined to be separated from a "navigable waterway" in some physical sense.

“Isolated” Wetlands

The term “isolated” is a relative term.As described in a U.S. Fish and Wildlife Service (FWS) report *Geographically Isolated Wetlands: A Preliminary Assessment of their Characteristics and Status in Selected Areas of the United States* (Tiner et al. 2002), an “isolated” wetland can be defined in terms of geography (a wetland separated from other wetlands by dry land), hydrology (a wetland not connected to other wetlands or waterbodies by surface or ground water), or ecology (a wetland with a physical, chemical or some other barrier to the exchange of genetic material between it and other wetlands, that has no exchange of energy or matter with its surrounding environment) (Tiner et al. 2002).

Within the United States, wetlands that could be identified as “isolated” based on geographic features include:

- -The Carolina bays and pocosins, gum ponds, Citronelle ponds, mountain bogs, cypress domes, oxbows, limesinks and dunal swales of the southeastern United States;
- -The northern bogs, woodland vernal pools and forested wetlands of the Northeastern United States;
- -The glacial kettle holes, coastal swales, northern peat bogs, prairie potholes, and ephemeral wetlands of the Great Lakes region;
- -The prairie potholes of the Great Plains;
- -The playas of the Southwest;
- -The California vernal pools;
- -The bogs, fens, tundra, forests, flats and marshes of Alaska; and,
- -Hawaii’s anchialine ponds and montane bogs.

As the term “isolated” is a recent term in the scientific literature, determining the geographic extent of these resources is an on-going exercise.There is no existing national estimate of the extent of these resources.Two recent efforts, conducted by the FWS (Tiner et al. 2002) and Ducks Unlimited (2001), are GIS-based studies that attempted to document the extent of geographically “isolated” wetlands.The FWS study found that “isolated” wetlands represent a significant component of the Nation’s wetlands and also found that, although these resources may be geographically isolated, they are actually linked hydrologically to other wetlands or streams by subsurface flows.The report also highlighted many areas, particularly subhumid to arid regions, where “isolated” wetlands are abundant.Lastly, the report summarized that based on the geographic isolation of these wetland resources, these ecosystems provide important functions, such as flood control and enhanced water quality, while also providing unique habitats crucial for the survival of many plant and animal species.

Despite the interpretation of the term “isolated,” there is scientific evidence that these wetland resources provide ecologic function at both the site-specific and landscape scales.In fact, ecologically, there are no discrete boundaries between various ecosystems.In terms of “isolated” wetlands, although the resource may appear to be separated, it may in fact be connected to other waters via systems that are not visually evident at first glance.

The term “isolated” has no real grounding in science.Researchers and scientists recognize the complex web of connections between seemingly separate or “isolated” wetlands and other waters: they are often connected by water overflow or by groundwater; and they

frequently support the same species but during different stages of their life cycles.Physically separated wetlands also absorb floodwaters and filter pesticides and other pollutants, protect downstream tributaries, rivers and wetlands. These “isolated” wetlands are critically necessary to the healthy functioning of the overall ecosystem.
If “isolated” wetlands are permitted to be filled or otherwise destroyed, affects would accrue to humans through the increased risk of flood damage and diminished wetland filtration capabilities, and to plant and animal life due to loss of habitat.Degrading small areas of wetland could result in more than minimal impacts because some small, “isolated,” and temporary wetlands perform valuable functions and provide life-sustaining services (Environmental Law Institute 1993, Pacific Estuarine Research Laboratory 1990, Robinson 1995).Isolated and small wetlands may be valued by local communities for site-specific reasons such as flood storage and maintenance of water quality (Kusler 1992).
Certain animals such as amphibians require small, seasonally-flooded wetlands, which dry up and limit fish populations, but are inundated long enough for the amphibians to survive (Lewis III 1992).Also, many small and seasonally-flooded wetlands provide essential nesting and foraging habitat for some of the U.S. endangered waterfowl and shorebirds (e.g. Stinson et al. 1991, USFWS and CNMI Division of Fish and Wildlife 1996, USFWS 1991).
For instance, “isolated” vernal pools support diverse assemblages of largely endemic and rare species. Although seasonal ponds and pools occur in other regions, the extremes of a short wet season, followed by a long, hot dry season (as well as inter-seasonal variation) have resulted in more than 60 documented endemic species (Baskin, 1994).These species are found only within the isolated vernal pools of California.Consequently, their loss would constitute a national and international ecologic impact.

Headwater Wetlands and Streams

In addition to geographically “isolated” wetlands, the ANPRM suggests that the jurisdiction ofheadwater streams and wetlands is also under review.Wetlands and streams are an example of a resource that, although appearing to be separated from obviously navigable waterways, is hydrologically and ecologically connected to the Nation’s waters.It has been well documented that greater than 70 percent of the total stream miles in most watersheds consists of headwater streams.In arid and semi-arid landscapes, such as California, these headwater swales and streams (i.e., 0 and 1st order streams) are often ephemeral and seasonally isolated.Although these streams and adjacent wetlands appear to be physically isolated from larger watercourses in many years, they are often hydrologically linked (via shallow subsurface flow) and may form surface connections during periods of high flow.Furthermore in arid landscapes, the precise boundary of “isolation” is not static.Surface flow will fluctuate at inter-annual, seasonal, and daily time scales depending on antecedent moisture and meteorological conditions (Dietrich and Dunne, 1993).Therefore, the determination of whether these streams and wetlands are isolated is arbitrary and artificial.
Although individually small, headwater streams and wetlands collectively exert a disproportionately large influence on the overall ecologic integrity of a watershed in mediating runoff and sediment, assimilating pollutants, and providing carbon for downstream areas (Rheihardt et al, 1999).From a hydrological perspective, loss of headwater streams and wetlands may result in dramatic alteration of downstream

hydrology (Poff et al, 1997).From a water quality perspective headwater streams and wetlands play a critical role in solute and sediment retention (Dieterich and Anderson, 1998).The risk of downstream eutrophication may be strongly influenced by the degree to which headwater streams and wetlands control nitrogen export to the lower watershed (Peterson et al, 2001).From a biological perspective, allochthonous input to isolated headwater areas not only provides carbon for downstream areas but also supports many primary consumers and other invertebrates that form the base of aquatic and terrestrial food chains (Richardson, W.B., 1990; Morse et al. 1993; Whiles and Wallace, 1997).

Conclusion

On behalf of the Society of Wetland Scientists and our over 4,000 members, I wish to extend our appreciation for this opportunity to comment.In closing, we wish to recommend that EPA and the Corps aggressively seek opportunities to protect all the Nation's waters, including wetlands and streams that may appear "isolated" but which, in fact, serve many functions critically linked to societal goals.We believe excluding by regulation protection of certain waters will jeopardize the objective of the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Sincerely,

Frank Day, Ph.D.

President

Society of Wetland Scientists

cc: SWS, Board of Directors

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