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BEFORE THE:

U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

CONCERNING:
"STATUS OF THE NATION'S WATERS, INCLUDING WETLANDS, UNDER THE JURISDICTION OF THE FEDERAL WATER POLLUTION CONTROL ACT"

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WASHINGTON, DC

Mr. Chairman, members of the Committee, my name is Dr. Scott Yaich. I am the Director of Conservation Operations at Ducks Unlimited's (DU) National Headquarters in Memphis, Tennessee. I am certified as a Professional Wetland Scientist and Certified Wildlife Biologist by the Society of Wetland Scientists and The Wildlife Society, the professional organizations of these respective scientific disciplines. I have worked for DU since 2001, and previously served as Wetlands Program Coordinator and Assistant Director for the Arkansas Game and Fish Commission for 13 years. My current duties include responsibility for overseeing DU's scientific review and response to issues related to the Clean Water Act.

I appreciate the opportunity to speak with you today on behalf of Ducks Unlimited. Our organization was founded in 1937 by concerned and farsighted sportsmen conservationists. Our mission is to conserve, restore, and manage wetlands and associated habitats for North America's waterfowl, and for the benefits these resources provide other wildlife and the people who enjoy and value them. DU has grown from a handful of people to an organization of over 1,000,000 supporters who now make up the largest wetlands and waterfowl conservation organization in the world. With our many private and public partners we have conserved over 12 million acres of habitat for waterfowl and associated wildlife in the U.S., Canada, and Mexico. Ducks Unlimited is a science-based conservation organization. Every aspect of our habitat conservation work is rooted in the fundamental principles of scientific disciplines such as wetland ecology, waterfowl biology, hydrology, and landscape ecology. Thus, our perspectives on the Clean Water Act and related issues are based on our extensive grounding in these scientific disciplines.

WETLAND STATUS AND TRENDS

The Clean Water Act (CWA) has been an important component of the national framework of wetland conservation for over 30 years. It has been one of the most successful environmental programs in the nation's history, and many aspects of the country's water quality have improved measurably since 1972. Although the CWA has likely contributed to past declines in the rate of wetland loss, recent judicial decisions and regulatory actions put much of the nation's remaining wetland resources at increased risk of loss by effectively removing them from federal CWA jurisdiction.

The status of wetlands in the United States provides important context for our concerns about the extent to which they are protected by the Clean Water Act. Over 50% of the estimated 221 million acres of wetlands originally present in the United States have been lost. Although the rate of wetland loss has decreased since the mid-1950s, at least in some measure due to the passage of the Clean Water Act in 1972, recent studies document that nationwide losses of wetlands most important to waterfowl and other wildlife continue to exceed 80,000 acres per year. Discounting the addition of ponds that have little wildlife value, the nation has had a net loss of over 16 million acres of wetlands since the mid-1950s. Since 1986, the nation has lost over 2 million acres of vegetated wetlands and 1.4 million acres of freshwater marshes, among the most important types of wetlands for waterfowl and other wildlife. These kinds and magnitudes of losses not only have a cumulative negative impact on the waterfowl that our one million supporters care so passionately about, but also on the nation's water quality and other federal interests.

WETLAND FUNCTIONS AND VALUES

Wetlands as Wildlife Habitat: Wetlands provide a broad array of ecosystem functions, each carrying some measure of ecological and societal value. For example, the millions of small wetlands of the prairie pothole region (PPR) of Minnesota, North and South Dakota, Montana and Iowa are among the most important wetlands to waterfowl on the continent. However, of the approximately 20 million potholes that once existed in the northern U.S., only about 7 million remain. Over 95% of the potholes in Minnesota and Iowa have been drained or filled.

An estimated 50% of the average total annual production of ducks comes from the pothole region, and in wet years 70% or more of the continent's duck production can originate in the PPR. One analysis suggested that duck production in the pothole region of the U.S. would decline by over 70% if all wetlands of less than 1 acre were lost. However, wetland losses far less than this would significantly impact waterfowl numbers, and could result in closed waterfowl seasons with related economic impacts. In addition, 38% of the breeding ducks in the PPR of the Dakotas are associated with temporary and seasonal wetlands and wetlands less than one acre in size embedded in cropland. These wetland categories are at the greatest risk of loss in the absence of adequate Clean Water Act protections.

Unfortunately, significant losses of potholes continue to occur. The U.S. Fish and Wildlife Service's most recent report on wetland status and trends for 1998-2004 stated that, "Notable losses of freshwater vegetated wetlands occurred in the Prairie Pothole Region of eastern North and South Dakota, western Minnesota and Iowa." The report also stated that 82,500 acres of freshwater wetlands across the country were lost annually during that period, with 85% being smaller than five acres in size, and 52% smaller than one acre. Small wetlands are among the most productive and valuable as habitat for wildlife.

The prairie pothole region is but one example of a wetland ecosystem that has lost a significant proportion of its wetlands, with the remaining wetlands being at significant risk. Wetland systems such as the playa lakes of the southern plains, vernal pools of California, and rainwater basins of Nebraska have been negatively impacted to a similar degree, or worse. Less than 400, fewer than 5%, of the original rainwater basins remain in Nebraska today. This means that migrating waterfowl are increasingly concentrated and increasingly dependent upon this diminished resource. Approximately 50% of the mid-continent mallards and 90% of mid-continent white-fronted geese depend upon these few wetlands during migration. When such large numbers of waterfowl are abnormally concentrated on so few water bodies, they are highly susceptible to outbreaks of virulent disease that can kill large percentages of whole populations. Thus, the continued declining trends in wetlands across the nation's breeding, migration and wintering waterfowl habitats pose a significant threat to their future, to the future of waterfowl hunting, and to the other wetland-dependent and wetland-associated wildlife resources.

Waterfowl are a valuable interstate and international economic resource. Approximately 1.8 million waterfowl hunters expended almost $1 billion in 2001 for hunting related goods and services, resulting in a total estimated economic output of $2.3 billion, 21,415 jobs, and over $300 million in state and federal tax revenue. Approximately 18% of waterfowl hunting in 2001 took place in a state other than the one in which the participant resided. For example, in North

Dakota, 47% of the state's waterfowl hunters were non-residents, and in Arkansas over 42% of 89,000 waterfowl hunters in 2002 traveled there from other states. Furthermore, commerce tied to the waterfowl resource and other wetland-associated fish and wildlife is not restricted to hunting. In 2001, nearly 20 million people participated in watching waterfowl and shorebirds, with an associated economic output of approximately $9.8 billion.

Hydrologic Functions and Values of Wetlands: Wetlands provide important ecological goods and services to the nation through the hydrologic functions they serve. For example, a primary function of wetlands is to store water, and this equates to protection of downstream landowners and communities from flooding. Floods cause an estimated $3.7 billion in annual damage in the U.S., and wetland losses have exacerbated this by causing "more flood for less rain." The 1993 Midwest flood was (before Katrina) the largest flood disaster in U.S. history, causing $16 billion in damages. Approximately 60 million acres of wetlands in the Mississippi River watershed have been lost. Not entirely coincidentally, the three states with 75% of the damage in the 1993 flood (Illinois, Iowa and Missouri) have lost 89%, 85% and 87% of their wetlands, respectively. The water storage function of our remaining wetlands is even more important now because, since the flood of 1993 in the St. Louis area alone and on land that was underwater in 1993, there have been 28,000 new homes built, population has increased by 23%, 6,630 acres of commercial development has occurred, and there has been a total of $2.2 billion in new development.

Another example is the Red River Basin of northwest Minnesota and the eastern Dakotas. Approximately 75% of wetlands in this region have been drained, and the downstream portions of the area now experience major floods every 4-6 years, and a flood classified as "devastating" every 10 years. Small pothole basins in the Devil's Lake watershed in North Dakota could store 72% of the total runoff from a 2-year frequency flood and approximately 41% of the total runoff from a 100-year frequency flood. In a study of flooding in Massachusetts, the U.S. Army Corps of Engineers determined that flood damages would increase by $17 million per year if the 8,400 acres of wetlands in the Charles River basin were drained. Thus, wetland protection is a critical element of reducing flood damage along the nation's waterways, a hazard to which such areas are increasingly susceptible as a result of wetland loss.

Other Wetland Functions: Virtually all wetlands improve the quality of water that they receive and then discharge, doing so through either direct, physical means such as trapping sediment and associated chemical constituents, or storing and recycling nutrients and other chemicals. Evidence of the societal value of such water quality services is demonstrated by the actions of New York City to initiate a $250 million program to acquire and protect up to 350,000 acres of wetlands and riparian lands in the Catskills. The city is taking this action to protect the quality of its water supply as an alternative to constructing water treatment plants that could cost as much as $6-8 billion. In South Carolina, the wetland services provided by the Congaree Swamp negated the need for a $5 million wastewater treatment plant. Ducks Unlimited recently entered into a partnership with the National Association of Clean Water Agencies to help facilitate these kinds of actions.

WETLANDS AT RISK: SCIENCE AND THE LEGAL/ REGULATORY LANDSCAPE

Estimating Wetlands at Risk: There are ranges of estimates of the percentage of the nation's wetlands that have had Clean Water Act protections withdrawn from them as a result of the *SWANCC* and *Rapanos/Carabell* decisions in the U.S. Supreme Court, and the subsequent regulatory interpretations by the U.S. Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA). The agencies estimated that 20 million acres would no longer be covered by the CWA as a result of the *SWANCC* decision. The Association of State Wetland Managers estimated it to be 30-60 million acres, or approximately 30-60% of the remaining wetlands. In the wake of the *Rapanos/Carabell* decision which resulted in the withdrawal of more wetlands from CWA jurisdiction, estimates have ranged from 40-80 million acres.

In the wake of the *SWANCC* case, Ducks Unlimited scientists reported in September 2001 the results of an assessment of the potential impact of the decision on wetlands in the landscapes most important to waterfowl. The post-*SWANCC* guidance had not yet been released, so a range of scenarios was evaluated. However, the worst-case scenario was closest to what has unfolded since 2001. This assessment estimated that up to 96% percent of the wetlands in the prairie pothole region and the Gulf Coast might no longer be considered jurisdictional (76% and 86% of the areal extent of wetlands in these regions, respectively). In the Great Lakes region, up to 90% of the remaining wetlands (33% of the wetland acreage) were considered at risk, whereas 88% of the wetlands (12% of the wetland acreage) of the mid-Atlantic Coast region were at risk. Overall, the vast majority of small, non-adjacent wetlands in the areas examined were put at significant risk of loss as a result of the *SWANCC* decision. The post-*Rapanos* guidance simply adds to the wetlands considered at risk in that evaluation.

It is difficult, at best, for the scientific community to develop such estimates because terms such as "geographically isolated wetland" and "adjacent wetland" are legal constructs that lack any grounding in science. From a scientific standpoint, virtually all of the nation's wetlands are linked to downstream or downslope navigable waters in one way or another. Although wetlands can be geographically isolated from navigable waters, and they can be sufficiently distant as to be referred to as non-adjacent in a colloquial sense, they almost always possess a hydrologic and/or ecologic nexus with navigable-in-fact waters. An appreciation of this fact is critical to understanding why the restoration of Clean Water Act protections is essential if the nation is to fulfill the Act's explicit purpose, which is *"to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."*

Significant Nexuses Between Geographically Isolated Wetlands and Navigable Waters Are the Rule: There are many examples of direct connections between navigable waters and wetlands that may on the surface appear to have no linkage to them, and numerous scientific studies document the significance of these connections to achieving the purposes of the CWA. During wet cycles in the pothole region, for example, water tables rise and surface water levels reach outlet elevations for most geographically isolated potholes, thereby augmenting other connections to downstream navigable waters. In the aggregate, these connections have a significant impact on downstream water quality and can significantly affect flood levels. These types of connections are demonstrable for many other wetland systems.

In addition, geographically isolated and other wetlands very often contribute to groundwater recharge, and this groundwater then moves downslope toward flowing streams that ultimately terminate in navigable waters. For example, 20-30% of the water loss from prairie wetlands can be seepage to groundwater. Subsequent groundwater discharge into flowing streams over 16 miles away from these geographically isolated wetlands has been documented. The sandhill wetlands of Nebraska have direct linkages to the High Plains (Ogallala) aquifer, as do playa lakes farther south, and these wetlands are important recharge sites for the aquifer, which stretches over thousands of miles and provides groundwater to numerous states. Water is being withdrawn from this aquifer faster than it is being recharged, so additional loss of these types of geographically isolated, but hydrologically and ecologically adjacent wetlands will only exacerbate the decline of the aquifer with negative economic affects on farming, ranching, and communities in the region, and will result in the direct loss of critical wildlife habitat. In addition, this aquifer discharges naturally to flowing streams and springs that lead to the Platte, Republican and Arkansas Rivers. These linkages not only provide a connection that can affect water quality, but that are also important for maintaining base flows of navigable waters and their tributaries. If climate change, as is widely predicted, results in an increasingly variable climate with more frequent and severe drought in many areas, protecting wetlands that hold and slowly release water to downstream users will be increasingly important for maintaining wildlife habitat, and for providing the water that supports local and regional economies.

In fact, the South Platte River in Colorado already has an economy built upon complex hydrologic models that incorporate knowledge of the time that water takes to move from sometimes far-removed, geographically isolated wetlands, to the river. Water has been valued and traded based on the knowledge that, in the example of the Tamarack project, that it will take over a year for water in a wetland to makes its way to the river where it can then be used for base flows to support wildlife needs, irrigation, or other economic uses. The Brush Prairie Wetlands project is established on the basis of a 5-year transit time from the wetlands to the river, and the Little Bijou reservoir is 8 miles from the river with water being traded 12 years in advance of its transit via groundwater to the river. It is the certainty of the significance and predictability of these hydrologic nexuses that allows this water to be traded as a commodity with real value as part of an interstate/federal agreement.

The negative side of these kinds of hydrologic nexuses between geographically isolated wetlands and flowing waters is that pollutants can also be carried into navigable waters along with the water. For example, there are a number of Superfund sites in Macomb County, Michigan, the same county as the Carabell wetlands (*June Carabell, et al. v. United States Army Corps of Engineers*), in which volatile organic compounds, polychlorinated biphenyls, heavy metals and other compounds have leached from geographically isolated disposal sites into groundwater aquifers, private drinking water wells, and ultimately to the Clinton River. Without jurisdiction over geographically isolated wetlands, this kind of problem could become more widespread.

Thus, wetland science clearly demonstrates the linkages that almost always exist between geographically isolated wetlands, remote tributaries, groundwater, and navigable waters, supporting the science-based contention that adjacency and significant nexus for determining

jurisdictional wetlands must be interpreted from a functional perspective if water quality and quantity is to be protected as intended by the CWA.

Science and the Post-Rapanos Guidance: Unfortunately, because of the variable and interacting interpretations of the scientific information and judicial perspectives of the nine justices, the *Rapanos/Carabell* decision ultimately created more uncertainty than previously existed. Five justices clearly understand that to fulfill the explicitly stated purpose of the Clean Water Act, wetlands and other waters with a significant nexus to navigable waters and federal interests must be encompassed within the act's jurisdiction. Justice Kennedy's opinion was the pivotal one, and he articulated the concept of a significant nexus test, laying out the legal basis for a science-based conceptual approach with which to assess the jurisdictional status of wetlands and other waters. He explicitly stated that ecologic and hydrologic linkages, such as flood water storage, between wetlands and navigable waters should be considered. Most importantly for wetland ecosystems such as the prairie pothole region, rainwater basins, and playa lakes, he stated that the nexus between navigable waters and the wetland in question *in combination with similar wetlands in the region* should be considered in a significant nexus test. In addition, he gave a strong indication of the importance he placed on such aggregate impact considerations when he stated that an example of the important public purposes that should be served by the Clean Water Act was to address water quality issues such as the huge hypoxic zone in the Gulf of Mexico, a significant problem that can only be addressed by protecting and restoring many wetlands across the interstate landscape of the Mississippi River watershed. Thus, his opinion provided the opportunity to apply a scientific foundation for assessing jurisdictional status of all wetlands, regardless of distance or degree of isolation from navigable waters.

Unfortunately, however, due to the nature of the above-described types of ecologic and hydrologic connections that exist between most wetlands and navigable waters, Justice Kennedy's significant nexus test is virtually impossible to apply scientifically and efficiently within an administrative and regulatory context. Thus, the agencies apparently struggled in developing the post-*Rapanos* guidance. Ironically, the net effect of the guidance is that it is in many ways the worst of all worlds – it decreases the level of certainty and clarity that existed before the *SWANCC* and *Rapanos* cases, dramatically reduces the scope of Clean Water Act protections to the nation's wetlands, and increases the administrative and regulatory burden on the agencies, thereby increasing the time required to adequately process permit applications.

WETLAND PROTECTION AND PUBLIC OPINION

The public consistently demonstrates a fundamental concern for having clean, abundant water, and wetlands and other natural habitats that support healthy fish and wildlife populations and the associated recreational pastimes. An independent nationwide survey contracted by Ducks Unlimited documented that 15 times more citizens believed there were too few wetlands than those who believed there were too many. The same survey showed that 91% of the public stated that it was important to protect and conserve wetlands, with only 3% being neutral or considering it unimportant. Furthermore, survey after survey has reinforced that the American public has a deep concern about water quality and has high expectations for water conservation. A recent Harris interactive poll documented that 74% of U.S. adults agreed that "protecting the

environment is so important that requirements and standards cannot be too high, and that continuing environmental improvements must be made regardless of cost."

Thus, the American public, including Ducks Unlimited's million supporters, expect that the health of our wetlands and other waters will be maintained for their individual interests and for the collective good of the nation.

CONCLUSIONS

This brief review outlines some of the key aspects of wetland and aquatic ecology that provides the scientific basis for protecting wetlands within the framework of the Clean Water Act. Some of the most important points are:

- a majority of the nation's wetlands have already been lost, and this has had a negative impact on the remaining wetlands and waters of the U.S. and related federal and public interests;
- wetlands serve important ecologic and societal functions, including providing critical habitats for waterfowl and other wildlife, providing flood control and base flows for rivers, streams and groundwater aquifers, and protecting and improving the quality of water that flows downstream to other users; and, these functions have an increasing value as wetlands continue to be lost;
- as a consequence of recent Supreme Court decisions and subsequent interpretations by agencies that resulted in a regulatory framework that has not relied upon the best available science to "restore and maintain the chemical, physical and biological integrity of the Nation's waters," millions of acres of wetlands are now at significantly increased risk of loss due to the withdrawal of important CWA protections and increased regulatory uncertainty;
- science supports the generalization that virtually all wetlands, in combination with similar wetlands in a particular region, possess significant hydrologic and ecologic nexuses with navigable waters and have a direct effect on the quantity and quality of such waters;
- fulfillment of the primary purpose of the Clean Water Act requires the restoration of wetland protections that existed prior to the *SWANCC* decision.

In light of all the above, it is clear that the nation's remaining wetlands are at significant risk of loss, and the waterfowl, other wildlife, and related interests that depend upon these wetlands are similarly at risk. Passage of legislation is the only apparent remedy for restoring wetland protections that are at least as strong as those that existed prior to 2001. Wetland and hydrologic science provides the basis for such protection under the Clean Water Act.