



**Global issues -National politics:
Comparing wetland protection policies and perceptions
in the Netherlands and the United States**

**K. Owens
Center for Clean Technology
and Environmental Policy
(CSTM)
University of Twente
The Netherlands**



University of Twente

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Abstract

Wetlands protection is a global goal that requires action on many levels of government, including National, State or Provincial, and municipal. Global plans and programs require a network of national and sub-national policy definition and enforcement. In the United States, for example, global and continental level strategies by necessity include conservation plans or programs as opposed to policies or laws. When National laws exist, state-level agencies or state branches of federal agencies permit and enforce rules. The Clean Water Act, a national policy, is for many states the only legislation in place to protect wetlands. However, some states have fortified this legislation by enacting additional state wetland protection programs.

This paper compares the policies in place in the United States to those in the Netherlands. In addition to mapping current policy, this paper briefly highlights differences between the two countries regarding wetlands protection. This overview includes perceptions of wetlands, threats to wetlands, goals for wetland protection and variations in stakeholders. For example, wetlands in the United States are often threatened by land development, a trend exacerbated by urban sprawl. In the Netherlands, wetland areas often have a history of manipulation. Struggles occur when they are allowed to degrade into a more natural state. Understanding how perceptions differ in the two countries can inform future policy-making strategy, helping to create increasingly successful and effective policies.

Introduction

Sustainability, Policy Implementation and Wetlands

Though the precise nature of humanity's connection to the planet Earth is debatable, the fact that human activity has caused unprecedented change in the environment is irrefutable. The elementary need of extracting sustenance from a planet long thought to be blessed with inexhaustible resources has resulted in tremendous environmental impact. During the last century, citizens, scientists, governments and environmental organizations have worked to better understand the

impact of humans on the environment. Unfortunately, their findings show that human impact causes the ecological world to suffer degradation (Oskamp, 2002; Van Weenen, 2000). Over-consumption and overuse of natural resources, exacerbated by overpopulation, leads to environmental problems ranging from habitat damage to resource depletion to species extinction (Sharp, 2002; Van Weenen, 2000). Unchecked misuse of resources inhibits social equity and aggravates situations of poverty (Ebong, 2002). Effects of this abuse range from permanently altering the natural world that exists today, to seriously threatening the livelihood of future generations (Oskamp, 2002; Sharp, 2002). In order to ensure the same ecological world we enjoy today, or a better one, for future generations— some variables must change. Halting economic or population growth are highly controversial solutions. Discerning new ways to work within the planet's limits are key to fruitful long-term survival. In this way, social change is needed to combat the destruction of the planet.

Economic factors contribute to environmental degradation and social injustice. Justice and the environment can easily become the casualties of rapid economic growth. Society is challenged to implement a plan to progress economically while remaining ecologically viable and socially impartial (Berke and Conroy, 2000; Orr, 2002). The concept of sustainable development is a proposed solution to these problems, emphasizing balanced economic, environmental and social equity goals (Ebong, 2002; Filho, 2000; Segovia and Galang, 2002; Wheeler, 2000). However, a blanket method to consistently implement sustainability does not exist (Graedel, 2002). Sustainability is seen as a panacea for the world's environmental problems, but successful worldwide implementation is lacking. Concerned individuals, groups and governments currently grapple with ways to make the principles of sustainability a part of daily life for all of the world's citizens.

For the past several hundred years, the majority of humankind regarded wetlands as relatively worthless. During this period, the United States and the Netherlands transformed large areas of wetlands into land for cattle grazing, farming, forestry or human habitation. Today many stakeholders continue to view wetlands as potential dry land, to be made useful exclusively through draining and manipulation. Only recently have individuals and governments begun to understand the true value of wetland areas.

Why are wetlands so important? As eloquently stated by Ralph Tiner (1998), wetlands are “the temperate zone equivalent of rain forests, serving vital life-

sustaining functions in water-quality renovation, aquatic ecosystem productivity, and biodiversity, as well as providing important socioeconomic benefits such as flood-damage protection, shoreline stabilization, and commercial and recreational fisheries” (Tiner, preface). Lewis (2001) finds wetlands especially important in combating non point source pollution. In addition, the fact that all wetlands are unique (there are many types featuring different combinations of functions) aggravates shortages (Lewis, 2001). Understanding the integral role of wetlands for water quality, flood control and wildlife habitat allows nations worldwide to recognize this resource as a vital and irreplaceable ecosystem.

A history of wetlands

Wetlands in the United States

Before colonization, Native North American groups including the Calusa, Mayaimi, Tekesta, Ojibway, and Creek used existing wetlands as sources of food, water or materials (Kusler and Oppheim, 1996; Douglas, 1997). Rough estimates place the amount of wetlands found by colonists in the United States at 894,000 kilometers square (Vileisis, 1997). Many wetland areas remained in this natural state for a period of time. European settlers utilized wetlands in the same manner as Native groups—as areas for hunting, or for gathering shellfish and natural crops such as cranberries (Kusler and Oppheim, 1996). During the initial phases of colonization, wetlands remained relatively unaltered.

In addition to their regular environmental functions, during the short history of colonized America wetlands played an important cultural role. In the southeastern states of South Carolina and Georgia, plantation owners manipulated existing swamplands, using both slave knowledge and labor to grow rice through submersion (Carney, 2002). Due to the dark and dismal perception of wetlands, these areas served as important hiding places for the rebel or the runaway on several occasions in the United States (Giblett, 1996). A famous South Carolina example is Francis Marion, named the “swamp fox”, who utilized his knowledge of the easily defendable wetland terrain to conduct guerrilla raids on British forces during the American Revolutionary War (Kusler and Oppheim, 1996; Giblett, 1996). Vast and unwelcoming, wetlands offered a free but difficult life for small communities of escaped slaves in the United States southern region before emancipation (Kusler and

Opheim, 1996; Giblett, 1996). Wetlands seemingly offered benefits only to the desperate fringe in the United States during this period.

As the country grew in population and area, two factors encouraged destruction of wetlands. Dependence on resources from the land shifted from hunting and gathering toward farming and raising cattle. Settlers and early governments viewed wetlands as useful land covered by water, and wanted to use these lands to what seemed to be their full potential. Another cause of destruction was the common reasoning, beginning with the 4th century B.C. and lasting until the late 19th century, that wetlands were sources of sickness and death (Giblett, 1996). This perception was not without merit: wetlands harbored disease-carrying mosquitoes in a time when infection by malaria meant almost certain death. Between 1849 and 1860 Congress enacted the Swamp Land Acts, giving 15¹ states 263, 045 square kilometers to officially encourage drainage, though it did not often occur (Vileisis, 1997). Through various branches the United States government supported both conservation and destruction of wetlands, creating “contradictory policies” (Vileisis, 1997, p. 193). One example from the 1950s finds that while the United States Fish and Wildlife Service paid to protect 14 square kilometers of wetlands, the United States Department of Agriculture “spent 83 times as much money” to convert 1,035 square kilometers of wetlands into farms “in the same three states” (Vileisis, 1997, p. 201). By 1956 the United States Fish and Wildlife Service found approximately 182,000 square kilometers of wetlands had been converted (Vileisis, 1997). The trend of filling wetlands continues today.

Wetlands in the Netherlands

Americans are not alone in using the characteristics of wetlands as a tool in war; the Dutch utilized their country’s natural wetlands in the 1500s and 1600s, in defense from the British, French and Spanish (Giblett, 1996). Prince William of Orange in 1574 used a then new tactic to free the city of Leiden from being besieged by the Hapsburg army, ordering the breach of dikes on the Maas river, thereby flooding “the regions of Schieland, Delfland, and Rijnland... the first full-scale application of what could be called the ‘flooded earth policy’ ...an important element

¹ Alaska, Arkansas, California, Florida, Illinois, Indiana, Iowa, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Ohio, Oregon and Wisconsin (Vileisis, 1997, p. 77)

in Dutch military strategy” (Kaijser, 2002, p. 540). However, as with the United States, wetlands in the Netherlands have been historically under-appreciated.

Throughout their history, the Dutch transformed wetlands for agriculture and human habitation, a trend exacerbated by population density. Wetlands were also manipulated for flood control and navigation. The Dutch are world-renowned for manipulating the water that threatens to engulf their land. Marshes once covered the Western portion of the Netherlands; over half of the country would be regularly flooded without the support of dykes and dunes (Dicke 2001, Reuss 2002, Bijker, 2002, Kaijser 2002). Constantly threatened by flooding, control of the landscape translated into both physical and economic security for the Dutch (Reuss, 2002). The history of Dutch water management can be concisely divided into four phases:

- The first involved “protection against flooding of seawater through the building of dykes” and began in the Early Middle Ages. (Bressers, Huitema and Kuks, 1995).
- In the second phase, dating from the 1800s, Dutch water management focused on flood protection, draining wetlands for agriculture, and strengthening shipping channels (Dicke, 2001; Bressers et al, 1995).
- The third phase “emphasi(zed)... the protection of water quality” (Bressers et al, 1995). This phase began in the late 1960s and early 1970s with the Surface Water Pollution Act of 1969 (Kuks, 2002)
- The final phase “integrated care for the condition and use of water systems” focusing on “multifunctional and sustained use” and began in 1985 (Bressers et al, 1995).

Manipulation began with increasing land height for housing through mound building, leading to draining land for farms (Reuss, 2002; Kaijser, 2002). Eventually a built landscape of drainage canals emerged, allowing the additional benefit of a countrywide transportation network connecting the sea to inland Europe (Kaijser, 2002). The mechanical power of windmills allowed use of wind power to lift great amounts of water, “ potentially giving man far more control over the flow of water through the landscape” (Kaijser, 2002, p. 531). Methods for draining land became more sophisticated over time, from windmills to powered pumping stations to remove water from enclosed areas (Bijker, 2002). Living under constant threat of flooding galvanized Dutch resolve to tame the waters.

In recent history, the disastrous floods of both 1916 and 1953 encouraged large-scale manipulation of water for protection. From this goal arose two noteworthy projects: reclamation of the *ZuiderZee* and the Delta Works Project. The *ZuiderZee* plan utilized a 29-kilometer long dam to turn the sea into the Ijsselmeer

Lake (Dicke, 2001). The Delta Project involved a dam separating the Oosterschelde bay from the North Sea (Disco, 2002). The Delta Project's centerpiece is an eight-kilometer long moveable barrier against storm surges placed on the Eastern Scheldt river (Koninklijk Nederlands Aardrijkskundig Genootschap, 2001). Though the focus on controlling water for protection, transportation or land reclamation is the essence of Dutch history, the nation's citizens and government have recently become aware of the benefits of natural wetlands.

The increasingly sophisticated ability to manipulate water necessitated increasingly sophisticated water management techniques. The history of Dutch "regional water authorities" or water boards (*waterschappen*) dates to the twelfth century in the west of the country (Kaijser, 2002, p. 528). The establishment of water boards occurred later in the north of the country which was not feudal and lacked a centralized political structure, (Kaijser, 2002). In the 1300s several large northern monasteries created water boards "following the model provided by the feudal areas" however with "more specific tasks and more limited powers" (Kaijser, 2002, p. 529). Today water boards manage the water and guarantee both its quantity and quality (namely drinking water) (Dicke 2001). Water boards in general represented sub national forms of democracy featuring voting privilege based on "profit-payment-participation principle (those having an interest in water management may participate and have to pay for water services in proportion to their interest)" (Bijker, 2002; Kuks, 2002, p. 2). Water board representation consists of "farmers, land owners, owners of buildings, industries and inhabitants" (Kuks, 2002, p. 2). Water boards were historically composed of a majority of farmers and landowners (Kuks, 2002). Due to this, water board policy favored agriculture (and safety issues) over the environment, to the detriment of wetland areas (Kuks, 2002). However, a shift by water boards to incorporate ecological issues mirrors the countrywide incorporation of these values.²

Stakeholders

Not surprisingly the two countries have similar groups of wetlands stakeholders. For descriptive purposes, I divide stakeholders into three general groups:

² This is described thoroughly in the controversies and threats section.

1. Those who want to change wetlands from their natural state or fill wetlands (agriculture, development).
2. Those who want to use wetlands, either proximally or directly (conservation; tourism or recreation).
3. Those that want wetlands to remain unused (preservation; nature protection organizations).

As this is a general system of division, depending on the particular case some stakeholders may be a part of one or more groups. All three scenarios depict stakeholders dealing with wetlands in the natural state. It is also possible that stakeholders desire to restore a former wetland or create a new wetland. The impetus behind creation or restoration, and subsequently the stakeholders, falls into the categories of those who want to use wetlands (conservation), or those who want wetlands to remain unused (preservation). This is not meant to be an exhaustive list but an overview.

Stakeholders who normally want to change wetlands from their natural state or fill wetlands include citizens, agriculture or cattle interests, landowners, builders, developers, realtors and government agencies. In the United States, property rights activists can also be categorized as stakeholders who desire to change or fill wetlands. Stakeholders who have a desire to use wetlands may include citizens, government agencies, tourists, recreational users, conservationists, fishing, shrimping, shellfish or birding interests. In the United States, waterfowl and other hunting organizations may also be classified as stakeholders who wish to use wetlands. Finally, there exists a group of stakeholders who would like wetland areas to remain unused. In both the US and the Netherlands, this group includes citizens, preservation organizations and some government agencies.

Current threats and goals for wetlands

In the United States

There are several wetland-centered threats in the United States, falling under the categories of ecological or societal. Ecologically, threats exist through both transformation and degradation of wetlands. According to the EPA threats to wetlands include “drainage; dredging and stream channelization, deposition of fill material, diking and damming, tilling for crop production, levees, logging, mining, construction, runoff, air and water pollutants, changing nutrient levels, releasing toxic

chemicals, introducing nonnative species and grazing by domestic animals”(EPA, 2004). Natural threats occur via “erosion, subsidence, sea level rise, droughts and hurricanes and other storms” (EPA, 2004). In addition, societal trends can be a threat, often resulting in general confusion or conflict over wetland policies. These include the definition of wetlands, criteria for measuring wetland goals and private property rights issues.

The definition of wetlands created by the Army Corps of Engineers is controversial. According to the Army Corps of Engineers Wetlands Delineation Manual, the Corps of Engineers (*Federal Register* 1982) and the Environmental Protection Agency (*Federal Register* 1980) jointly define wetlands as:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” (Environmental Laboratory, 1997, p. 9)

In protest, the National Association of Home Builders report “many areas that are considered ‘wetlands’ have little environmental significance, yet receive the same level of protection as pristine wetlands” (National Association of Home Builders, “Building a Balance”, 2003, p. 1). The National Association of Home Builders vow to “seek and support legislation” that mandates, among other things, “the use of a single, replicable methodology for delineating wetlands, which is based on a scientific definition of three parameters: hydrology, hydrophytic soils, and vegetation.” (National Association of Home Builders, “Wetlands”, 2003, p. 1). One problem with this request lies with the unique properties of wetlands. The term wetland can mean a marsh, swamp, bog, fen, pocosin, Carolina bay, or many other things. Wetlands may become dry for years during a drought, or may never be fully dry. Biologically, healthy wetlands have different pH levels or varying dissolved oxygen levels. Compared to defining rivers or streams, wetlands lack consistent measurable qualities. This makes defining a wetland problematic for all stakeholders.

Relating to this problem is a debate in the United States over determining the criteria for measuring wetland goals. The US national goal of “no net loss” refers to no net loss of wetland area. This criterion especially presents problems when alternatives such as wetland mitigation and creation are utilized to meet “no net loss” goals. Critics argue replacing the area of a wetland may not be comparable to

replacing the wetland's function and/or value³. Proposed policy options include measuring wetlands based not only on area, but also encompassing the criteria of function and/or value. Depending on criterion use, a given wetland could rank in different ways. For example, a large urban wetland may provide socio-economic quality to a community and substantial wetland area, but its ecological function may not be as useful as a much smaller wetland in a different location. Current national policy is most often based on area. This holds special consequences for mitigation and creation programs. These programs allow those who wish to fill wetlands to protect alternate wetlands or create new wetlands. This debate centers on whether area-based mitigation or creation can truly replace a wetland's function in the ecosystem or watershed. This issue is receiving little attention at the national level in the United States.

An important tenet of American citizenship is the right to hold private property. Private property activists utilize the American legal system to protect and support this right. The final wetland controversy addressed here involves conflicts over private property rights issues and takings⁴. Private property rights advocates became more involved with wetlands following the development in 1989 of an interagency manual to define wetlands. This manual, produced jointly by the United States Army Corps of Engineers, the Environmental Protection Agency, the United States Fish and Wildlife Service, and the Soil Conservation Services, included more property than previously considered under the definition of a wetland (Vileisis, 1997). In response, property rights activists found "federal wetlands regulations devalued private lands and therefore constituted illegal 'takings' of property by the government" (Vileisis, 1997, p. 320). In response this manual has not been used to delineate wetlands in the states (Vileisis, 1997). The struggle between private property rights advocates and environmental agencies over wetlands continues to be a divisive force in United States wetlands policy formulation and implementation.

A report resulting from the 1987 Conservation Foundation's National Wetlands Forum recommended an "interim goal of 'no overall net loss of the nation's

³ Here area (usually called acreage in the US) denotes simply size; Lewis (2001) defines function as "all of the processes that occur in a wetland" and value as "attributes about which humans have opinions"(p. 42).

⁴ A "takings", as defined by Kusler and Opheim (1996, p. 147), is "the unconstitutional denial of an individual's right to use his or her property. This refers to the Fifth Amendment to the U.S. Constitution and similar provisions in other constitutions, which prohibit governments from 'taking' private property for public use unless they pay just compensation".

wetland base' and a long-term goal of 'increasing the quantity and quality of the nation's wetland resource base'" (Quoted in Kusler and Opheim, 1996, p. 3-4). Presidents George Bush, Bill Clinton and George W. Bush have taken on the "no net loss" goal for wetlands (Kusler and Opheim, 1996; US EPA (b)). However currently there is no real system of checks and balances to assure "no net loss". Most importantly there is no complete baseline wetland inventory of the United States. This means that no data exists from which to measure potential wetland losses or gains. Conservation groups and US environmental agencies encourage governments to pursue adequate baseline data and monitoring to insure this lofty and fundamental goal can be achieved.

In the Netherlands

It is not surprising that the Dutch feel vulnerable to the dangers of flooding. This perception makes the transition from a society that controls water to a society that allows water to follow its natural patterns quite controversial. As Eertman, Kornman, Stikvoort, & Verbeek (2002, p. 448) describe it, "the public is still very much used to the idea of taking land from the sea... rather than giving it back". Flooding is a serious issue in the Netherlands; the last major flood occurred in 1953, killing 1,835 people affecting 750,000 people and engulfing 2000 square kilometers (Dicke, 2001; Bijker, 2002). Vigilant water control has proven to be a matter of life or death in the Netherlands' history. Dutch manipulation of water is variously described as "humanity's struggle to master nature" (Reuss, 2002, p. 472) or the "heroic fight against the water" (Dicke 2001, p. 162). As wetland protection in the Netherlands often involves full or partial restoration programs, gaining support for these projects can be difficult when water is not trusted (Eertman et al, 2002). Due to the historical, cultural threat of uncontrolled water in the Netherlands, the general public does not always support wetland restoration, and its penchant for providing space for water to roam.

One problematic aspect of the Dutch landscape stems from manipulation of peat land. Harvesting peat from bogs results in lower ground water levels, which in turn causes the drained areas to sink (Kaijser, 2002). When land exists just above sea level, sinking translates into increased susceptibility to flooding (Kaijser, 2002). Historically, this manipulation began a complicated interplay between ecology and technology that continues to the present (Kaijser, 2002). The Dutch assure both

“safety and prosperity” by increasing predictability and utilizing “calculated risk” (Kaijser, 2002, p. 521; Reuss, 2002, p. 468). The Dutch have successfully remade their landscape to meet their requirements for centuries; they are renowned for their ability to control the landscape. After the 1970s, the Dutch began to focus more on the environmental effects of water management (Dicke, 2001). Some authors (Dicke, 2001; Bijker, 2002) find this ecological shift was brought to the forefront of Dutch culture during political struggles surrounding the Oosterschelde portion of the Delta Works Project. During this turning point politicians and the public worked to add ecological concerns to the national agenda of safety (Dicke, 2001). Bijker (2002) describes this not as a change of focus, but a broadening: “nobody questioned the basic safety goals of the Delta Law; ecological concerns were added to it” (p. 583). Hereafter, the goals of ecology and safety were both considered in Dutch water policy (Bijker, 2002; Reuss, 2002, Kuks, 2002). In the Netherlands, the importance of wetlands (and other natural areas) is now highly accepted.

Due to this integration, the idea that natural ecosystems need to be protected is not highly controversial. However, for this densely populated country, finding the room for natural areas is controversial. Wetlands protection in any form deals with space, and the constraints against space for a densely populated area can be much different than those of a sparsely populated region. When describing tropical preservation, Peres writes “the situation... is particularly acute in densely populated [parts of the world] where protected areas, whether or not shielded by a buffer zone, have become surrounded by a hostile matrix... the negative synergisms of habitat degradation, insularization and resource exploitation” (Peres, 2002, p. 137). This struggle is not limited to tropical regions: “Demographic and land use dynamics have important implications for the natural environment within both developed and developing nations. Within the context of developed nations, popular and policy debates surrounding contemporary patterns of suburbanization attest to the salience of demographic and development issues” (Hunter et al, 2003, p. 373). For example, Kuks (2002) writes, water and wetland areas are in competition with myriad interests for the meager amount of space still found in the Netherlands (p. 6). Population density restricts land use and therefore land, or wetland, preservation in the Netherlands. Wetland area preservation becomes controversial in this densely populated nation.

Kuks (2002) explicitly outlines the most substantial threats in the Netherlands regarding water as:

- Water depletion and desiccation
- Flooding and limited space for water
- Surface water pollution
- Contaminated water soils
- Groundwater pollution
- Coastal water pollution (p. 5-7)

He describes conflicts over groundwater use by two entities, those utilizing water “for drinking and industry[y]”, and the “water demanded by ecosystems, natural areas and wetlands” (p. 7-8). He also details how intermediate uses of water, (such as navigation, extraction of sand and gravel, drilling for petroleum products and recreational uses) sometimes conflict with EU Bird and Habitat Directives or nature interests (Kuks, 2002, p. 8). The threats to wetlands in the Netherlands include competition with other water users for adequate ground water levels, pollution issues, and space constraints.

The primary nature goal in the Netherlands is the creation of a National Ecological Network (NEN), which will include wetlands and other natural areas. There are four main policies that affect wetlands in the Netherlands⁵. Policies building the National Ecological Network incorporate European Union directives such as Natura 2000, Habitat and Bird Directives.

Policies, Laws and Agencies involved with wetlands

The United States

The United States, like many countries, participates in global and continental plans to support conservation of wetlands. Examples of global plans include the Convention on Wetlands (commonly known as Ramsar) and the United Nations Convention on Biological Diversity. At the continental level the United States participates in both the North American Waterfowl Management Plan and the North American Agreement on Environmental Cooperation. The agencies enacting these programs are listed in Table One. At the global and continental levels wetland conservation more often involves supporting broad plans or programs instead of

⁵ These are the Nature Policy Plan of the Netherlands (1991, 1998, and 2021), the Netherlands' National Environmental Policy Plan, the Programme International Nature Management (1996-2000) and The Structure Plan for Rural Areas (1993).

enacting specific policies or laws. This results from the lack of any overarching worldwide government to fund, support or enforce global policies or laws. When federal-level laws exist in the United States, state-level agencies, or even state branches of federal agencies permit and enforce rules. In addition, as of January 2004 sixteen states⁶ choose to augment federal laws with state wetland regulatory programs (Association of State Wetland Managers, 2004).

Most wetland protection in the US can be traced to Section 404 of the 1972 Clean Water Act. According to the Environmental Protection Agency, Section 404 of the Clean Water Act “establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands” and covers activities including filling wetlands to develop land for retail/residential use, farming, forestry, dams, levees, or infrastructure (US EPA(a), 2003, p. 1). The Army Corps of Engineers administers and enforces this federal policy—usually at the local or regional level. In the new millennium the United States Supreme Court continues to define what constitutes “waters of the United States”. Following the 2001 decision *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* protection for all wetlands as “waters of the United States” changed to protection primarily for waters that are traditionally navigable, tributaries of navigable waters, or waters adjacent to either of these (Petrie et. al., 2001). In essence this decision leaves isolated wetlands without protection under the Clean Water Act.

The United States Farm Bill affords protection for some isolated wetlands. A provision of the bill commonly known as “Swampbuster” cuts federal subsidies to farmers who destroy wetlands to produce crops (Petrie et. al., 2001). The Natural Resources Conservation Services, under the auspices of the United States Department of Agriculture, administers and enforces the Swampbuster provision. The primary source of wetland loss in the US today is due to development, not farming (Petrie et. al., 2001). This trend may exacerbate the consequences of the SWANCC decision.

⁶ These states are New Jersey, Rhode Island, Massachusetts, Connecticut, Maryland, New York, Florida, Pennsylvania, Virginia, Michigan, New Hampshire, Wisconsin, Vermont, Minnesota, Maine and Oregon.

The Netherlands

Much like the United States, the Netherlands participates in global level treaties to protect wetlands. These include the United Nations Convention on Biological Diversity, The Convention on Wetlands (Ramsar), and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). In addition, The Netherlands takes part in compulsory environmental programs to protect wetlands at the European Union level. This includes the Biodiversity Action Plan for the Conservation of Natural Resources, utilizing other programs to fulfill its goals such as Natura 2000, the Water Framework Directive and the Strategy for Integrated Coastal Zone Management. Other European Commission level policies are the Shellfish Waters Directive and the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The agencies promoting each of these programs are listed in Table 2.

At the national level, the Netherlands supports several policies that protect nature and wetlands. These include the Nature Policy Plan of the Netherlands (1991, 1998, 2021), Netherlands' National Environmental Policy Plan (NEPP), Programme international nature management (1996-2000), and the Structure Plan for Rural Areas (1993). The Dutch Ministry of Agriculture, Nature and Food Quality (Ministerie van Landbouw, Natuur en Voedselkwaliteit) supports and enacts these policies.

The Nature Policy Plan of the Netherlands incorporates the Natura 2000 plan as well as the European Union Habitat and Bird Directives (Europa, 2003). The goal of the Nature Policy Plan of the Netherlands (1991, 1998, and 2021) is to create a substantial National Ecological Network totaling 400 square kilometers of core areas by the year 2021 (110 square kilometers were obtained by the end of 1993) (Europa, 2003). This network will include “ecological corridors...to be created around protected natural areas, to protect water tables and ground water and surface water quality” (Europa, 2003, p. 1). Since 1992, 15 Dutch wetlands⁷ (3128 square kilometers) were named wetlands of international importance under the Ramsar Convention, (Europa, 2003, Ramsar Convention Bureau, 1999). In addition 3069 square kilometers of Special Protection Areas (SPAs) were added under the EU bird directive (Europa, 2003).

⁷ There are currently a total of 49 Dutch Ramsar sites encompassing 8,189 square kilometers (Ramsar Convention Bureau, 2004)

The Netherlands' National Environmental Policy Plan (NEPP) holds the goal of a 40 per cent reduction of desiccated areas by the year 2010, which includes some flooding of former farms (Resource Renewal Institute, 2003).

In addition, the Ministry of Agriculture's Programme International Nature Management (1996-2000) places an emphasis on protecting wetlands and migratory birds. The Ministry addresses this goal through support of the Bonn Convention, "integral water and wetland management" projects, and by establishing "a conservation policy" for the Wadden Sea (Netherlands Ministry of Agriculture, Nature and Food Quality (a), 2003, p. 1).

The 1993 Structure Plan for rural areas emphasizes protecting the habitats of meadow birds, geese and swans and fortifying the above-mentioned ecological network (Netherlands Ministry of Agriculture, Nature and Food Quality (b), 2003). The plan is also concerned with "increasing the number of national parks ... and creating favorable conditions for the conservation and development of these parks... to realize an optimal balance between agriculture, nature, forestry, landscape, fisheries and recreation" (Netherlands Ministry of Agriculture, Nature and Food Quality (b), 2003, p. 1). Via these programs and policies the Netherlands has a comprehensive, goal-oriented plan for creating and maintaining natural areas, including the protection of wetlands

Tables

Table 1: Agencies affiliated with wetland programs and policies of the United States

Level	Policy or Program	Agency or Agencies
Global	United Nations Convention on Biological Diversity	<ul style="list-style-type: none"> • United Nations
Global	Convention on Wetlands (Ramsar)	<ul style="list-style-type: none"> • Conference of the Contracting Parties
Continental	North American Waterfowl Management Plan (NAWMP)	<ul style="list-style-type: none"> • Ducks Unlimited • The United States Department of the Interior (DOI) • The United States Fish and Wildlife Service (USFWS) • The Canadian government and • The Mexican government
Continental	North American Agreement on Environmental Cooperation	<ul style="list-style-type: none"> • Commission for Environmental Cooperation (affiliated with the North American Free Trade Agreement or NAFTA)
National	The Clean Water Act	<ul style="list-style-type: none"> • The Environmental Protection Agency (EPA) • The United States Army Corps of Engineers (USACE) • The United States Fish and Wildlife Service (USFWS) • The National Marine Fisheries Service (NMFS)
National	The National Environmental Policy Act	<ul style="list-style-type: none"> • The Council on Environmental Quality
National	The Coastal Zone Management Act	<ul style="list-style-type: none"> • The Coastal Zone Management Program
National	The Farm Bill	<ul style="list-style-type: none"> • Natural Resources Conservation Services of the United States Department of Agriculture (USDA)

Table 2: Agencies affiliated with wetland protection programs and policies of the state of South Carolina

Policy or Program	Agency or Agencies
South Carolina Water Resources Planning and Coordination Act	<ul style="list-style-type: none"> • South Carolina Department of Health and Environmental Control (SCDHEC) • The United States Army Corps of Engineers (USACE)
South Carolina Scenic Rivers Act	<ul style="list-style-type: none"> • The South Carolina Department of Natural Resources (SCDNR)
The Urban Wetland Restoration Project	<ul style="list-style-type: none"> • South Carolina Department of Health and Environmental Control (SCDHEC) • South Carolina Ocean and Coastal Resource Management Division (SCOCRM)
South Carolina Coastal Zone Management Act—The Coastal Tidelands and Wetlands Act	<ul style="list-style-type: none"> • South Carolina Coastal Conservation Council (SCCCC) • South Carolina Department of Health and Environmental Control (SCDHEC) • South Carolina Ocean and Coastal Resource Management Division (SCOCRM)
South Carolina Coastal Stream Corridor Restoration Initiative	<ul style="list-style-type: none"> • South Carolina Department of Health and Environmental Control (SCDHEC) • South Carolina Ocean and Coastal Resource Management Division (SCOCRM) • The United States Environmental Protection Agency (EPA)
Clean Water Act Section 401 Water Quality Certification	<ul style="list-style-type: none"> • South Carolina Department of Health and Environmental Control (SCDHEC) • South Carolina Ocean and Coastal Resource Management Division (SCOCRM) • The United States Army Corps of Engineers (USACE) • The South Carolina Department of Natural Resources (SCDNR) • The United States Environmental Protection Agency (EPA) • The United States Fish and Wildlife Service (USFWS) • The National Marine Fisheries Service (NMFS)
Coastal Tidelands and Wetlands Act	<ul style="list-style-type: none"> • South Carolina Department of Health and Environmental Control (SCDHEC) • South Carolina Ocean and Coastal Resource Management Division (SCOCRM)

Table 3: Agencies affiliated with wetland protection programs and policies of the Netherlands

Level	Policy or Program	Agency or Agencies
Global	United Nations Convention on Biological Diversity	United Nations
Global	Convention on Wetlands (Ramsar)	Conference of the Contracting Parties
Global	The Convention on the Conservation of Migratory Species of Wild Animals (Bonn)	Secretariat under the United Nations Environment Programme (UNEP) provides administrative support to the Convention
European Union	Biodiversity Action Plan for the Conservation of Natural Resources, utilizing: <ul style="list-style-type: none"> - Natura 2000 - Water Framework Directive - Strategy for Integrated Coastal Zone Management. 	The European Union Commission for the Environment
European Union	Bern Convention	The European Union Commission for the Environment
European Union	Shellfish Waters Directive	The European Union Commission for the Environment

Table 4: National agencies affiliated with wetland protection programs and policies of the Netherlands

Policy or Program	Agency or Agencies
Nature Policy Plan of the Netherlands (1191, 1998, 2021)	<ul style="list-style-type: none"> • Ministerie van Landbouw, Natuur en Voedselkwaliteit (Ministry of Agriculture, Nature and Food Quality)
National Environmental Policy Plan (NEPP)	<ul style="list-style-type: none"> • Ministerie van Landbouw, Natuur en Voedselkwaliteit (Ministry of Agriculture, Nature and Food Quality)
Programme International Nature Management (1996-2000)	<ul style="list-style-type: none"> • Ministerie van Landbouw, Natuur en Voedselkwaliteit (Ministry of Agriculture, Nature and Food Quality)
1993 Structure plan for Rural Areas	<ul style="list-style-type: none"> • Ministerie van Landbouw, Natuur en Voedselkwaliteit (Ministry of Agriculture, Nature and Food Quality)

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