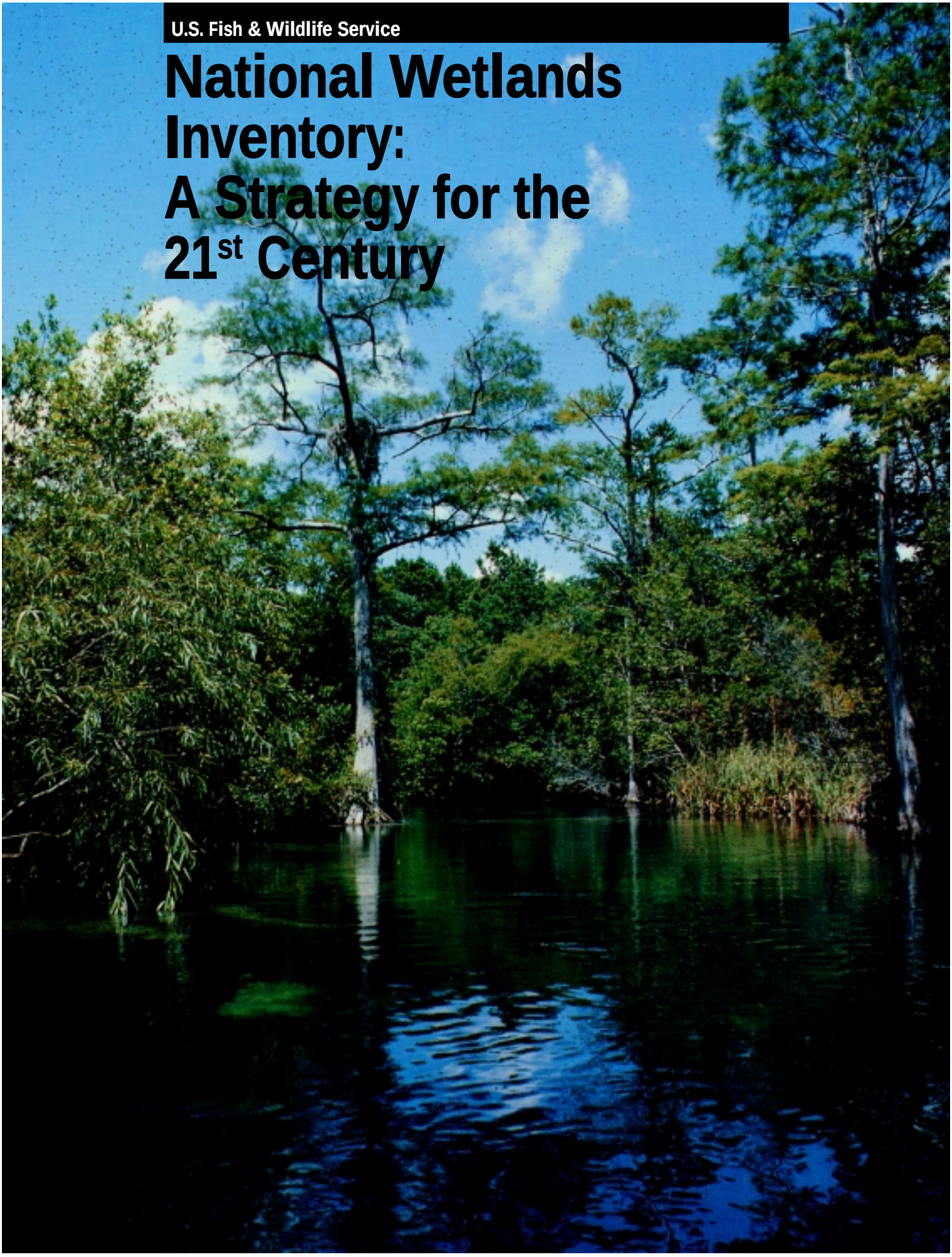
U.S. Fish & Wildlife Service

National Wetlands Inventory: A Strategy for the 21st Century



Estuarine emergent wetlands account for only five percent of the wetland area in the lower 48 States. Those like this estuarine wetland in South Carolina provide essential rearing habitat for important commercial fisheries. Photo by Tom Dahl

Cover Photo: Riverine wetlands in the Weeki Wachee River, Florida. Photo by Porter Reed

Executive Summary

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information to the public on the extent and status of the Nations wetlands. Through its National Wetlands Inventory, the agency has developed considerable expertise in mapping wetlands and associated habitats. These maps have been used extensively to make resource management decisions at the federal, state and local government levels. The Congressional mandate directing the Service to map the wetlands of the Nation and its Trust Territories has largely been met. Today, however, the Service faces difficult natural resource management challenges and decisions that did not exist when the Inventory was created twenty-six years ago.

This Strategy builds on the Inventory's past successes, and is designed to increase the availability and application of digital information for natural resources planning and management in support of Service conservation programs. Resource managers increasingly need contemporary information on aquatic habitats to address increasingly complex issues. To successfully meet these Agency needs in the 21st century, this Strategy has been developed for the National Wetlands Inventory. It focuses on three Program goals as follows:

I. Strategic Mapping - Meeting resource management needs for contemporary information by strategically producing updated maps in priority areas of the Nation where fish and wildlife habitats are vulnerable to change, loss, or degradation.

II Trend and Change Analyses of Wetlands and Other Aquatic Habitats - Intensifying the analysis of trends in aquatic habitats at the state, ecoregion, or watershed level, especially in areas that have experienced substantial wetland change or that are changing rapidly.

III Identifying and Assessing Threats to Aquatic Habitats at Risk - Analyzing and disseminating resource information to better identify threats and risks to important wetland and aquatic habitats to promote sound decision making.

Goal Statement

The goal of the National Wetlands Inventory is to provide the citizens of the United States and its Trust Territories with current geospatially referenced information on the status, extent, characteristics and functions of wetland, riparian, deepwater and related aquatic habitats in priority areas to promote the understanding and conservation of these resources.

Introduction

Aquatic habitats are valuable resources for fish and wildlife and people. They are key breeding habitat for our nation's freshwater and saltwater fisheries. In addition, these habitats are essential to migratory birds in their annual journeys, and they offer recreational opportunities for millions of citizens across the country. They function to slow flood waters, recharge aquifers and protect people and their homes from potentially catastrophic storms. In addition, wetlands assimilate, filter and neutralize pollutants before they enter our rivers and lakes.

Salt marsh habitat in the lower Kennebec River in Maine provides valuable habitat for wading birds, shore birds, waterfowl, and anadromous fish. USFWS photo.

The U.S. Fish and Wildlife Service established the National Wetlands Inventory in 1974 to develop and provide resource managers with information on the location, extent, and types of wetlands and deepwater habitats. When it began, the principal focus of the Inventory was to produce maps of wetlands in priority areas for the protection and management of trust fish and wildlife resources. At that time, wetland mapping priorities included the Atlantic, Pacific, and Gulf coastal regions; the Prairie Pothole Region in the Dakotas, Minnesota, and Montana; the lower Mississippi River delta; the playa wetlands of the Southern Great Plains; the Great Lakes; flood plains of major rivers, and California's Central Valley. Wetland mapping priorities in Alaska were areas affected by oil and gas production, and

An important component of any wetland management or protection effort is public education. Numerous environmental and nature centers throughout the United States provide recreational and educational opportunities for the public to gain an appreciation for wetlands and the benefits they provide society. Photo by Gabriela Smalley

corridors used for agricultural, population and transportation expansion. These maps provided the Service and others with needed wetlands information to assist in real-time decision making.

By the late 1970s, the Service and the Congress realized that completing a comprehensive inventory of the Nation's wetlands would be a long-term effort. Additional direction was given to the Inventory with enactment of the *Emergency Wetlands Resources Act of 1986*. The Act and its subsequent amendments gave the Inventory specific goals and deadlines for producing hard copy and digital wetland maps for the conterminous United States, Alaska, Hawaii, and its Territories. The Act also has required the Service to report to Congress on the status and trends of the Nation's wetlands every ten years.

By 2001, the Inventory had largely met its goal of mapping the wetlands of the conterminous United States. Substantial progress had also been made on developing the framework for a digital database of wetlands information for the Nation. The Service had also completed three national reports for the Congress on the status and trends of wetlands in the conterminous United States that span a 50-year period.

The resource management responsibilities and priorities of the Service have changed since the Inventory was conceived. Contemporary priorities focus on protecting and managing a variety of habitats for trust fish and wildlife resources. The Service provides habitat information to a diverse clientele including local planning commissions, regional governments, multinational corporations, and foreign governments.

The Inventory has evolved along with the Service and its customers. Much of that evolution came with the development of digital wetland maps. In the early 1990s, the bulk of wetlands data available to the public was hard copy maps. With the advent of the Internet, most of the wetlands map information used by the public is now provided by the Service in a digital format. In 1998, the Service introduced its Wetlands Interactive Mapper that allows personal computer users to produce wetlands maps for any area that has digital wetlands data available.

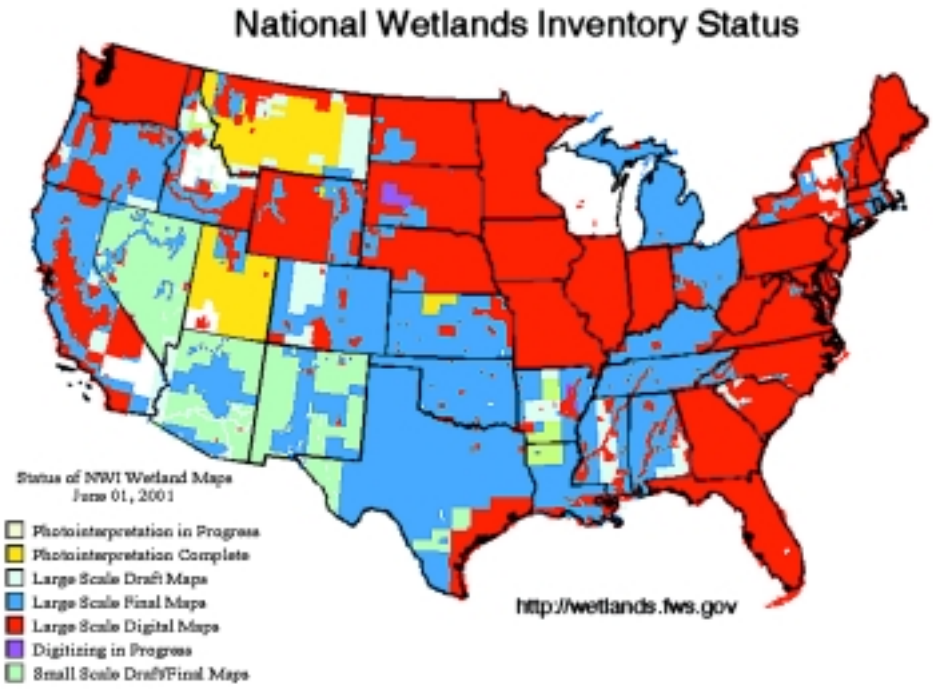
To better meet contemporary needs, the Inventory must continue to change. To meet the needs for contemporary aquatic habitat information in support of complex resource management decisions, the Service examined NWI program objectives to determine those that are most important, and where to focus future program efforts.

The purpose of this Strategy is to chart the course for the Inventory to best meet the needs of the Service and its partners in a technologically evolving digital age. The Strategy discusses the needed program changes, and offers definitive steps to accomplish the new NWI program goals.

A History of Success

Our Mapping Mandate

Wetlands are the cornerstones of many important and complex ecosystems. The Emergency Wetlands Resources Act recognized this fact and directed the Service to map our Nation's wetlands and deepwater habitats and produce information on their characteristics, extent, and status. Specifically, the Act directed the Service to map the wetlands in the Lower 48 States by September 30, 1998, the wetlands of Alaska by September 30, 2000, and to digitize the available wetlands maps and create a digital database for this information by September 30, 2004. By 2001, the Inventory had produced draft or final maps for more than 90 percent of the lower 48 states and about 35 percent of Alaska. In addition, the Inventory has provided the Service and the public with scientific wetlands maps for nearly 30 years. This has been accomplished by working with numerous public and private cooperators to produce maps, digital data, and nearly 200 reports and publications.



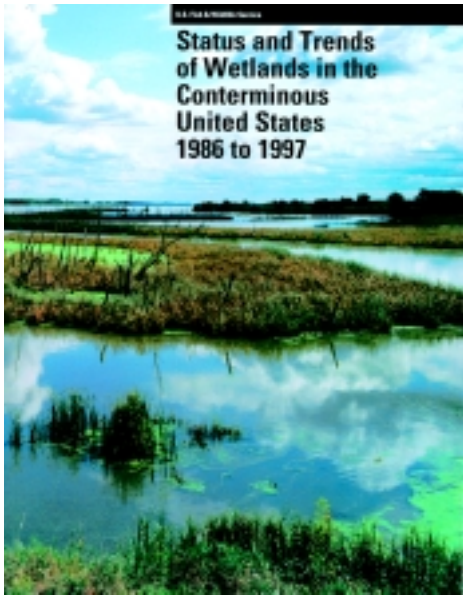
Although Inventory mapping of all of the Lower 48 States and Alaska has not been fully completed, the most compelling need for resource managers and decision-makers is for contemporary information on wetlands and other aquatic habitats. This contemporary information is crucial for the conservation of important fish and wildlife habitats. As the Service pursues strategic completion and updating of wetland maps, the Inventory will continue to build a digital wetland database that can be used to address resource management issues and to conduct habitat trend assessments. Wetland information in digital formats is an important tool to promote the stewardship of our Nation's natural resources.

Although traditionally resource managers relied on NWI maps for management decisions, nearly 70 percent of digital wetland map users are from the private sector. Since 1994, users have downloaded more than 1,200,000 digital wetland map files from the Internet. The Service promotes the development, sharing, and distribution of digital wetlands data through the cooperation of 75 Federal, State, Tribal, and local governments, private sector organizations and universities. However, the Service must continue to develop additional applications of its data that will facilitate broader use and relevancy in integrated natural resource management and decision making in the future.

Status and Trends of Wetlands

The Emergency Wetlands Resources Act requires the Service to produce national wetlands status and trend reports to Congress each decade. These status and trends reports are used by Federal and State agencies, the scientific community, and conservation groups for planning, decision-making, and wetland policy formulation and assessment. The Service has rigorously documented the historic downward trend in wetland losses since the 1950s. At that time the average annual wetland loss rate was 458,000 acres. The Service found that during the mid-1970s to mid-1980s the loss rate had declined to 290,000 wetland acres annually. More recently, the Service reported to Congress in 2001 that the Nation's wetland loss rate was about 59,000 wetland acres annually by 1997. This represented an 80 percent decline in the estimated wetland loss rate from the mid-1970s to mid-1980s. This Service database spans 50 years, and is now the most extensive statistical source of wetland change information in the Nation.

The Service has also shown that the Nation has lost more than half the wetlands that existed at the time of European settlement in what is now the Lower 48 States.



The Emergency Wetlands Resources Act of 1986 requires the Service to report to Congress at 10-year intervals on the status and trends of the Nation's wetlands. Photo by Tom Dahl

Although wetland loss rates have declined dramatically, the Nation continues to lose wetlands in some locales despite the best efforts of government policy makers, regulatory agencies, conservation organizations, and the public to conserve and protect them.

Regional and state wetlands trend analyses by the Service augment our knowledge of habitat changes on a more relevant local scales. The Service has completed numerous local and regional status and trends analyses including the Texas Coast, the Mid-Atlantic States, and the Chesapeake Bay Watershed. These analyses have provided more detailed trend and resource condition information that Federal, State and local governments use in planning and decision making.

Riparian Mapping

Riparian habitats are among the most important vegetative communities for wildlife in the western United States. For instance, in Arizona and New Mexico, 80 percent of all vertebrates use riparian areas for at least half their life cycle; more than half of these are totally dependent on riparian areas for their survival.

Riparian vegetation along stream courses and in drainage areas provides vital habitat for important trust fish and wildlife resources in the western United States. USFWS photo.

The Fish and Wildlife Act of 1956 authorizes the Service to map habitats used by fish and wildlife resources. Under that authority, the Service developed and implemented "*A System for Mapping Riparian Areas in the Western United States*" in 1997. Since its inception, the Service's riparian mapping system has been applied to several efforts to locate and describe this unique vegetative community in the western United States. The Service is pursuing adoption of the Inventory's riparian classification system as the national standard to ensure uniform mapping of these ecosystems.

Resource Management Applications

Increasing numbers of migratory birds, fishes, and endangered species need sufficient quality habitat in an ever-changing landscape. Because of continuing habitat alteration, loss and degradation, aquatic species are especially vulnerable. Current map information coupled with other habitat data and landscape characteristics in digital formats can provide resource managers and decision-makers with more powerful tools for needed resource assessments.

Nearly 40 percent of the wetlands maps for the Nation are digitized. However, digital wetland map information is not readily available for much of the Nation. Traditional wetland maps, once converted to a digital format are of increased utility for answering resource management questions. This is especially true when they are used in Geographic Information Systems to aggregate and display resource information in maps that can be more easily reproduced or combined with other data layers.

The Inventory is strategically positioned to work with many Service resource programs to develop more powerful computer-based resource assessments. These include assisting Regional Geographic Information System efforts involved with mapping *Coastal Barrier* resources. The Inventory can provide contemporary resource information of value to the *Partners for Fish and Wildlife Program's* wide-ranging aquatic habitat restoration efforts. Digital aquatic habitat information can form the backbone of efforts to assist the *Fisheries Management Program* in identifying barriers to fish passage throughout the Nation. Additionally, digital resource information will be valuable to the *Federal Activities Program* as an aid to developers, the public, and to other agencies for planning future environmental activities.

Freshwater forested wetlands are extensive, making up nearly 50 percent of the total wetland acreage in the lower 48 States. This cypress wetland is located in southern Maryland. Photo by Dan Smalley

The Service has also worked with numerous federal, state, and private sector partners to help develop digital wetlands information, and will continue to be called upon to do so in the future. As an example of their utility, the Service and the New York City Department of Environmental Protection inventoried the City's two watersheds. The resulting digital wetlands maps were used by the City of New York and combined with other GIS resource data layers to develop watershed

management scenarios to improve water quality and safeguard this important public water supply. The Inventory must continue to provide nationally consistent digital aquatic habitat information that can be combined with other Geographic Information System layers.

Wetland restorations such as this one in New York provide important habitat as well as flood control and water quality benefits. USFWS photo.

Strategic Positioning for the Future

The Service has determined that it is more strategically and fiscally prudent to focus available program resources on efforts that provide the greatest payoff for wetlands conservation and restoration than to continue wetlands mapping of uncompleted portions of the Nation. An increasing proportion of existing maps are becoming outdated by development and land use changes. Instead, the Service will intensify the updating of maps in areas that have been subject to substantial developmental change, and convert existing final wetland maps to digital formats, to better meet the needs of Service programs and our partners.

The Inventory is the only Service program with the expertise and infrastructure to identify and analyze the current extent and recent changes in aquatic habitats, and to develop multifaceted approaches to protect and manage these important habitats. The integration of wetland maps with data from other Service programs such as *Coastal Barriers*, coastal habitat activities and restorations, and aquatic habitat assessments, can broaden and improve natural resource management and planning efforts by the Service and its partners. The Inventory's on-line data center provides the foundation for a comprehensive clearinghouse to serve this information.

The Service possesses wetlands expertise that has enabled the Inventory to map almost all of the wetlands in the conterminous United States. State and local governments rely on this expertise and wetlands information to facilitate economic growth and natural resource conservation. In addition, the Service produces national and regional reports about the status and trends of our Nation's wetlands, helping concerned citizens understand ongoing changes in the Nation's wetland base. The news is positive, but there is room for improvement. The Service's 2001 national wetlands status and trends report shows that while the rate of wetlands loss has fallen significantly in the last 10 years, we still have not reached our national no-net-loss goal. This scientifically sound assessment broadly illustrates where wetlands today are most at risk, allowing policy makers to consider strategies to conserve these valuable resources. However, national statistical sampling and analysis each decade is not optimal for providing rigorous information that can be used to address resource issues at regional, State, or more local scales.

Policy-Makers Require Contemporary Information

Contemporary scientific information on wetlands should be the bedrock of good policy. The Service's wetlands expertise positions the Agency to assume an even greater future role in aquatic habitat policy development. How can the Service work with other Federal agencies and Congress to meet the no-net-loss goal? What are the greatest pressures on wetlands today? Where are wetlands being lost? What strategies can we use to conserve these wetlands? What data sets are needed to support habitat conservation programs now and in the future? Can we target Federal and State partnership programs in high-risk locations? How will proposed legislation affect wetland conservation throughout the country? These are the questions that the Service's wetlands expertise can help answer.

These and other questions are especially relevant today. Currently, the Clean Water Act is an integral part of wetlands conservation. The U.S. Army Corps of Engineers reviews many activities that effect wetlands, and issues permits under Section 404 of the Clean Water Act. The Service works with the Corps and other agencies to ensure that permitted activities minimize and compensate for wetland impacts. In this regard, the 404 permit program is crucial to achieve no-net-loss of wetlands. Recently, however, the scope of Clean Water Act protection has diminished. Court decisions in 1998 and 2001 scaled back the types of wetlands that can be regulated,

Palustrine emergent wetlands occur in all physiographic regions of the United States. Photo by Nova Development

and the long-term consequences of the changes remain largely unknown. It is likely that the changes could affect efforts to achieve no-net-loss of wetlands. The potential impacts to wetland occurrence and function underscore the urgency for providing contemporary digital wetland assessments.

Conversion to Digital Formats

A goal of the Emergency Wetlands Resources Act is for the Service to produce a digital wetland database from the existing final wetlands maps by September 30, 2004. To accomplish that goal, the Service will need to use the latest technologies to produce quality digital products for use in resource management applications.

Providing aquatic habitat information in digital formats enables the application of multiple "layers" of resource information with other digital resource information to address management issues. For instance, the Service used digital wetland maps in the Prairie Pothole Region of the Dakotas, Minnesota, and Montana to develop data layers to aid efforts to protect the most valuable wetlands providing nesting habitats for several species of water birds. In Yellowstone National Park, Wyoming, the Service's digital wetlands data were used to develop management plans for riparian and wetland habitats important to fish and wildlife resources. Digital wetlands data have been used in several watersheds for functional assessments of wetlands and their position on the landscape. The availability of digital aquatic habitat information provides a fast, efficient, and a scientifically-sound avenue for analyzing and resolving resource management issues.

Previously, the Service relied on the availability of cooperator funds from many sources to produce digital wetlands products. In doing so, the Service has not always been able to efficiently provide its field personnel with digital wetland maps or assessment information for areas and habitats that require current information to address resource management or development issues. The program will use appropriations to digitize wetland maps that are Service priorities.

In coming years, contemporary digital map information will take on increasing value for holistic management of watersheds and river systems, to facilitate planning for energy development, and for large-scale habitat restorations. Once identified, the Service will then work with cooperators to determine their interest in assisting the agency with producing digital products.

The Road Ahead

Palustrine emergent and palustrine shrub wetlands in high elevations areas like Grand Teton National Park provide important foraging habitat for large mammals. Photo by NOVA Development

The strategic mapping of wetlands and aquatic habitats, coupled with the completion of wetland trend analyses and assessments, and data dissemination, are key roles the Inventory can fulfill. Contemporary resource information and quality technical assessments are the guideposts to aid decisions on policies and strategies for effective habitat management. To meet these challenges, the Service needs a stronger wetland habitat mapping and assessment program with a well-developed outreach capability. The discussion that follows for each of the program goals explains the direction and identifies opportunities to advance the Service's wetland mapping and assessment program in the 21st century.

Program Goal I - Strategic Mapping

Our changing world and associated land use practices require contemporary information about the extent, location, and amount of wetlands habitat needed for sound resource stewardship. Population growth and development pressures continue to affect the ecological integrity of aquatic ecosystems. Today, many digital maps need to be updated because of these continuing development and land use changes. Much of the digital wetlands data available from the Service was developed from aerial imagery that is now more than 20 years old. As the population of the United States continues to grow, additional human-induced stresses will be placed on wetlands and other important natural resources. Effective and responsive management of these resources depends on contemporary and easily accessible information to facilitate resource management and decision-making.

The National digital wetlands habitat data maintained by the Service regularly needs to be updated to keep pace with these changes. The Inventory needs to provide contemporary information to address increasingly complex environmental issues. The challenge facing the Inventory is to strategically update digital wetlands information and make these data available to natural resource decision makers.

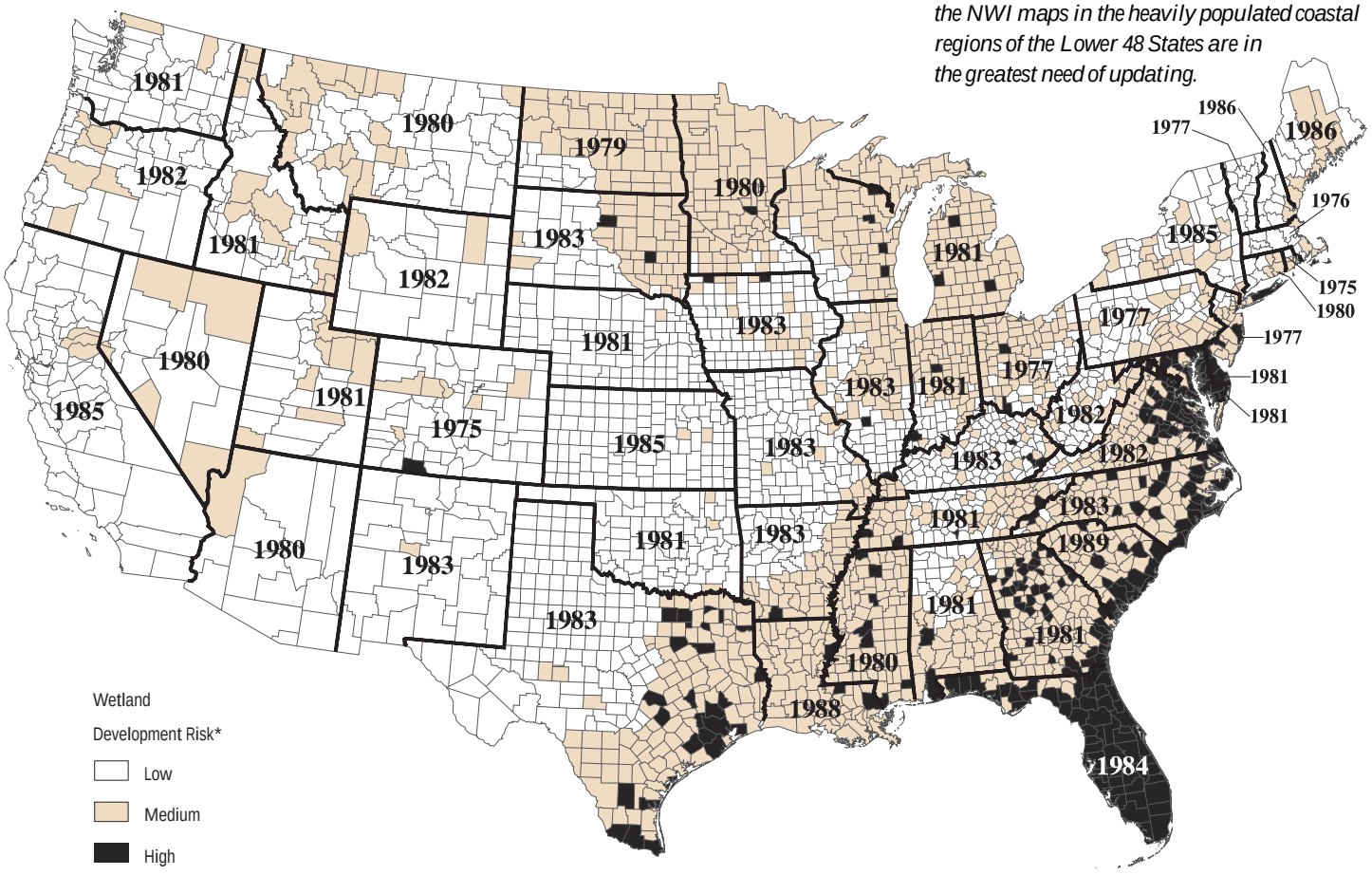
Resource managers and decision-makers need updated wetland map and digital data products. The Service needs to continue to build a digital wetland map database for the Nation, and to strategically update existing digital maps in priority areas experiencing development and population pressures. In addition, important development projects merit review so they can be constructed in the shortest time practicable with minimal environmental impacts. Resource managers and decision makers should not have to wait months, or sometimes years, to acquire and apply updated information. To provide the Agency with the most current habitat resource information possible, the strategic mapping approach will use innovative technologies to produce improved products with shortened production time frames.

The Inventory will focus on the strategic updating of dated maps in priority areas, in and adjacent to high-growth areas to better meet the needs of resource managers.

The Inventory will develop a prioritization scheme to determine which of the existing wetland maps are most important to update and to digitize. Important among the considerations will be known or suspected impacts to existing fish and wildlife resources, and the lands that provide habitat for endangered species.

Estuarine emergent wetlands occur primarily along the heavily populated Atlantic and Gulf coasts of the United States. Human-induced pressure to fill wetlands for housing and commercial development intensified in the 1950s and continues today. Existing Federal, State and local wetland protection laws and regulations have helped reduce wetland filling.
USFWS photo

The average age of imagery used in the production of the original NWI maps is shown in each of the conterminous United States. When overlaid on the potential development pressure on wetlands, it becomes apparent that the NWI maps in the heavily populated coastal regions of the Lower 48 States are in the greatest need of updating.



* Risk is a measure of population increase and construction activity and wetland density.

The Inventory will actively evaluate the latest technologies for improved mapping and remote sensing, and determine their efficacy in meeting agency needs for timely resource management information. The Inventory will capitalize on workable innovative tools to meet strategic mapping goals efficiently and reliably.

> ***The Service will provide this resource information, and expand and improve the availability of digital wetlands data to accomplish this goal. Making this information more accessible to the public will promote the understanding of wetland resource values, lead to reasoned choices about protecting and restoring wetlands, and help maintain or improve the livability of our communities***.

As part of this strategy, the Service will work with Congress to expand the mapping mandate to provide updated digital habitat information for priority areas of the Nation. Close coordination with Congress will also be important for implementing the components of this Strategy.

Identification and mapping of wetlands, even in isolated areas, can help planners and managers make decisions when other competing uses are envisioned. Photo by NOVA Development.

Program Goal II - Trend and Change Analyses of Wetlands and Other Aquatic Habitats

The National wetland loss rate has declined substantially in the last decade. However, because there are far fewer wetlands today than in pre-settlement times, current information on the remaining wetlands is important. The causes of these ongoing changes are as diverse as the many types of wetland habitats that remain. Some areas may be subject to natural events, such as coastal storms, that alter or change aquatic habitats. Other wetlands may experience change or loss from human population growth.

Timely information on wetland trends is important to assess the status of these important aquatic habitats. To continue obtaining scientifically sound information on national loss or change rates, the Service will need to:

1) Conduct status and trend analyses at regional, State, or local scales;

2) Increase the number of sample plots to obtain statistically rigorous findings; and

3) Decrease the reporting intervals to a maximum of every five years.

This will be a substantial effort. However, the Service believes that conducting more frequent regional analyses is the most expedient method to increase our knowledge regarding short and long term changes in wetland habitats. In support of this approach, the 2001 National wetlands status and trends report showed that freshwater forested wetlands are among the most vulnerable wetlands in the Nation. Most of the freshwater forested wetlands are in the southeastern United States.

Therefore, conducting regional trends analyses in the southeastern United States to focus on the specific causes of those losses would be appropriate, and provide recommendations on how to reduce their impact. There may also be issue-driven needs for regional trends analyses to evaluate policy efficacy or the impacts of legislative or administrative actions and court decisions, and land use changes affecting aquatic habitats. These types of analyses will give decision-makers a greater understanding of issues than will attempts to follow national trends in an environment of lowered loss rates.

> ***The Service will confer with Congress on enacting a statutory mandate to complete regional and local level wetland and riparian trends analyses***.

Conducting regional and local analyses of aquatic habitat status and trends will enable the Service to more quickly and accurately measure change and resource conditions in key areas and watersheds.

The Inventory will conduct regional and local trends analyses to assess policy implications, and guide management strategies and resource planning. These analyses will provide important information on changes in habitats and the types of habitats affected by environmental or biotic influences.

In addition to analyzing national wetlands trends, the Service will continue to target watersheds in the country where impacts may be substantial. With more intensive and frequent sampling, the Service will quantify changes and the pressures affecting aquatic habitats. This information will be used to identify the effects of wetland loss on fish and wildlife, and aid in the assessment of aquatic habitats.

Program Goal III – Identifying and Assessing Threats to Aquatic Habitats at Risk

For the last 50 years, many aquatic habitat policies and wetland and resource program goals have been based on the acreage than can be protected or restored. As science expands our knowledge of wetlands resources, and as wetland loss rates continue to decline, it will become increasingly important to emphasize habitat quality. The direct conversion of habitat to other societal uses can be measured or mapped by change or decline in area. The qualitative change in structure, function, or composition can be more challenging to document. At some point, qualitative changes are sufficiently severe to qualify as outright habitat loss. Resource managers need the capability to assess the efficacy of functional restoration of degraded habitats, protecting and improving habitat quality, and implementing comprehensive standards for fish and wildlife habitat mitigation.

Increasing population and associated development stresses require improved information and understanding of how the Nation's habitats respond to change. Improved baseline and trend information that documents the abundance, distribution, and condition of aquatic habitats is needed to implement effective resource management actions, and to facilitate decision making at ecosystem, regional, and watershed scales.

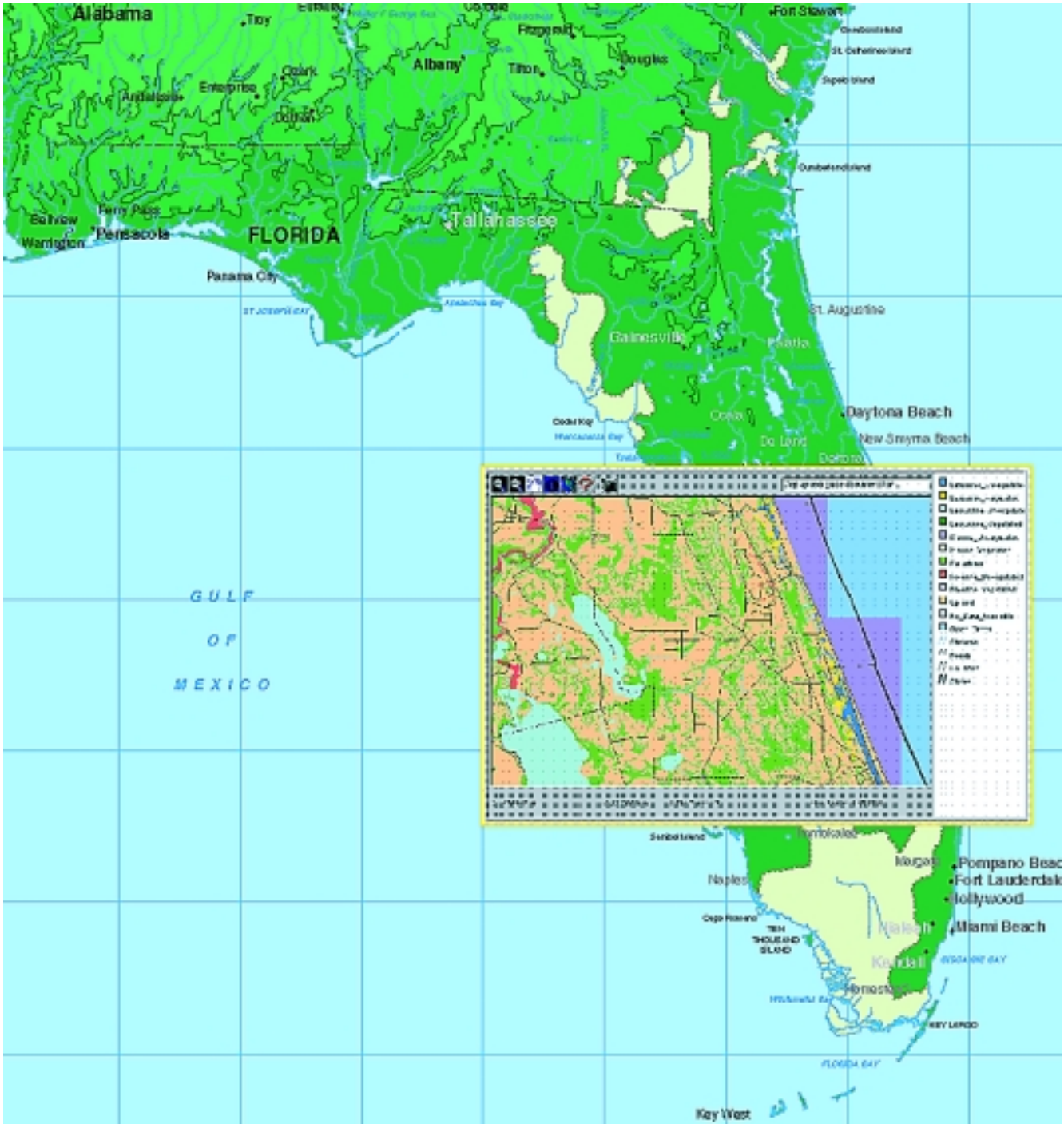
The Inventory needs to implement a concerted effort to analyze and assess wetlands, riparian and other aquatic habitat data at watershed, ecosystem, and national levels. These assessments should 1) provide scientifically based applications for wetlands and water resource data already available from various resource agencies (e.g., wetland status for coastal barrier components), and 2) expand the capability of the Inventory to integrate digital map data with other resource information to produce timely and relevant management and decision support tools.

To complement existing resource mapping and digitizing efforts, the Service should intensify technical efforts to assimilate and analyze geo-based data sets. This synthesized assessment information will help the Agency and our partners answer priority aquatic habitat related questions. Other activities might incorporate elements of hydrogeomorphic assessments, habitat availability and wetland functional assessments, or long-term characterization studies of changes to vulnerable ecosystems of concern.

The Service maintains an extensive geospatial database of aquatic habitat change information. This data, coupled with the extensive and diverse technical capabilities of its aquatic habitat personnel, has positioned the Service to conduct functional resource assessments, and influence functional habitat policies in the future. Other Federal agencies, the states, tribes, and local units of government need this information to facilitate their planning and resource conservation efforts.

Wetlands throughout the United States provide recreational and aesthetic benefits including bird watching and the enjoyment of open space. Photo by NOVA Development

Aquatic habitat conservation efforts in the future will be most effective with the involvement and support of stakeholders in State and local governments. Providing current information and focused resource assessments in a format that most users can access and assimilate will be one of the most important contributions the Service can make for fish and wildlife conservation in the 21st century.



When used with other layers of digital resource information, wetlands data provides a powerful tool for resource managers to assess the potential effects of development projects on remaining wetlands.

The Service will intensify program efforts to expand and improve the electronic availability of resource information, and more rapidly distribute wetland and aquatic habitat information. This will be accomplished through developing and enhancing public and private partnerships to promote fish and wildlife habitat protection, restoration, and creation activities.

The Service will draw on remotely-sensed information, enhanced geographic information system capabilities, and the development of new partnerships to ensure a quick turnaround of information analyses. The products will be of substantial benefit to the Service and our partners as tools for directing resource restoration efforts, assessing and quantifying water resource development effects, and in assisting land use planning activities.

Legislation that affects wetlands is occasionally introduced in Congress. In these cases, the Service's wetlands expertise can provide critical analyses, helping to predict the outcomes of the proposed policy. The capability to provide thorough and rapid technical evaluations and analyses will help law makers at the Federal, State, and local level understand how proposed policies will affect wetlands in their areas of concern.

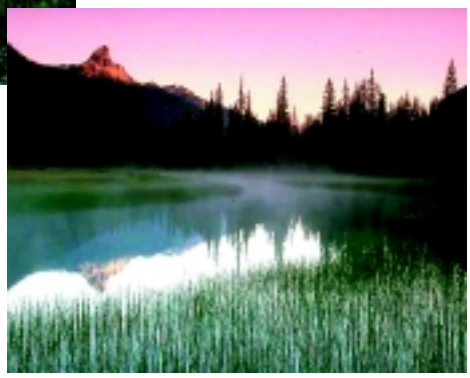
For example, when the Clean Water Act is reauthorized, the Service will be better able to provide law makers with information that will help fully characterize the effects of proposed amendments. The 2001 national wetland status and trend analysis showed the need to develop a suite of next generation protection, acquisition, and restoration policy options to curtail future wetland losses. The Service will use this and other information sources to work with our partners to guide policy decisions. The Inventory is poised to provide aquatic habitat assessment information to promote sound decisions for habitat management.

As a major source of aquatic habitat information for the Administration and the public, the Service will strive to improve the availability of this resource information in digital formats, and showcase successful applications of this storehouse of aquatic habitat information. This is necessary to give the public an avenue for better understanding aquatic habitats, and how human development can be compatible with these important ecosystems.

Summary

As a mission critical component of the Service, the National Wetlands Inventory has refined its program focus and direction to supply Agency resource managers and its partners with digital map information, technically advanced tools, assessment products, and information dissemination procedures that will provide solutions to myriad resource management issues. This Strategy provides the needed framework to accomplish this challenge. The Service will begin to implement this change in program direction in FY 2002.

The National Wetlands Inventory will continue to rely on sound scientific principles to provide Service resource managers with quality products. The principal avenue to be followed in accomplishing this is a conversion to a digital environment and providing timely analyses to Service programs. Once the digital products are available, we will communicate our findings through an aggressive dissemination and outreach program using a variety of formats to make the information available.



Freshwater fringe wetlands provide habitat for aquatic and terrestrial wildlife and help filter out nutrients and sediments. Photos by NOVA Development

The NWI Strategy will focus on these three program goals:

I. Strategic digital updating of maps in areas of the Nation experiencing substantial developmental pressure and providing these products to the public over the Internet.

II. Analyzing changes and trends to wetlands and other aquatic habitats at ecosystem, regional, or local scales.

III. Analyzing and disseminating resource information to better identify threats and risks to important wetland and aquatic habitats to promote sound decision making.

To refocus the Inventory will require the Service to accomplish the following strategic actions:

I. Intensify the strategic completion and updating of outdated maps in priority areas of the Nation, and provide natural resources information when and where it is needed by expanding and improving the availability of digital wetlands data.

II. Develop a prioritization scheme to determine which of the existing maps are most important for digitizing.

III. Consult with the Congress on the redirection of the Inventory and needed amendments to the Emergency Wetlands Resources Act.

IV. Conduct regional and local aquatic habitat trends analyses to guide Service management strategies, and sound habitat resource planning and decision making by others.

VI. Use the latest scientific and technical tools to analyze information that will enhance the use of Geographic Information System capabilities in resource management.

VII. Enhance partnerships and develop new ones to promote fish and wildlife habitat protection, restoration, and creation activities.

Mudflats and wetlands associated with tidal creeks in the eastern United States provide essential habitat for shore birds and other wildlife. Muddy Creek, Maryland. Photo by Gabriela Smalley

Emergent wetlands in the Cascade Mountains are a vital link in the twice-annual migration of millions of wetland dependent birds in the Pacific Northwest. Photo by NOVA Development

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January, 2002