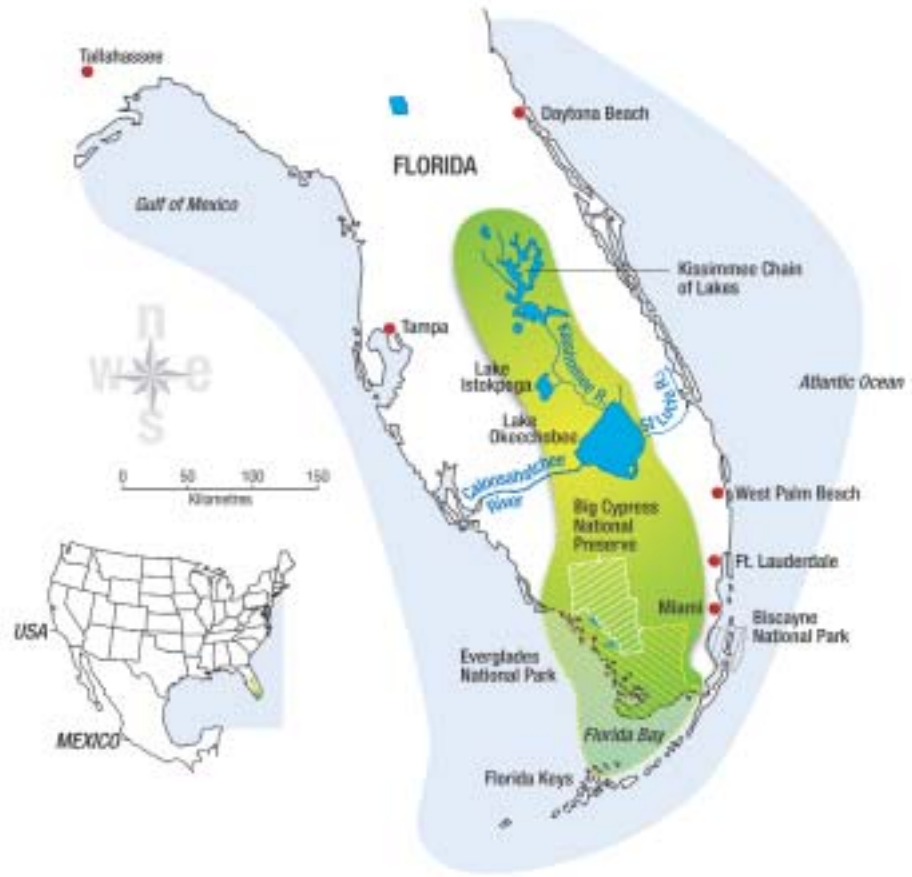
# Everglades




## Basin countries

United States of America (South Florida)

## Summary of basin characteristics

The Everglades is a rain-fed, flooded grassland/wetland that once extended from Lake Okeechobee in the north to Florida Bay in the south. The slow-moving, shallow water flowed as a vast sheet through varied landscapes from sawgrass marshes to mangrove estuaries, ending its journey by mixing with the seawater of Florida Bay.

Today, half of the original Everglades have been drained. Large quantities of fresh water have been diverted to drain land for agriculture and to provide flood control for coastal cities. Almost 2.5 billion cubic metres (2 million acre-feet) of water are diverted from the natural system annually, damaging the ecology of the coastal estuaries. Polluted and nutrient-rich water flowing into Florida Bay is adversely impacting marine habitats including fragile

coral reefs. Saltwater intrusion has become a serious problem, making it necessary to drill deeper freshwater wells inland away from coastal urban areas. Ironically, this has led to water-use restrictions in one of North America's wettest regions.

### *Socio-economic importance*

The Everglades support major industries and provide South Florida's drinking water, supporting the explosive development of one of the fastest growing and economically dynamic regions in the United States. Due to massive diversions of fresh water, largely for flood control in areas that were formerly wetlands, the remarkable biological diversity and productivity of the entire South Florida ecosystem is at risk. Yet this diversity and productivity are at the very heart of the region's vital multibillion-dollar tourism and fishing industries. With South Florida's population projected to double by 2050, a robust system of sustainable use is required if the Everglades are to survive the growing human pressure.

### *Biodiversity values*

Within the Everglades ecosystem there are some 11,000 species of seed-bearing plants, 25 varieties of orchid, both tropical palms and temperate oak trees, and cactus and yucca. There are 400 species of land and water vertebrates and numerous invertebrates, including the Florida applesnail *Pomacea paludosa*, which is the sole food of an endangered bird of prey, the snail kite *Rostrhamus sociabilis*.

More than 300 other bird species occur, though the breeding populations of many wading birds are only 10 per cent of former numbers. For example, in 1960 there were more than 2,300 wood storks *Mycteria americana* nesting in South Florida. By 1987, the average annual breeding population had declined to just 374.

Overall, there are 68 federally listed threatened or endangered plant and animal species, including the Florida panther *Felis concolor*, West Indian manatee *Trichechus manatus*, and American crocodile *Crocodilus acutus*.

## Priority issues for river basin management

The dramatic growth of the human population in South Florida has placed tremendous strains on the Everglades system. Half the original wetlands are gone, the waters that formerly flooded them now diverted out to sea, while canals, roads and other structures fragment the remaining areas. Urban stormwater and agricultural runoff have polluted Lake Okeechobee and disrupted the balance of nutrients in wetland areas to the south. Invasive exotic species now dominate habitats that once supported tropical and neotropical plants and animals.

An ambitious stakeholder consultation process – the Governor's Commission for a Sustainable South Florida – determined that the future of the Everglades ecosystem depended on securing more sustainable development and water use in South Florida and restoring natural hydrological linkages and flow regimes that had been disrupted by a century of drainage. The Commission recommended a sweeping, 30-year plan of management changes and ecological restoration projects, which were to become the Comprehensive Everglades Restoration Plan.

WWF recognized that the plan was incomplete in that it largely neglected Lake Okeechobee, the source of much of the water that historically fed the Everglades. WWF responded by developing a programme for conservation and restoration of the Lake. Thus, for WWF and its partners, the priority issues are as follows.

- Achieve passage and successful implementation of the Comprehensive Everglades Restoration Plan (CERP) through well-coordinated and effective conservation advocacy, by:
  - opposing attempts to weaken the CERP's commitment to natural system restoration
  - securing the codification of specific restoration goals
  - providing the Everglades with legal standing vis-à-vis water management, flood protection, and land use
  - ensuring a strong and effective federal/state partnership and independent scientific review.
- Improve water quality and water management in Lake Okeechobee, by:
  - transforming the public conception of Lake Okeechobee from 'reservoir' to 'natural system'
  - adopting acceptable water management

schedules that ensure the protection of littoral zones and wildlife in the Lake and associated channels and estuaries
- advocating greater water storage in northern basins to remove pressure on the lake's water levels
- advocating implementation of nutrient control measures and initiating removal of phosphorus-laden sediments from the lake
- removing invasive exotic species.

- Foster environmentally and economically viable agricultural production systems that are compatible with a restored Lake Okeechobee-Everglades ecosystem, by:
  - working with the agricultural community to identify better management practices that prevent nutrient runoff, soil erosion, and/or pesticide use that contribute to the degradation of water quality in the Everglades system, and identifying the federal and state programmes and policies that will accelerate adoption of these practices by farmers and ranchers
  - identifying the important ecological commodities produced on agricultural lands – food and fibre, clean water, healthy soil, carbon sequestration, biodiversity conservation – and the ways in which agriculturists can maximize conservation benefits
  - facilitating development of programmes that provide incentives to increase water storage and phosphorus reduction capacity on agricultural land.

## Role of WWF and its partners

WWF was a leader in the environmental community during the development of the CERP and advocated strongly with its partners for the timely delivery of an adequate conceptual plan to the US Congress in 1999.

*Sawgrass marsh in the Everglades.* Galen Rowell

WWF chaired the Everglades Coalition (composed of 41 environmental, civic, and recreational organizations) during the eight-month legislative process that led to the passage of the landmark Water Resources Development Act of 2000, which authorized the Comprehensive Everglades Restoration Plan.

WWF's call for a strong role within the CERP for the Department of Interior, an independent scientific review, quantifiable interim restoration goals, and legal 'set-asides' of water for the natural system has resulted in considerable press and Congressional attention to these issues, and has kept them in the forefront of the debate over new federal regulations to govern restoration.

Working with staff at the regional water management district level, WWF is developing and proposing additional, appropriate language to improve water use permit approvals, conditions and duration so that they do not threaten the viability of the CERP.

WWF played a key role in the stakeholder process of evaluating and crafting the South Florida Water Management District's environmental release protocols for Lake Okeechobee – the first step towards balancing water supply, flood protection and environmental protection for Lake Okeechobee.

WWF facilitated discussion between environmentalists and ranchers in an effort to build trust, identify overlapping interests, and identify mutually beneficial activities that promote economically viable and ecologically sustainable cattle-ranching practices.

## Conservation method demonstrated

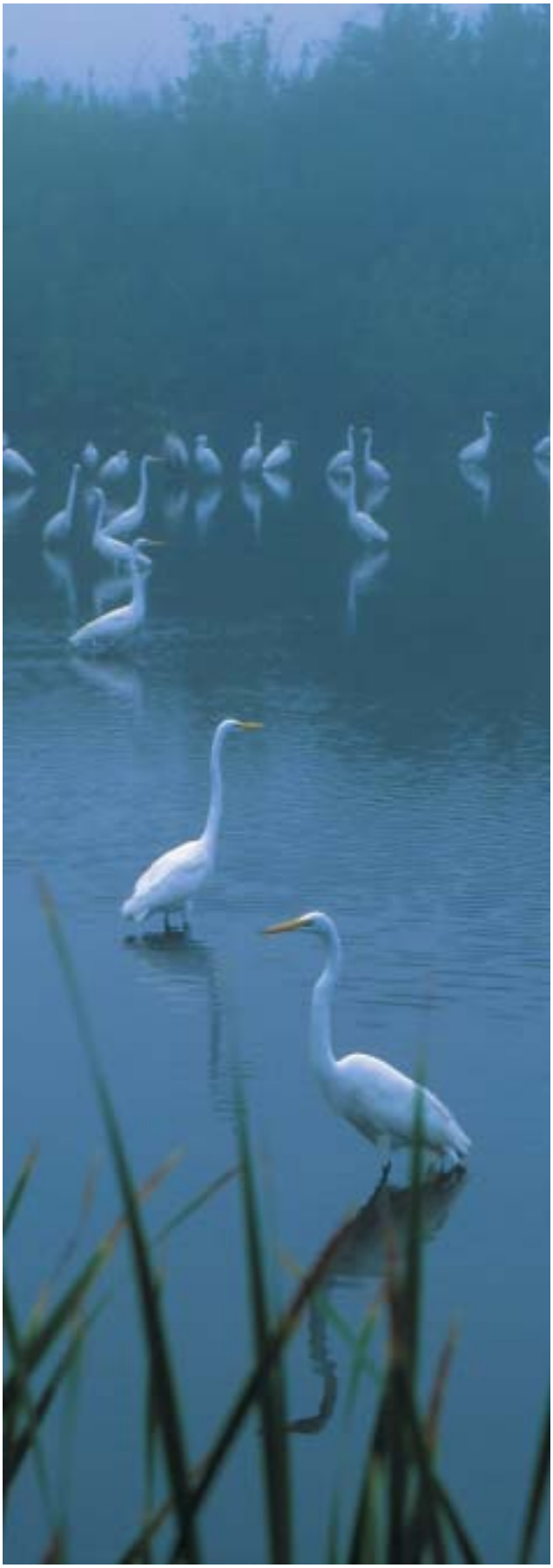
**A comprehensive, basin-wide plan for management and restoration:** The CERP is a massive public works programme, set to cover a 30-year period and consisting of 68 separate project components, each of which is a large engineering endeavour in its own right. There are myriad technical, legal, policy, and political challenges, not least to the conservation community, which is working to ensure that the plan is implemented for the benefit of the Everglades ecosystem and not exclusively to meet the water supply and flood protection demands of a growing population.

Like any major river basin management process, the CERP has to embrace the full range of actions needed for restoration and to ensure that these are underpinned by appropriate legal and administrative frameworks and strong community support. This requires a well-coordinated and integrated programme to build a long-term stewardship ethos among key stakeholders. A number of WWF's activities are centred on this aspect.

**Restoration and management of upstream water sources to achieve downstream restoration and management goals:** WWF is working with the conservation community to create a strategic plan – a 'roadmap' – for ensuring the successful restoration of Lake Okeechobee, the source of much of the water in the Everglades system. At the outset, this means providing stakeholders with a better understanding of the importance of a living lake, encouraging the necessary coordination and focus, and infusing the conservation effort with badly needed resources. As part of this process, an interactive website is being developed that will serve to educate and empower people to take action for the lake.

**Encouraging sustainable agriculture by working with the Florida cattle industry to identify better management practices that are economically and ecologically sustainable:** While WWF's priority is to accomplish full restoration of the Everglades, this cannot be done without finding common ground between individuals, businesses, and organizations interested in maintaining an ecologically and economically viable South Florida. From both a political and pragmatic perspective, WWF recognizes the importance, therefore, of identifying and working closely with interested members of the agricultural community.

This is the objective of WWF's South Florida Agriculture Project. Preliminary research by the project has determined that cattle ranching – traditionally conducted on large tracts of land – is a preferred land use in the northern part of the Everglades. Ranch lands are the dominant land use north of Lake Okeechobee and contain an extremely high percentage of the remaining native habitat in the watershed. Maintaining cattle ranching in the region is extremely important to securing long-term ecosystem protection. It also helps to ensure an economically viable way of life for the human communities of the Okeechobee watershed, provides a buffer to urban sprawl, contributes to invasive species control, and ensures rural amenities and scenic landscapes.



## Resources devoted

The CERP is projected to cost US$7.8 billion. Between 1997 and 2003, WWF's annual investment in the Everglades averaged around US$250,000.

## Chronology

**1994**

- WWF joins Everglades Coalition.

**1995**

- WWF representative becomes member of Governor's Commission for a Sustainable South Florida (the Commission), a broad group of stakeholder interests including agriculture, developers, tourism interests, civil society, and conservationists charged with investigating the future economic potential and business opportunities of South Florida.
- The Commission finds that economic growth in South Florida is unsustainable, largely because human alteration of the Everglades ecosystem has jeopardized water supplies needed for development, tourism, and environmental protection.

**1995-1999**

- The Commission engages in a consensus process to develop a set of recommendations for Everglades restoration, taking into account water needs for existing users, future development, and ecological restoration. WWF is instrumental in drafting language to bring the most recalcitrant stakeholders to consensus on a restoration plan.

**1996**

- Florida voters amend the state's constitution to require that polluters pay to clean up discharges into the Everglades, and establish the Everglades Trust Fund to make funds available for natural resource protection and pollution abatement.
- Congress authorizes the US Army Corps of Engineers to develop a hydrological restoration plan for the Everglades.

**1997-1998**

- Corps restoration plan in development.

**2000**

- Congress authorizes the Comprehensive Everglades

*Great Egrets* Casmerodius albus *in morning mist at Mrazek Pond in the Everglades.* WWF / Fritz Pölking

Restoration Plan, in effect, an integrated river basin management plan for the Everglades. WWF and the Everglades Coalition play a key role in assuring passage of the legislation.

- WWF appointed to the Florida Governor's Commission for the Everglades, the successor body to the previous Commission.

**2001**

- WWF and partners release the first position paper to be issued by any stakeholder group on new federal water regulations, helping frame the debate over specific regulatory issues important to CERP.
- WWF begins lobbying the Governor of Florida and the President of the United States to execute the binding agreement required under CERP legislation to protect water supplies for the Everglades.
- Land acquisition for CERP restoration projects begins.

**2002**

- WWF testifies on behalf of 43 conservation organizations before the US Senate Environment & Public Works Committee on the state of the CERP.
- First stakeholder meetings with the cattle-ranching community north of Lake Okeechobee to identify issues of mutual concern and build towards a collaborative project.

**2003**

- The initial steps of CERP implementation begin with construction of stormwater storage and treatment ponds.
- WWF completes study on phosphorus in the northern basin of Lake Okeechobee.
- The South Florida Water Management District adopts protocols for releasing water from Lake Okeechobee for habitat protection, combating saltwater intrusion and other ecosystem conservation purposes.
- Under the auspices of the South Florida Sustainable Agriculture Project, six ranchers managing over 120,000ha in the Lake Okeechobee watershed meet to discuss opportunities for sustainable ranching practices.
- WWF and representatives of the cattle-ranching community establish an 'Everglades Friendly Florida Beef Steering Committee' and draft a proposal to develop options for on-ranch stormwater retention and phosphorus reduction projects in cooperation with state and federal agencies. These on-ranch water management projects are designed to stabilize the degraded ecology of Lake Okeechobee and provide ranchers with additional income from environmental services.

**2004**

- First International Ecosystem Restoration Forum to be hosted in conjunction with the 19th Annual Everglades Coalition Conference.
- WWF and partners continue to lobby Congress and the Florida legislature to implement CERP with the proper balance of development, agricultural, and environmental concerns.
- WWF and Lake Okeechobee ranchers to launch stormwater retention and phosphorus reduction pilot projects.
- WWF to launch Lake Okeechobee interactive website as a tool for organizing a new coalition for the protection of the lake.
- WWF to provide financial and technical resources to local high school students to study the ecology of the Everglades ecosystem.

## Lead WWF office contacts

David Bogardus
Programme Officer, South Florida Programme
World Wildlife Fund
1909 Harrison Street, Suite 207
Hollywood, FL 33020-5071
USA

**T:** +1 954 921 7599
**F:** +1 954 921 7810
**E:** evergladessoflo@aol.com
**W:** www.worldwildlife.org

Debbie Harrison
Director, South Florida Programme
World Wildlife Fund
8075 Overseas Highway
Marathon, FL 33050
USA

**T:** +1 503 289 1010
**F:** +1 305 289 0113
**E:** wwf@bellsouth.net

## Lessons learned

**1. Integrated management and ecosystem restoration has to become a political priority**
Perhaps the most fundamental success so far in the Everglades has been the establishment of integrated management and ecosystem restoration as a political priority for the state of Florida, and for the US as a whole. This was accomplished through: (a) recruitment of key political leaders from Florida to promote the cause of the Everglades locally and then nationally, (b) a government-sponsored stakeholder dialogue to develop a broad consensus around integrated management and restoration, and (c) the national environmental community closing ranks around the Everglades and using their influence to elevate the Everglades to a presidential priority throughout the 1990s.

**2. Establish a 'sense of place'**
To register an ecosystem within the mind of the public, it is critical to establish some kind of recognizable identity or sense of place for the region and to develop key messages about the ecosystem that resonate politically at all relevant levels. The key messages that resonated with Florida and national constituencies were the uniqueness of the ecosystem and the connections between the health of the ecosystem and the health of the regional and state economy.

**3. Strike a balance between consensus building and advocacy**
WWF and its partners helped establish and participated in stakeholder initiatives to develop consensus-based plans for Everglades restoration. However, when circumstances required it, WWF assumed the role of forceful advocate, shepherding the authorizing legislation through Congress and fending off challenges to the programme. Both aspects of this work continue as the CERP moves into implementation.

**4. Adopt an integrated, holistic approach**
The Everglades experience has shown that river basin/ecoregion-scale conservation requires an integrated and holistic approach. This means that ways must be found, through partnerships and engagement, to address the social, economic and political stressors that threaten biodiversity. It means integrating strategies that may be familiar to conservationists with strategies that are unfamiliar. Large-scale conservation of watersheds, ecosystems, or ecoregions will eventually require the involvement of a broad range of stakeholders. In the Everglades, the ecological crisis was a strong rallying cry on its own, but only when the connection was made between ecological and economic crises resulting from unsustainable land and water use did the Everglades restoration effort really take off politically.

**5. There is no substitute for establishing meaningful legal protection for ecosystems, watersheds, and wildlife**
Political support can be fickle and the economics of restoring an ecosystem can be unstable. It is therefore critical that legal protections for ecosystems, watersheds, and wildlife be put in place. In Florida, water users, land developers, recreation interests, farmers, ranchers, and miners are protected by an extensive and well-tested body of law governing the exploitation and use of the Everglades and its resources. When combined with political influence, such legal rights have favoured the highly unsustainable growth and resource-use patterns. In order for restoration and integrated management to be successful, this must be balanced by an equally robust body of law protecting natural resources.