# Army Corps Trade-Off Disadvantage

### Army Corps DA 1NC

#### Everglades funded now --- it’s a priority.

**Pittman**, **7/14**/2012 (Craig – Tampa Bay Times staff writer, Federal officials promise another $80 million for Everglades restoration, Tampa Bay Times, p. http://www.tampabay.com/news/environment/federal-officials-promise-another-80-million-for-everglades-restoration/1240127)

The Everglades always draws a crowd in an election year. On Friday, several Obama administration officials held a news conference to announce that an additional $80 million had been set aside to help restore 23,000 acres of wetlands on farms and ranches in the northernmost reaches of the River of Grass. They also wanted to tout how the president, now running for re-election, had poured $1.5 billion into various Everglades projects over the past 3 1/2 years, jump-starting a federal effort that had languished under President George W. Bush. "The president has made restoration of the Everglades a national priority," U.S. Agriculture Secretary Tom Vilsack, the most senior of the four administration officials who flew in for the announcement.

#### Plan trades off with Everglade restoration --- it’s a zero-sum game.

**Quinlan**, **2/15**/2012 (Paul, E&E reporter, Army Corps: Obama’s budget touts navigation, but waterway interests aren’t happy, Greenwire, p. http://www.eenews.net/public/Greenwire/2012/02/15/4)

Despite boosting waterways projects, industry officials say, the budget proposal fails to provide enough for navigation and levees to ensure U.S. water infrastructure can adequately provide flood protection and help meet Obama's goal of doubling the nation's exports by 2015. The corps is under unprecedented pressure to do more with less. Spending caps imposed last year during the White House's debt-limit showdown with Congress have rendered the Army Corps' budget a zero-sum game for competing interests of navigation, flood control and ecosystem restoration. Adding to the pressure were epic floods last year along the Mississippi and Missouri rivers, which forced the agency to raid other accounts for its response. Congress provided $1.7 billion for the estimated $2 billion disaster. With so many needs and so little cash, few groups are thrilled by their prospects in the corps' budget sweepstakes. And waterways interests are pressing lawmakers to spend more on locks, levees and harbors and less on environmental restoration. A big competitor for cash is the massive Everglades restoration. Last year, about 10 percent of the Army Corps' construction budget went to the Everglades effort. The 30-year, $13.5 billion project was approved overwhelmingly by Congress and the Florida Legislature in 2000 as being essential to securing water supplies for 7 million people and protecting Everglades National Park and other federal parks and wildlife refuges. But Larson is telling lawmakers that some of that cash could pack more of an economic punch if spent on waterways. "It would seem to me," she said, "that the nation would be better served with a portion of that money focused on other projects which contribute more to the creation of jobs and our place in the global economy." Inland waterways face an $8 billion repair backlog, said Mike Toohey, president of the Waterways Council, a coalition of inland navigation interests. "The funding doesn't get anywhere near what the need is," Toohey said. 'Merit-based system' Environmentalists, whose interests see slight funding cuts in Obama's Army Corps budget proposal, cheered what they saw as the administration's continued support for ecosystems restoration, which also gets funding through the Interior Department and U.S. EPA. The Everglades project -- by far the most expensive environmental restoration project in the corps portfolio -- would receive $153 million under Obama's fiscal 2013 budget request for the agency, about $15 million less than the administration sought last year. Congress ultimately chopped last year's request to $142 million. Under pressure from Congress to cut spending and environmental programs in particular, the administration has pulled back on funding bestowed on the Everglades after Obama took office in 2009. The 2013 budget request is down significantly from more than $220 million the restoration received from the corps budget and federal stimulus in 2009 or the $214 million the administration requested in 2010. "They're trying to, I think, respect the message that's being given by Congress, while still putting forward their own priorities and their needs," said Julie Hill-Gabriel, Audubon Florida's director of Everglades policy. Overall, she said, there's reason for Everglades advocates to be pleased. All restoration projects authorized by Congress are now under construction, and Interior's budget proposal includes $58 million in Everglades-related spending -- including $3 million for establishing a new 150,000-acre wildlife refuge at the ecosystem's headwaters. "They're still making this a priority," Hill-Gabriel said. But the Everglades is facing competition for the corps' attention. The agency faces a $60 billion backlog in projects authorized but never funded by Congress. To appease as many congressional patrons as possible, a large number of projects are given small amounts of funding, leading to crippling construction delays and cost overruns.

#### Army Corps restoration key to maintain water quality in the Everglades --- prevents extinction.

**Towery and Regalado**, July-August **2009** (Chris – U.S. Army Corps of Engineers, and Nanciann – U.S. Army Corps of Engineers, Getting the Water Right, p. http://themilitaryengineer.com/index.php?option=com\_content&task=view&id=62)

Industrial initiatives, so often hailed as “progress,” have come at a price. Much of Florida’s native landscape was dramatically changed; perhaps the most severely damaged was the Everglades. The U.S. Army Corps of Engineers (USACE) is one of the principal agencies in a joint effort to restore the Everglades, the Comprehensive Everglades Restoration Plan (CERP), the world’s largest restoration project ever. The plan is designed to create a sustainable future for the state and its residents. It will not only restore much of the South Florida ecosystem, but it also will enhance urban and agricultural water supplies. This task is not easily accomplished. It will take many years to complete and success will require that all involved use cutting-edge science and engineering. The plan is likely to have a major impact on both the future of the environment and the future of our country. It stands to be a model for all succeeding restoration efforts; it stands to alter man’s symbiotic relationship with nature; and it stands to change the way in which agencies like USACE do business. Ultimately, CERP may even influence man’s ability to survive on Earth. Reversing the Damage USACE’s history in the Everglades began almost 100 years ago. In response to devastating hurricanes in the 1920s and 1940s, USACE was called upon to provide flood protection and water to people and agriculture in South Florida. In 1948, Congress tasked USACE with a massive water management venture known as the Central and Southern Florida (C&SF) Project. Starting in 1950, USACE began construction on the C&SF Project, building 1,000-mi of canals, 720-mi of levees and nearly 200 other water control structures, all designed to make South Florida more inhabitable. The C&SF Project achieved its goals of water control and urbanization, but resulted in seriously negative consequences for the Everglades’ natural environment. Today, the extent of the Everglades wetlands has been reduced by 50 percent, water flow has dropped 70 percent, water quality has substantially deteriorated and 68 species of plants and animals in the region are listed as threatened or endangered. Congressional legislation passed in 1992 and 1996 authorized USACE to reevaluate the C&SF Project and find ways to restore much of the natural function of the Everglades ecosystem. In a four-year process that became known as the “Restudy,” the USACE reevaluation resulted in CERP, which was authorized by Congress in the Water Resource Development Act of 2000 (WRDA 2000). WRDA 2000 states “the overarching purpose of CERP is the restoration, preservation and protection of the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection.” To achieve these goals, CERP will take more than 30 years to complete, will cover an 18,000-mi2 area, and will cost more than $7.8 billion in 1999 dollars. CERP is designed to modify the C&SF Project to “get the water right.” The Restudy found that many of the environmental problems associated with the C&SF Project are related to issues of quantity, quality, timing and distribution of water. Currently, billions of gallons of fresh water are diverted by C&SF Project canals and other works every day, and that massive flow—once destined for the Everglades—now empties into the Gulf of Mexico and the Atlantic Ocean. One of CERP’s primary goals is to capture this resource and make sure it reaches the Everglades. The C&SF Project also destroyed and disrupted many of the Everglades’ natural filtration systems, so much of the water that does flow into the Everglades contains harmful levels of nutrients and other contaminants. CERP plans to restore the ecosystem’s natural filtering mechanisms to ensure the water reaching the Everglades is of appropriate quality. Lastly, because the C&SF Project has altered natural runoff patterns, much of the water flowing into the region comes at the wrong times or is distributed to areas that do not need it. CERP aims to get the water to the right places at the right times. A Team Approach Because of the massive scope and cost of restoration, USACE is not working alone. In fact, WRDA 2000 specifies that CERP’s planning and implementation will be conducted through a partnership led by the federal government and state of Florida. Work will be accomplished via a large interagency, interdisciplinary team of federal, state and private entities. This collaborative effort is one of the hallmarks of CERP. Sixteen county governments, more than 130 municipalities, two tribal governments, numerous special interest groups, five regional planning councils, five state environmental and planning agencies and eight federal agencies are involved in the massive restoration effort. Some of these diverse entities include the Florida Department of Environmental Protection, the South Florida Water Management District, the U.S. Department of the Interior, the Miccosukee and Seminole Indian tribes, environmental groups, recreationalists such as fishermen and the U.S. Fish and Wildlife Service. All of these groups are working together during each step of the project, making certain that agency missions are achieved and that all stakeholders have a chance to influence the restoration. Solving the Water Problem Water is the lifeblood of the Everglades, and almost all of CERP’s components are aimed at getting the area’s water resources back to a more natural state. To achieve this goal, CERP contains more than 60 different engineering projects, each designed to address the four factors of quantity, quality, timing and distribution of water.

### Impact 2NC

#### DA outweighs the case –

#### Everglades collapse kills the water cycle --- results in extinction. That’s Towery and Regalado.

#### Nuclear war won’t escalate – first use will end in conflict resolution

**Quinlan 1997** (Michael – under-secretary of state for defense, Thinking About Nuclear Weapons, p. 31)

There are good reasons for fearing escalation: the confusion of war; its stresses, anger, hatred, and the desire for revenge; reluctance to accept the humiliation of backing down; perhaps the temptation to get further blows in first. Given all this, the risks of escalation—which Western leaders were rightly wont to emphasise in the interests of deterrence—are grave. But this is not to say that they are virtually certain, or even necessarily odds-on; still less that they are so for all the assorted circumstances in which the situation might arise, in a nuclear world to which past experience is only a limited guide. It is entirely possible, for example, that the initial use of nuclear weapons, breaching a barrier that has held since 1945,might so appall both sides in a conflict that they recognised an overwhelming common interest in composing their differences. The human pressures in that direction would be very great. Even if initial nuclear use did not quickly end the fighting, the supposition of inexorable momentum in a developing exchange, with each side rushing to overreaction amid confusion and uncertainty, is implausible; it fails to consider what the decision-makers' situation would really be. Neither side could want escalation; both would be appalled at what was going on; both would be desperately looking for signs that the other was ready to call a halt; both, given the capacity for evasion or concealment which modern delivery systems can possess, could have in reserve ample forces invulnerable enough not to impose `use or lose' pressures. As a result, neither could have any predisposition to suppose, in an ambiguous situation of enormous risk, that the right course when in doubt was to go on copiously launching weapons. And none of this analysis rests on any presumption of highly subtle, pre-concerted or culture-specific rationality; the rationality required is plain and basic.

#### Even if it does, no extinction.

**Nyquist**, 5/20/**1999** (J.R. – contributing editor and author of Origins of the Fourth World War, Is Nuclear War Survivable, p. http://www.antipas.org/news/world/nuclear\_war.html)

The truth is, many prominent physicists have condemned the nuclear winter hypothesis. Nobel laureate Freeman Dyson once said of nuclear winter research, “It’s an absolutely atrocious piece of science, but I quite despair of setting the public record straight.” Professor Michael McElroy, a Harvard physics professor, also criticized the nuclear winter hypothesis. McElroy said that nuclear winter researchers “stacked the deck” in their study, which was titled “Nuclear Winter: Global Consequences of Multiple Nuclear Explosions” (Science, December 1983). Nuclear winter is the theory that the mass use of nuclear weapons would create enough smoke and dust to blot out the sun, causing a catastrophic drop in global temperatures. According to Carl Sagan, in this situation the earth would freeze. No crops could be grown. Humanity would die of cold and starvation. In truth, natural disasters have frequently produced smoke and dust far greater than those expected from a nuclear war. In 1883 Krakatoa exploded with a blast equivalent to 10,000 one-megaton bombs, a detonation greater than the combined nuclear arsenals of planet earth. The Krakatoa explosion had negligible weather effects. Even more disastrous, going back many thousands of years, a meteor struck Quebec with the force of 17.5 million one-megaton bombs, creating a crater 63 kilometers in diameter. But the world did not freeze. Life on earth was not extinguished. Consider the views of Professor George Rathjens of MIT, a known antinuclear activist, who said, “Nuclear winter is the worst example of misrepresentation of science to the public in my memory.” Also consider Professor Russell Seitz, at Harvard University’s Center for International Affairs, who says that the nuclear winter hypothesis has been discredited. Two researchers, Starley Thompson and Stephen Schneider, debunked the nuclear winter hypothesis in the summer 1986 issue of Foreign Affairs. Thompson and Schneider stated: “the global apocalyptic conclusions of the initial nuclear winter hypothesis can now be relegated to a vanishingly low level of probability.” OK, so nuclear winter isn’t going to happen. What about nuclear fallout? Wouldn’t the radiation from a nuclear war contaminate the whole earth, killing everyone? The short answer is: absolutely not. Nuclear fallout is a problem, but we should not exaggerate its effects. As it happens, there are two types of fallout produced by nuclear detonations. These are: 1) delayed fallout; and 2) short-term fallout. According to researcher Peter V. Pry, “Delayed fallout will not, contrary to popular belief, gradually kill billions of people everywhere in the world.” Of course, delayed fallout would increase the number of people dying of lymphatic cancer, leukemia, and cancer of the thyroid. “However,” says Pry, “these deaths would probably be far fewer than deaths now resulting from ... smoking, or from automobile accidents.” The real hazard in a nuclear war is the short-term fallout. This is a type of fallout created when a nuclear weapon is detonated at ground level. This type of fallout could kill millions of people, depending on the targeting strategy of the attacking country. But short-term fallout rapidly subsides to safe levels in 13 to 18 days. It is not permanent. People who live outside of the affected areas will be fine. Those in affected areas can survive if they have access to underground shelters. In some areas, staying indoors may even suffice. Contrary to popular misconception, there were no documented deaths from short-term or delayed fallout at either Hiroshima or Nagasaki. These blasts were low airbursts, which produced minimal fallout effects. Today’s thermonuclear weapons are even “cleaner.” If used in airburst mode, these weapons would produce few (if any) fallout casualties.

#### Low probability of an existential risk outweighs the magnitude of any non-existential risk

**Bostrom**, professor of philosophy at Oxford, July **2005** (Nick, Transcribed from by Packer, 4:38-6:12 of the talk at http://www.ted.com/index.php/talks/view/id/44, accessed 10/20/07)

Now if we think about what just reducing the probability of human extinction by just one percentage point. Not very much. So that’s equivalent to 60 million lives saved, if we just count currently living people. The current generation. One percent of six billion people is equivalent to 60 million. So that’s a large number. If we were to take into account future generations that will never come into existence if we blow ourselves up then the figure becomes astronomical. If we could you know eventually colonize a chunk of the universe the virgo supercluster maybe it will take us a hundred million years to get there but if we go extinct we never will. Then even a one percentage point reduction in the extinction risk could be equivalent to this astronomical number 10 to the power of 32 so if you take into account future generations as much as our own every other moral imperative or philanthropic cause just becomes irrelevant. The only thing you should focus on would be to reduce existential risk, because even the tiniest decrease in existential risk would just overwhelm any other benefit you could hope to achieve. Even if you just look at the current people and ignore the potential that would be lost if we went extinct it should still be a high priority.

### U 2NC

#### Everglades restoration is funded now --- that’s Pittman. Prefer it because it’s the most recent and highlights Everglades as a priority.

#### Prefer issue specific uniqueness --- if we win there is enough Everglades funding now then the plan can only crush current efforts.

#### Everglades restoration funding is reversing damage --- continued funding is key.

**Greenwire**, **6/21**/2012 (EVERGLADES: Despite progress on the outskirts, restoration of central system has made little headway – report, p. Lexis-Nexis)

The National Research Council, in its fourth biennial report since the state-federal effort launched in 2000, applauded the recent leap in construction progress. The council highlighted the recent string of groundbreakings on eight of the original 68 projects that comprise the now $13.5 billion plan to restore the River of Grass. "We have projects in the ground, and we're **beginning to see restoration results**," said William Graf, a member and former chairman of the committee, who leads the geography department at the University of South Carolina. "When you're in the field and on the ground and in the water, you can see that real progress is beginning to appear." Echoing previous reports, however, the scientists warned that unique features of the 200-mile-long flowing marsh considered essential to the ecosystem continue to degrade, while projects with the greatest potential benefit to what is left of the Everglades remain mired in delay and uncertainty. "We're calling attention to the need to get restoration focused on the central Everglades," said committee Chairman Bill Boggess, professor and executive associate dean of the College of Agricultural Sciences at Oregon State University. "That's really the bottom line." The report's analysis of 10 indicator features of the Everglades revealed mostly bad news: tree islands, ridge-and-slough landscape, the endangered snail kites and the peat that forms the organic base of the ecosystem all continue to decline. Cattail growth continues to expand, fueled by phosphorus pollution from farms and cities, according to the report. Despite its natural resilience, the snail kite has suffered a "precipitous decline" over the last 15 years. The report warns that the birds are in danger of disappearing from the Everglades altogether. On the other hand, projects completed and now under way due in large part to an influx of federal money from the Obama administration are beginning to work. Once-drained lands are filling with water, setting the stage for a biological recovery, Graf said. Meanwhile, the best management practices and the system of artificial pollution-filtering marshes the state was legally required to build have helped stabilize pollution levels. Graf said there will be a lag time before the effects of this progress become apparent. "It's taken 100 years for the Everglades to decline," he said. "We can't turn that around in two years. It takes time before the effects can be completely explored and measured." Besides pollution reductions, a healthy Everglades requires restoration of the precise, historic sheet flow of water in the central system south through Everglades National Park. Scientists said this should be a special focus going forward. "If you look at a map of the distribution of active projects and those that have been completed, they make a ring around the center of the Everglades," Graf said. "The center of the Everglades is still the hole in the doughnut in terms of the restoration effort." The 14-member committee and its staff met six times over 18 months, reviewing documents and hearing presentations from state and federal officials, researchers, interest groups and the public. Boggess said the committee grew more optimistic over the last two years, as the state and federal governments -- which agreed in 2000 to split the cost of restoration 50-50 -- reached a long-sought accord on achieving Everglades water quality goals (Greenwire, June 14). The committee also applauded the recently launched effort by the U.S. Army Corps of Engineers to fast-track planning of central Everglades restoration (Greenwire, Oct. 27, 2011), which the report said was "**an important step forward**" and responsive to previously raised concerns. Scientists noted that continued federal funding will be essential, given that the state has not only seen its finances take a hit but has also outspent its federal partners.

#### Despite some cuts, the Everglades program will remain adequately funded.

**Sedenskey**, **2/13**/2012 (Matt, $232M proposed for Everglades restoration, Associated Press, p. Lexis-Nexis)

President Barack Obama's budget proposal released Monday includes $231.75 million for Everglades restoration projects. Efforts led by the Army Corps of Engineers would receive about $161 million, slightly less than Obama's request of $168 million last year. But it's more than the $142 million Congress ultimately allocated. Obama's request also includes nearly $70 million for Everglades projects through the Department of the Interior. That figure is down from the roughly $99 million appropriated in the 2012 budget, but roughly even when considering that spending included a $30 million one-time payment for a land acquisition. Whether those proposals survive Congress, where Republicans in particular have been calling for additional budget cuts, remains to be seen. But some environmentalists see the requests as a positive sign considering the cuts Obama has already proposed. Under the president's budget, the Interior Department would see a 2.1 percent drop in funding. The Corps of Engineers would have its budget cut by 29.9 percent. Julie Hill-Gabriel, director of Everglades policy for Audubon Florida, said to have funding requests roughly on par with last year even in the face of budget cuts speaks volumes. "They're just making it even more clear that when they're asked to prioritize that this is one of their big priorities," she said.

#### Army Corps budget increased.

**New York Times**, **2/5**/2012 (Congress Appears to Be Trying to Get Around Earmark Ban, p. http://www.nytimes.com/2012/02/06/us/politics/congress-appears-to-be-trying-to-get-around-earmark-ban.html?\_r=1)

The latest example, the groups say, is the recently passed budget for the Army Corps of Engineers. Budget documents show that Congress included 26 different funds — totaling $507 million — for the corps to spend on various construction, maintenance and other projects that were not included in President Obama’s budget or the final spending bill. The funds were financed by reducing money for projects included in the president’s budget request and adding $375 million to the corps budget, documents show.

### AT: Uniqueness – Cuts Now

#### Everglades restoration projects will survive this round of cuts.

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### Link 2NC

#### The plan trades-off with Everglades restoration --- it’s a zero-sum game. That’s the 1NC Quinlan evidence. There are several link arguments:

#### A) Limited Resources – the Corps only has a limited amount of resources to devote to different interests. The more they focus on waterways the more they force a trade-off.

#### B) Political Pressure – waterways interests are pushing for less environmental restoration in exchange for increased funding for the plan.

#### Everglades restoration is a big competitor for resources --- the plan kills the project.

#### Increasing work on waterways crushes environmental restoration projects.

**Carter & Stern 11** (Nicole, Specialist in Natural Resources Policy AND Charles, Analyst in Natural Resources Policy, 7/18/11, "Army Corps Fiscal Challenges: Frequently Asked Questions," CRS, http://planning.usace.army.mil/toolbox/library/Misc/R41961\_Corps\_fiscal\_challenges-11Aug.pdf)

Unrealistic Expectations Given the Level of Federal Funding ─ “The Corps of Engineers reflects a national water planning paradox: national water resources demands are increasing and becoming more complex, while at the same time, national investments in water infrastructure exhibit a declining trend.” “Despite declining investment levels and numbers of Corps personnel, the nation expects the Corps to provide a number of services, including flood control, water-based recreation, commercial navigation, ecosystem restoration, hydropower production, and coastal and beach protection. This situation leads to expectations that the Corps of Engineers and its civil works construction program cannot meet consistently.” “Despite decreasing emphasis on new construction, Congress and the nation continue to rely upon the Corps for emergency response activities and for periodic upgrades to civil works infrastructure.” Broadened Scope of Responsibilities and Inefficient Project Delivery ─ “Over time, Congress has greatly broadened the Corps’ work program and responsibilities.” “The collective backlog of unfinished work leads to projects being delayed, conducted in a stop-start manner, and to overall inefficient project delivery.” Managing Existing Assets and Changing Demands ─ “Future Corps water resources activities will be less dedicated to construction of major new civil works, and more heavily focused on: (1) operating, maintaining, rehabilitating, and upgrading existing infrastructure, (2) reallocating reservoir storage and releases among changing water resources demands and users, and (3) providing some degree of ecosystem restoration and ecological services in heavily-altered riparian and aquatic ecosystems.”

### Corps Solves 2NC

#### Corps policies on Everglades are key to reverse damage and decline of the Everglades.

**Space Daily**, **7/16**/2012 (Focusing on water for Central Everglades essential to reversing whole ecosystem's continuing decline, p. Lexis-Nexis)

Expedited restoration projects that improve the quality and amount of water in this area are necessary to reverse ongoing declines. A new federal pilot project offers an innovative approach to this challenge, although additional analysis is needed to maximize restoration benefits within existing legal constraints. The report is the fourth biennial evaluation of progress made by the Comprehensive Everglades Restoration Plan, a project launched in 2000 that aims to reverse the ecosystem's decline while continuing to meet demands for water supply and flood control. The $13.5 billion effort comprises numerous projects to be completed over the next several decades. The committee that wrote the report found that restoration remains primarily focused on the periphery of the central Everglades. Consequently, restoration efforts within the water conservation areas and Everglades National Park lag behind other portions. Progress has been made to improve the system's water quality, such as reducing phosphorus and finalizing negotiations for additional water quality projects. Nevertheless, there has been minimal success in increasing the amount and flow of water needed to restore the remnant system. Key components that depend on the amount of water in the system, such as the ridge and slough and tree islands, continue to degrade. "Unless near-term progress is made to improve water quantity and restore water flow, **ecosystem losses will continue**, many of which would require decades to centuries to recover," said William Boggess, chair of the committee and professor and executive associate dean of the college of agricultural sciences at Oregon State University, Corvallis. "However, bringing in more water, or even redistributing existing water flows before water quality is improved, risks introducing levels of contaminants that would have substantial effects on the ecosystem and possibly exceed legal limits. Analyzing the connections between water quality and quantity is one of the remaining challenges of the program, and will be a key component for moving forward." The committee found that the Central Everglades Planning Project (CEPP) - one of five U.S. Army Corps of Engineers pilot projects nationwide that will test a new accelerated project planning process - is an important and promising new initiative.

#### CERP is key to manage water quality --- critical to Everglades restoration.

**Regalado**, 3/29/**2012** (Nanciann, Critical agreement moves Everglades restoration forward, U.S. Army Corps of Engineers Feature Stories, p. http://www.saj.usace.army.mil/Divisions/Executive/Branches/CCO/FeatureStoriesArchive/2010/JUN10\_FeatureStory.htm)

The U.S. Army Corps of Engineers and the South Florida Water Management District today entered into the latest in a series of landmark agreements needed to maintain progress and momentum on the Comprehensive Everglades Restoration Plan. Today’s signing of a project partnership agreement (PPA) will allow construction of the first phase of a 1,600-acre water storage reservoir, the Site 1 Impoundment Project (Fran Reich Preserve). The reservoir, located adjacent to the Arthur R. Marshall Loxahatchee National Wildlife Refuge in southwestern Palm Beach County, will provide water storage that’s considered essential to restoring the Everglades historic health and viability. Chief of the U.S. Army Corps of Engineers, Lt. Gen. Robert L. “Van” Van Antwerp, commended both the Corps and District staff during the monthly SFWMD Governing Board meeting for their strong partnership and dedication to protecting a national treasure. Van Antwerp, who spent several days this week touring restoration sites in south Florida, met with a variety of representatives. He and other Corps leaders said they were impressed by the commitment shown for Everglades restoration. “The Site 1 partnership agreement took extraordinary effort by extraordinary people in the big team, not just the Corps and SFWMD, but multiple agencies and partners,” said Col. Alfred Pantano, Jr., commander of the Corps Jacksonville District. Pantano praised the staff for their success in crafting a complex and detailed agreement. The PPA contains the many legal and technical conditions and requirements associated with project construction. “The project is a great opportunity not only for the Everglades as a system, but for the refuge itself,” said Sylvia Pelizza, Fish and Wildlife Service project leader for the Loxahatchee Refuge. “The project increases our flexibility in managing water. It will allow us to capture and hold water so that we don't have to send it to tide when we have too much, and it will also be available during the dry season to recharge groundwater. We don't have to take water from the refuge for other purposes.” The Site 1 project, a component of the Comprehensive Everglades Restoration Plan, will capture and store excess surface water runoff from the Hillsboro watershed as well as releases from the Loxahatchee Refuge and Lake Okeechobee. It will benefit the refuge, lake and the estuarine portion of the Hillsboro Canal, as well as supplement local water supply. “Everglades restoration is dependent on ‘getting the water right’,” said Stu Appelbaum, deputy for the Everglades Restoration Program. “This means getting water in the right quantity, quality, timing and distribution. To do this, we must add water storage capacity to the system. This reservoir will do exactly that.”

### AT: Everglades Resilient

#### The Everglades is fragile and unique.

**Ansson**, Spring **2000** (Richard – Associate Professor of Law at the University of Nevada Las Vegas Boyd School of Law, Ecosystem Management & Our National Parks: Will Ecosystem Management Become the Guiding Theory for Our National Parks in the 21st Century?, University of Baltimore Journal of Environmental Law, p. Lexis-Nexis)

A. The Natural Wonder of the Everglades

"There are no other Everglades in the world," wrote conservationist Marjory Stoneman Douglas in 1947. n89 She was referring to the unique natural character of these wetlands: the several distinct environments that combine to form a highly complete ecosystem, the web of life that is as fragile as it is fertile, and the "river of grass" whose original 50-mile breadth made it the widest river in the world. n90 But perhaps what most impresses visitors to this lush liquid realm is its incredible flatness because the land is tilted south at less than two inches per mile. n91 Accordingly, the waters of the Everglades, which are only six inches deep in most spots, flow southward from Lake Okeechobee to Florida Bay at less than one mile per day across land that never rises higher than eight feet above sea level. n92 The landscape, which looks more like an African savanna than a wetland, is comprised of saw grass broken only by an occasional tree island.

### Impact – Florida Economy

#### Everglades restoration is key to the Florida economy --- generates jobs and water quality.

**Long 2011** (Cynthia, Everglades Funding Is Vital to Ecology and Economy, National Parks Conservation Association, p. http://www.npca.org/protecting-our-parks/park-funding/everglades-funding.html)

But it’s more than just about preserving nature. Floridians understand that defending the ecology of the Everglades means saving the economy of Florida. The Everglades supplies water to six million people – a third of the state -- and clean, cheap water is what draws residents, businesses, and legions of tourists to south Florida. If rapid, unchecked growth eats away at more and more of the Everglades, it will destroy the clean water the ecosystem provides. "Water quality is one of the benefits of keeping checks on our growth," says Shirreffs. "But growth management is under attack in Tallahassee. The mantra is that regulation kills jobs, but there’s no justification for that. The Everglades ecosystem and restoration projects actually create jobs and fuel the economy.” A 2010 study by Mather Economics revealed that investment in Everglades restoration provides a four-to-one economic benefit for ever dollar invested in restoration projects. But the state lawmakers in favor of cutting funding to Everglades restoration aren’t looking at the research. Most are new to the legislature, elected in a time of economic crisis. They haven’t taken the time to learn about the current state or the history of one of the world’s most endangered watersheds. The few lawmakers left that hope to preserve funding know that the story of the Everglades and how the endangered ecosystem became a World Heritage Site is a story of rampant overdevelopment and gross misuse of surrounding lands. In the late 1940s and early ‘50s, the Everglades, which had been about the size of the state of New Jersey, was drained to build subdivisions to accommodate the post World War II boom. Overdevelopment in the region cut the Everglades in half. In the decades following, flocks of retirees have migrated to the region, developing even more of the Everglades into gated golf communities. Meanwhile, excessive runoff from sugar farming in the central part of the state released huge amounts of phosphorous into the ecosystem, destroying large swaths and altering these vital marshes. To help alleviate the damage and to prevent more destruction, the Comprehensive Everglades Restoration Plan (CERP) was authorized by Congress in 2000 to "restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection." The goal of CERP is to capture fresh water that now flows unused to the Atlantic Ocean and the Gulf of Mexico and redirect it, mainly to the Everglades as a way to revive the dying ecosystem. The remaining water will benefit cities and farmers by enhancing water supplies for the south Florida economy.

### Impacts – Pollution 2NC

#### Everglades pollution causes phytoplankton blooms.

National Research Council **2002** (Florida Bay Research Programs and Their Relations to the Comprehensive Everglades Restoration Plan, p. http://books.nap.edu/openbook.php?record\_id=10479&page=15)

Similarly, the higher loadings of nitrogen and phosphorus that may accompany increasing freshwater fluxes from the Everglades could increase **the frequency, intensity, and duration of phytoplankton blooms** in certain regions of Florida Bay, even though they would be small relative to nutrient flows through the Bay from the western border or from the atmosphere. Boyer et al. (1999) noted that increased freshwater flows from the Everglades to the eastern Bay could account for some water-quality changes, such as lower salinity in that region. Correlations between water discharge from the Everglades and phytoplankton blooms (chlorophyll a) in the north central Bay (Brand, 2002) also provide some circumstantial evidence that nitrogen enhancement of phytoplankton growth may be a consequence of increased freshwater flow from the Everglades. Once generated, such blooms may be spread over larger areas within the Bay or carried through the Keys to the coral reefs (Smith and Potts, 2002). There is some reason to be concerned that impacts to Florida Bay that would be caused by any increased nitrogen or phosphorus discharges that may occur through Shark River Slough are not fully understood. Smith and Potts (2002) and Lee et al. (2002) show a slow but steady current of water through the central Bay from the west that likely contains some fraction of Shark River Slough water and nutrients. As noted earlier, Boyer et al. (1999) observed declining average salinity in the central and western Bay with increasing fresh water discharge from Shark Slough. If the currents in 2050 are similar to present patterns, the central and western portions of Florida Bay would be exposed to increased nitrogen fluxes from Everglades restoration, even if water flows remain about the same in Taylor Slough and the eastern Bay.

#### Blooms increase atmospheric oxygen levels.

**Remer 2005** (Lorraine A. – NASA Earth Observatory, Satellite Images of Marine Phytoplankton Blooms, p. http://geology.com/nasa/marine-phytoplankton.shtml)

Phytoplankton are microscopic plants that grow in the sunlit surface waters of the ocean. When enough phytoplankton grow in one place, the bloom can be seen from space. Phytoplankton play a large role in sustaining ocean ecosystems and global climate. The plants are the base of the marine food chain. Places where blooms are frequent often support a thriving marine population. Since the plants need nutrients like iron to grow, fertile waters are often near a continental shelf in areas where cool water from the ocean's depths pushes to the surface. This upwelling water carries with it nutrients that had settled to the ocean floor; the nutrients allow the water to sustain large phytoplankton blooms. Phytoplankton influence global climate by regulating gases in the atmosphere. Like all plants, phytoplankton absorb carbon dioxide and release oxygen as they grow. When the plants die, they sink to the ocean floor, carrying the absorbed carbon with them. Over the course of the Earth's history, the oceans have become the primary sink for atmospheric carbon dioxide. Since carbon dioxide is a greenhouse gas (it traps heat at the Earth's surface), the Earth would be a much warmer place without phytoplankton. Phytoplankton Bloom off Namibia: A flash of blue and green lit the waters off Namibia in early November 2007 as a phytoplankton bloom grew and faded in the Atlantic Ocean. The bloom stretches from north to south along hundreds of miles, although it is brightest in the center of this image. Such blooms are common in the coastal waters off southwest Africa where cold, nutrient-rich currents sweep north from Antarctica and interact with the coastal shelf. At the same time, the easterly trade winds push surface water away from the shore, allowing water from the ocean's floor to rise to the surface, bringing with it iron and other material. The suffusion of nutrients from both the currents and upwelling water creates an environment where tiny surface-dwelling ocean plants thrive. Phytoplankton blooms are so abundant off Namibia that their death and decomposition often robs the water of dissolved oxygen. As the plants die, they sink to the ocean floor where bacteria consume them. There is so much plant material that the bacteria use all of the oxygen available in the water before they finish breaking down the plants, creating a dead-zone in the water where fish can't survive. Anaerobic bacteria, which don't require oxygen, take over in the decomposition process, releasing sulfur dioxide as a byproduct. The sulfur dioxide interacts with the ocean water to create solid sulfur and hydrogen sulfide, a poisonous gas, which eventually erupts to the surface, sometimes killing fish. Though no eruption is readily apparent in this image, hydrogen sulfide eruptions are often visible in satellite imagery because the solid sulfur colors the water a milky yellow-green. (A MODIS image from NASA's Aqua satellite. Commentary by NASA.) Algal Bloom in the Barents Sea: A break in the clouds provided a window to a brilliant display of color in the Barents Sea north off Norway on August 1, 2007. The bright aquamarine hues suggest that this is likely a coccolithophore bloom. A coccolithophore is a tiny, surface-dwelling ocean plant that is coated with microscopic limestone (calcite) scales. This white coating makes the plant highly reflective. It reflects nearly all of the light that hits it, and it is this reflected light that gives the ocean the radiant blue color seen in this image. Coccolithophores flourish in nutrient-poor, sub-polar waters. Like other types of microscopic ocean plants (phytoplankton), coccolithophores are an important food source for fish and other marine animals. Coccolithophore blooms occur when large numbers of the plants grow in one place. Such blooms can be large: The visible portion of this bloom covers about 150,000 square kilometers (57,000 square miles) or roughly the area of Wisconsin. (A MODIS image from NASA's Terra satellite. Commentary by NASA.) Phytoplankton Blooms in the Black Sea: The Black Sea more closely resembled mixed paint on an artist's palette than the normally black surface of deep water in this image captured this image on June 20, 2006. Swirls of color ranging from deep olive green to bright turquoise were created by a massive phytoplankton bloom that covered the entire surface of the sea. The sea was able to support such a large bloom largely because of its unique structure. In the spring of 2006, floods on the Danube River swept over broad stretches of farmland. The floods likely washed sediment, fertilizers, and animal waste into the Danube and the Black Sea. The extra iron, phosphates, and nitrates in the flood debris may be supporting the extensive bloom seen here. Such blooms can be both beneficial, because they provide food for fish, and dangerous, because decaying plant matter saps oxygen out of the water. If enough phytoplankton from a large bloom die and decay, the water may become so oxygen poor that fish can no longer survive in it. The result is a dead zone **where little can survive**.

#### Higher oxygen levels cause extinction.

**Schmidt and Harbert 1996** (Victor – former professor of Geology and Planetary Science at the University of Pittsburgh, and William – Associate Professor and Chair of Geology and Planetary Science at the University of Pittsburgh, The Balance of Nature, p. http://mac01.eps.pitt.edu/harbbook/c\_xv/chap15.html)

The oxygen level in our atmosphere is clearly a result of biological activity, but what is not so obvious is that the percentage of oxygen is precisely at optimum levels for use by life. Increasing oxygen levels provide greater energy conversion efficiency, but too much oxygen could bring about worldwide holocaust. The present level stands at 21%, but recent experiments have shown that the probability of a forest fire being started by a lightning stroke increases by 70% for each 1% rise in oxygen concentration above the present level. Ignition is strongly dependent upon the moisture content of combustible material, and so naturally-set fires are much more prevalent after prolonged drought. If the oxygen content should exceed 25%, however, ignition becomes highly probable even in the damp vegetation of a rain forest.

### Impact – Wetlands

#### Everglades key to wetlands.

**Tercek**, 7/13/**2012** (Mark – president and CEO of the Nature Conservancy, $80 Million for Wetlands and Working Ranches Everglades, Nature Conservancy, p. http://blog.nature.org/2012/07/80-million-for-wetlands-and-working-ranches-in-the-everglades/)

In a time of tough budget scrutiny, the widespread support for conservation in the Everglades may seem surprising. Yet, despite partisan politics that seem to dominate today’s media, an overwhelming majority of Americans from all political perspectives value the protection of our natural resources, and are willing to invest in those resources for future generations. In a recent bipartisan poll done for the Conservancy, a striking 83 percent of respondents said they would be willing to pay additional taxes to protect American land, water and wildlife. Three quarters said that even with federal budget problems, funding for conservation should not be cut. These poll results confirm what we are seeing in Florida: that Americans across the political spectrum value the many ways nature benefits them and their communities. The Northern Everglades, for example, play a critical role in flood control and water supply for central and south Florida. Healthy wetlands act like a giant sponge, storing water in times of drought, holding it in times of flood, and **filtering out nutrients** that would otherwise be harmful to downstream areas. And what’s more, restoring wetlands is more cost-effective than man-made infrastructure like ditches, dikes and filtering plants designed to provide these same services.

#### Even small wetland destruction disrupts the hydrologic cycle.

**May**, Spring **2005** (Jonathan – JD from the University of Maryland Law, The Current Status of Clean Water Act Jurisdiction and the Future of Non-Tidal Wetlands Protection, University of Baltimore Journal of Environmental Law, p. Lexis-Nexis)

In the Prairie Pothole region, for example, isolated wetlands are responsible for the production of approximately half of all waterfowl in the U.S. 33 Wetlands' hydrologic function of recharging dwindling aquifers and other water sources becomes particularly important in non-tidal areas of the American West, where access to navigable water is limited, and aquifers are slowly emptying. 34 Simply because isolated wetlands tend to be small and 'isolated' from other waters does not mean they lack significant value or use; in fact, small acreage wetlands have been noted to have proportionally equal benefits in terms of pollution reductions as larger wetlands. 35 Moreover, any separation of [\*133] these 'isolated' wetlands from other wetlands is artificial, since the term 'isolated wetland' is a legal construct created for jurisdictional purposes only under federal law; there is no scientific corollary to what it is thought of legally as an 'isolated' wetland. 36 Therefore, there is a lack of scientific data on exactly what role such 'isolated' wetlands can play in the environment and economy. 37 Nonetheless, given the vital role of all wetlands, even small ones that seem geographically isolated, they can have significant effects on the world around them and deserve protection.

#### Collapse of the hydrologic cycle causes extinction.

**Karner**, 1/26/**1998** (Dr. Frank – Professor of Geology and Geological Engineering at the University of North Dakota, Hydrologic Cycle, Earthscape, p. http://www.und.nodak.edu/instruct/eng/fkarner/pages/cycle.htm)

Water's molecular arrangement is very simple, two hydrogens to each oxygen atoms, but this is misleading. Water has many unique properties that allow it to be such a universal material. One special characteristic of water is its ability to change state very easily under Earth conditions. It can be found readily on the planet in all of its three forms, solid, liquid, and gas. These forms also play a great part in the hydrologic cycle. Now, exactly what is the hydrologic cycle.? The hydrologic cycle takes place in the hydrosphere, this is the region containing all the water in the atmosphere and on the surface of the earth. The cycle is the movement of water through this hydrosphere. How the entire process is very simple, divided in to five parts Condensation Infiltration Runoff Evaporation Precipitation The process begins with condensation, when water vapor condenses in the atmosphere to form clouds. Condensation occurs when the temperature of the air or earth changes. Water changes states when temperatures fluctuate. So when the air cools enough, water vapor has to condense on particles in the air to form clouds. This process is very noticeable on plants as they dew in the morning. As clouds form, winds move them across the globe, spreading out the water vapor. When eventually the clouds can't hold the moisture, they release it in the form of precipitation, which can be snow, rain, hail, etc. The next three stages: infiltration, runoff, and evaporation occur simultaneously. Infiltration occurs when precipitation seeps into the ground. This depends a lot on the permeability of the ground. Permeability is the measure of how easily something flows through a substance.The more permeable, the more precipitation seeps into the ground. If precipitation occurs faster than it can infiltrate the ground, it becomes runoff. Runoff remains on the surface and flows into streams, rivers, and eventually large bodies such as lakes or the ocean. Infiltrated groundwater moves similarily as it recharges rivers and heads towards large bodies of water. As both of these processes are happening, the power of the sun is driving this cycle by causing evaporation. Evaporation is the change of liquid water to a vapor. Sunlight aids this process as it raises the temperature of liquid water in oceans and lakes. As the liquid heats, molecule are released and change into a gas. Warm air rises up into the atmosphere and becomes the vapor involved in condensation. Considering so little of the water on earth is drinkable to people, it is amazing the supply has survived as long as it has. The hydrologic cycle continues to move water and keep sources fresh. It is estimated that 100 million billion gallons a year are cycled through this process. Without this process life on Earth would be impossible. We need it to sustain us and for all of our life processes to function. Without water, **life would not be possible on Earth**.

### Wetlands Impact – Warming

#### Wetland destruction accelerates warming.

**Romm**, 7/23/**2008** (Joe – Fellow at American Progress, and editor of Climate Progress, Wetlands destruction – another climate feedback, Think Progress, p. http://thinkprogress.org/climate/2008/07/23/202912/wetland-destruction-another-amplifying-feedback/)

Wetlands are an essential ecosystem that promote biodiversity and flood control. They are also essential to maintaining a livable climate — since wetland destruction potentially accelerates global warming. As reported in Science Daily, leading scientists are now meeting in Brazil at the 8th International Wetlands Conference, discussing actions to better understand, protect, and manage this key global resource. How big a deal are the wetlands? Covering just 6% of Earth’s land surface, wetlands (including marshes, peat bogs, swamps, river deltas, mangroves, tundra, lagoons and river floodplains) store 10-20% of its terrestrial carbon. Wetlands slow the decay of organic material trapped and locked away over the ages in low oxygen conditions. So how much carbon are we talking about? These waterlogged (either seasonally or year-round) areas contain an estimated 771 gigatonnes (771 billion tonnes) of greenhouse gases — both CO2 and more potent methane — **an amount in CO2 equivalent comparable to the carbon content of today’s atmosphere**.

#### Warming collapses global agriculture.

Strom 2007 (Robert – Professor Emeritus of Planetary Sciences at the University of Arizona, Hot House, p. 211-216)

According to the study, as the average global temperature anomaly rises to 1 °C within the next 25 years (it is already 0.6'C in the Northern Hemisphere), some specialized ecosystems become very stressed, and in some developing countries food production will begin a serious decline, water shortage problems will worsen, and there will be net losses in the gross domestic product (GDP). At least one study finds that because of the time lags between changes in radiative forcing we are in for a 1 °C increase before equilibrating even if the radiative forcing is fixed at today's level (Wetherald et al., 2001). It is apparently when the temperature anomaly reaches 2 °C that serious effects will start to come rapidly and with brute force (International Climate Change Taskforce, 2005). At the current rate of increase this is expected to happen sometime in the middle of this century. At that point there is nothing to do but try to adapt to the changes. Besides the loss of animal and plant species and the rapid exacerbation of our present problems, there are likely to be large numbers of hungry, diseased and starving people, and at least 1.5 billion people facing severe water shortages. GDP losses will be significant and the spread of diseases will be widespread (see below). We are only about 30 years away from the 440 ppm CO2 level where the eventual 2'C global average temperature is probable. When the temperature reaches 3 'C above today's level, the effects appear to become absolutely critical. At the current rate of greenhouse gas emission, that point is expected to be reached in the second half of the century. For example, it is expected that the Amazon rainforest will become irreversibly damaged leading to its collapse, and that the complete destruction of coral reefs will be widespread. As these things are already happening, this picture may be optimistic. As for humans, there will be widespread hunger and starvation with up to 5.5 billion people living in regions with large crop losses and another 3 billion people with serious water shortages. If the Amazon rainforest collapses due to severe drought it would result in decreased uptake of CO2 from the soil and vegetation of about 270 billion tons, resulting in an enormous increase in the atmospheric level of CO2. This, of course, would lead to even hotter temperatures with catastrophic results for civilization. A Regional Climate Change Index has been established that estimates the impact of global warming on various regions of the world (Giorgi, 2006). The index is based on four variables that include changes in surface temperature and precipitation in 2080-2099 compared to the period 1960-1979. All regions of the world are affected significantly, but some regions are much more vulnerable than others. The biggest impacts occur in the Mediterranean and northeastern European regions, followed by high-latitude Northern Hemisphere regions and Central America. Central America is the most affected tropical region followed by southern equatorial Africa and southeast Asia. Other prominent mid-latitude regions very vulnerable to global warming are eastern North America and central Asia. It is entirely obvious that we must start curtailing greenhouse gas emissions now, not 5 or 10 or 20 years from now. Keeping the global average temperature anomaly under 2'C will not be easy according to a recent report (Scientific Expert Group Report on Climate Change, 2007). It will require a rapid worldwide reduction in methane, and global CO2 emissions must level off to a concentration not much greater than the present amount by about 2020. Emissions would then have to decline to about a third of that level by 2100. Delaying action will only insure a grim future for our children and grandchildren. If the current generation does not drastically reduce its greenhouse gas emission, then, unfortunately, our grandchildren will get what we deserve. There are three consequences that have not been discussed in previous chapters but could have devastating impacts on humans: food production, health, and the economy. In a sense, all of these topics are interrelated, because they affect each other. Food Production Agriculture is critical to the survival of civilization. Crops feed not only us but also the domestic animals we use for food. Any disruption in food production means a disruption of the economy, government, and health. The increase in CO2 will result in some growth of crops, and rising temperatures will open new areas to crop production at higher latitudes and over longer growing seasons; however, the overall result will be decreased crop production in most parts of the world. A 1993 study of the effects of a doubling of CO2 (550 ppm) above pre-industrial levels shows that there will be substantial decreases in the world food supply (Rosenzweig et al., 1993). In their research they studied the effects of global warming on four crops (wheat, rice, protein feed, and coarse grain) using four scenarios involving various adaptations of crops to temperature change and CO2 abundance. They found that the amount of world food reduction ranged from 1 to 27%. However, the optimistic value of 1% is almost certainly much too low, because it assumed that the amount of degradation would be offset by more growth from "CO2 fertilization." We now know that this is not the case, as explained below and in Chapter 7. The most probable value is a worldwide food reduction between 16 and 27%. These scenarios are based on temperature and CO2 rises that may be too low, as discussed in Chapter 7. However, even a decrease in world food production of 16% would lead to large-scale starvation in many regions of the world. Large-scale experiments called Free-Air Concentration Enrichment have shown that the effects of higher CO2 levels on crop growth is about 50% less than experiments in enclosure studies (Long et al., 2006). This shows that the projections that conclude that rising CO2 will fully offset the losses due to higher temperatures are wrong. The downside of climate change will far outweigh the benefits of increased CO2 and longer growing seasons. One researcher (Prof. Long) from the University of Illinois put it this way: Growing crops much closer to real conditions has shown that increased levels of carbon dioxide in the atmosphere will have roughly half the beneficial effects previously hoped for in the event of climate change. In addition, ground-level ozone, which is also predicted to rise but has not been extensively studied before, has been shown to result in a loss of photosynthesis and 20 per cent reduction in crop yield. Both these results show that we need to seriously re-examine our predictions for future global food production, as they are likely to be far lower than previously estimated. Also, studies in Britain and Denmark show that only a few days of hot temperatures can severely reduce the yield of major food crops such as wheat, soy beans, rice, and groundnuts if they coincide with the flowering of these crops. This suggests that there are certain thresholds above which crops become very vulnerable to climate change. The European heat wave in the summer of 2003 provided a large-scale experiment on the behavior of crops to increased temperatures. Scientists from several European research institutes and universities found that the growth of plants during the heat wave was reduced by nearly a third (Ciais et al., 2005). In Italy, the growth of corn dropped by about 36% while oak and pine had a growth reduction of 30%. In the affected areas of the mid- west and California the summer heat wave of 2006 resulted in a 35% loss of crops, and in California a 15% decline in dairy production due to the heat-caused death of dairy cattle. It has been projected that a 2 °C rise in local temperature will result in a $92 million loss to agriculture in the Yakima Valley of Washington due to the reduction of the snow pack. A 4'C increase will result in a loss of about $163 million. For the first time, the world's grain harvests have fallen below the consumption level for the past four years according to the Earth Policy Institute (Brown, 2003). Furthermore, the shortfall in grain production increased each year, from 16 million tons in 2000 to 93 million tons in 2003. These studies were done in industrialized nations where agricultural practices are the best in the world. In developing nations the impact will be much more severe. It is here that the impact of global warming on crops and domestic animals will be most felt. In general, the world's most crucial staple food crops could fall by as much as one-third because of resistance to flowering and setting of seeds due to rising temperatures. Crop ecologists believe that many crops grown in the tropics are near, or at, their thermal limits. Already research in the Philippines has linked higher night-time temperatures to a reduction in rice yield. It is estimated that for rice, wheat, and corn, the grain yields are likely to decline by 10% for every local 1 °C increase in temperature. With a decreasing availability of food, malnutrition will become more frequent accompanied by damage to the immune system. This will result in a greater susceptibility to spreading diseases. For an extreme rise in global temperature (> 6 'C), it is likely that worldwide crop failures will lead to mass starvation, and political and economic chaos with all their ramifications for civilization.

### Wetlands Impact – Biodiversity

#### Wetlands are key to biodiversity --- comparable to rainforest.

**Romm**, 7/23/**2008** (Joe – Fellow at American Progress, and editor of Climate Progress, Wetlands destruction – another climate feedback, Think Progress, p. http://thinkprogress.org/climate/2008/07/23/202912/wetland-destruction-another-amplifying-feedback/)

The irreplaceable nature of wetlands goes beyond carbon capture, of course: “Wetlands act as sponges and their role as sources, reservoirs and regulators of water is largely underappreciated by many farmers and others who rely on steady water supplies,” says Prof. Junk. “They also cleanse water of organic pollutants, prevent downstream flood inundations, protect riverbanks and seashores from erosion, recycle nutrients and capture sediment.” Typically high in nutrients, wetlands also offer rich habitats for small organisms which feed fish and other water life, which in turn nourish mammals and birds. Many wetlands feature biodiversity comparable to that of rainforests or coral reefs.

### Marker