“Let’s drain this here swamp!”

“We must protect this sensitive wetland ecosystem!”

Wetlands Overview

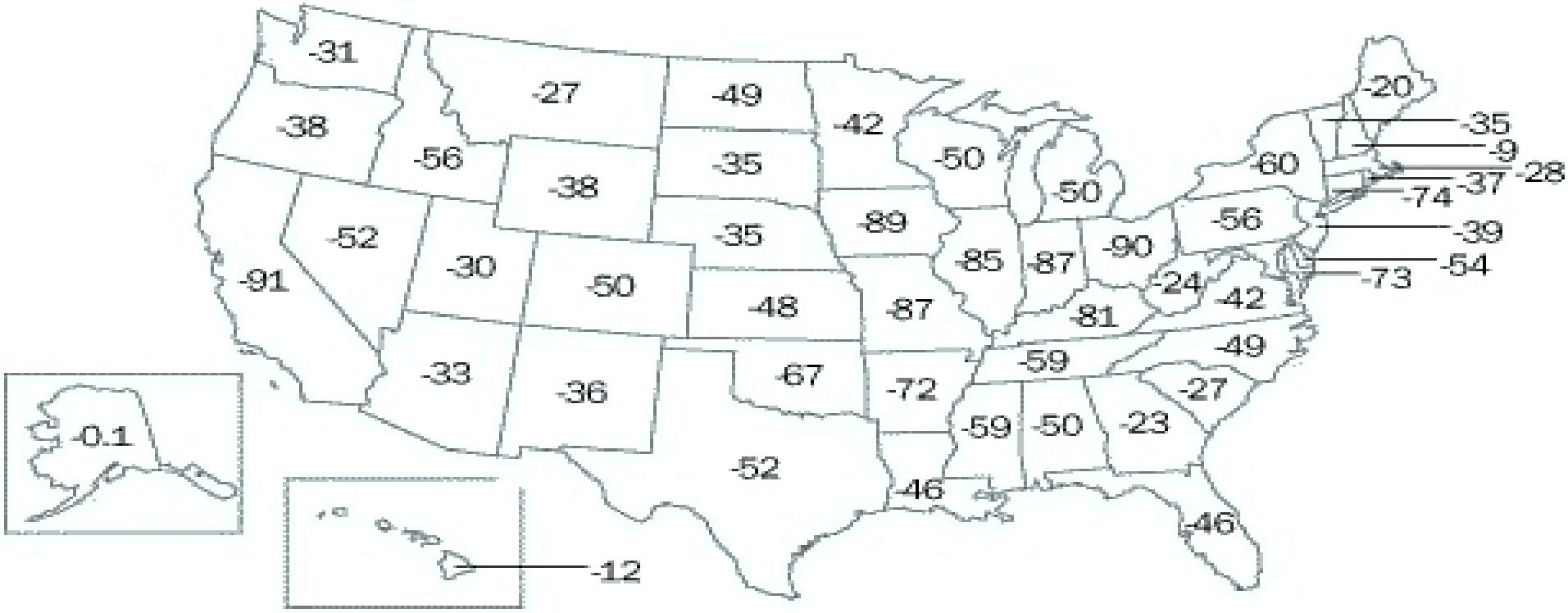
Changing Policy Image

- Policy image definition: Balance of positive and negative views of public and elite understandings of a public policy problem
- Changing policy image correlated with changing institutions and distribution of political power
- Wetlands policy image has changed from useless (drain it!) to useful (save it!)
- Change in policy image probably caused by increased ecological understanding
- Wetlands have multiple benefits: Water filtration, fish and wildlife habitat, protection from flooding, etc.
- Many benefits derived from long-term hydrogeological, ecological, and evolutionary processes

The Loss of Wetlands

- Wetlands defined by three factors: 1) frequent or prolonged presence of water at or near soil surface; 2) hydric soils that form under wet or flooded conditions; 3) plants adapted to live in hydric soils
- Estimated 220 million acres of historical wetlands; now approximately 105 million acres.
- Between 1986 and 1997, 58,000 acres of annual wetlands loss (FWS estimate)
- The rate of loss has declined, but net loss continues (maybe)
- Decline in rate due to policy, or just declining supply of wetlands?

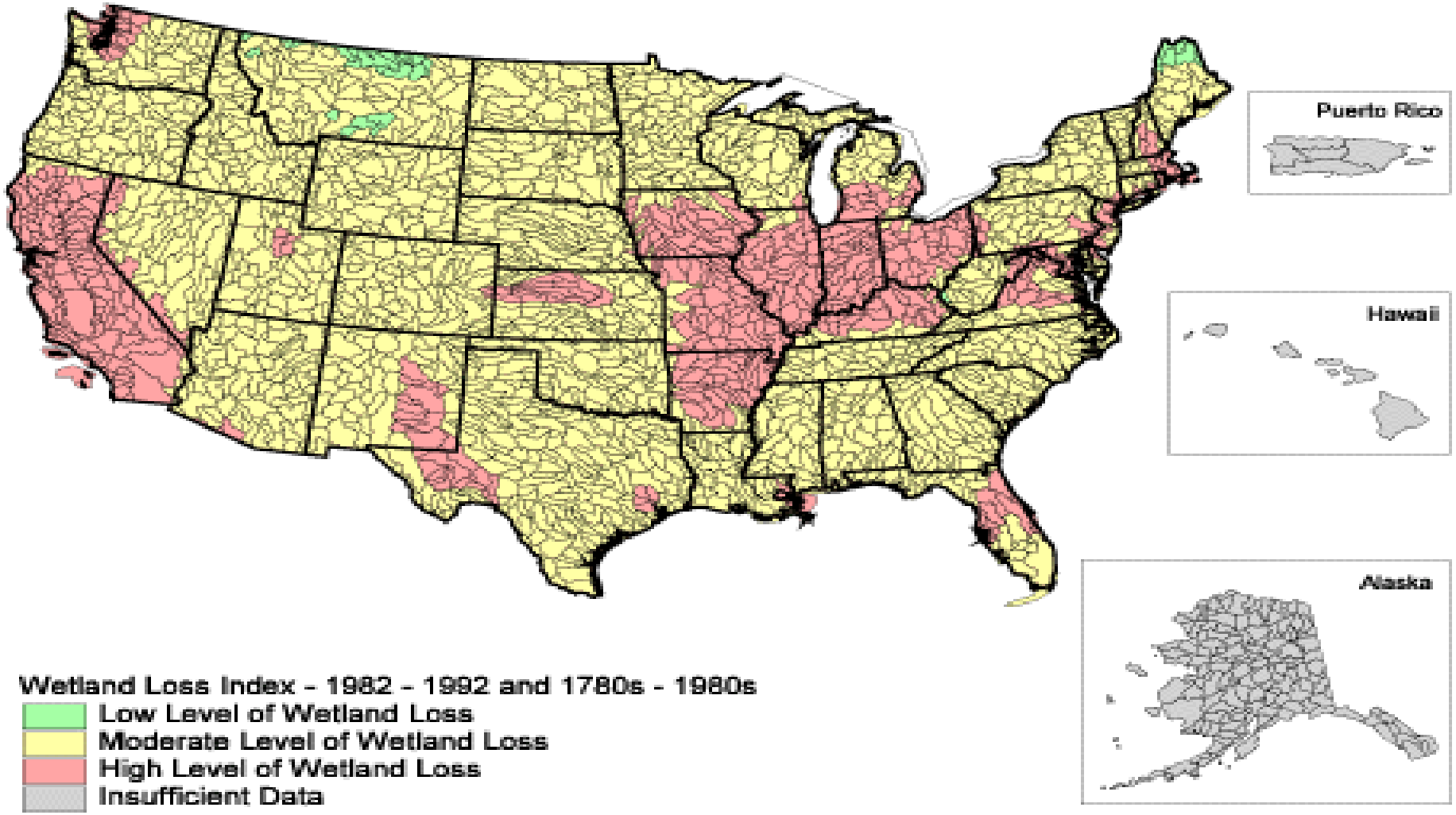
Percentage of Wetlands Acreage Lost, 1780's-1980's

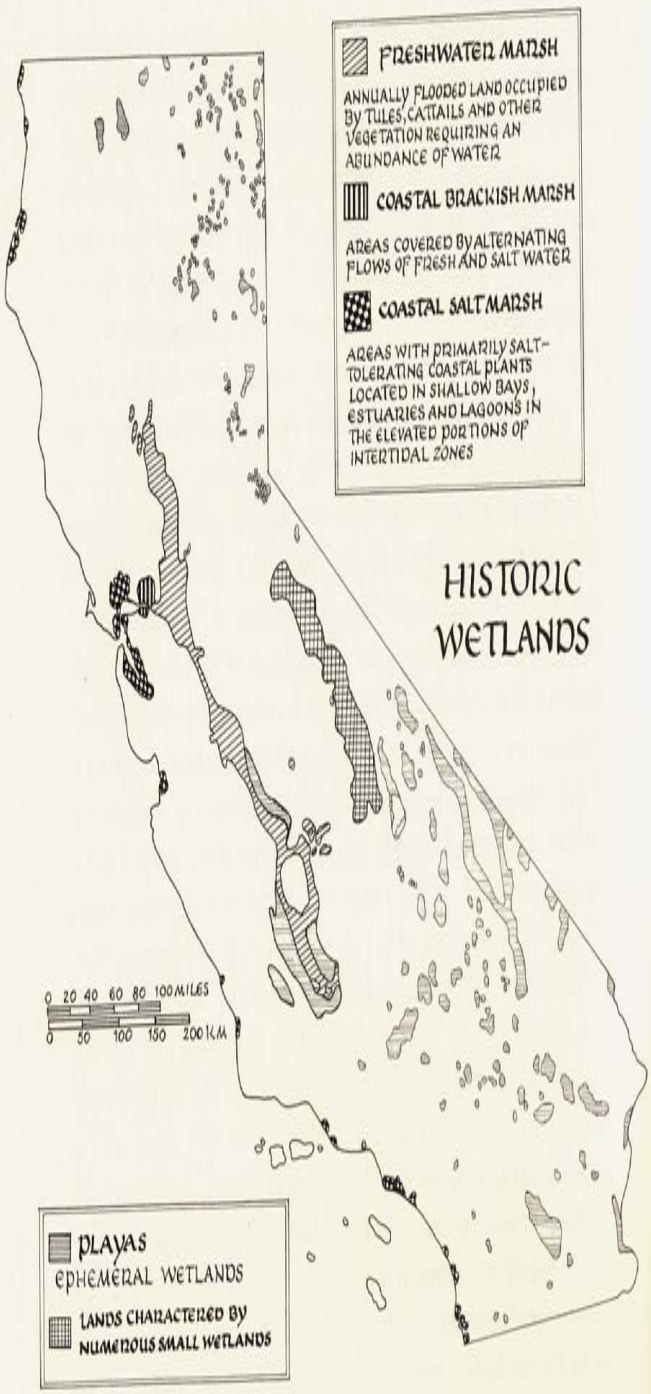


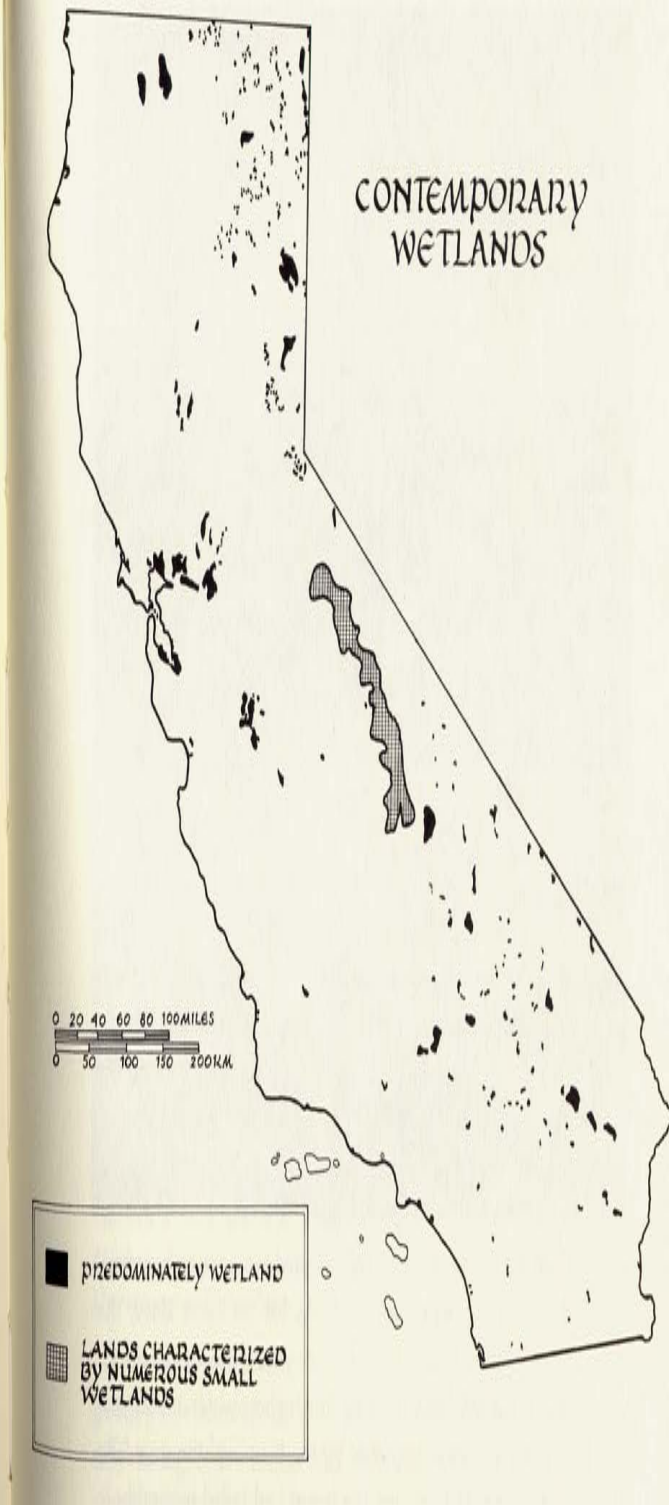
Twenty-two states have lost at least 50 percent of their original wetlands. Seven states—Indiana, Illinois, Missouri, Kentucky, Iowa, California, and Ohio—have lost over 80 percent of their original wetlands. Since the 1970's, the most extensive losses of wetlands have been in Louisiana, Mississippi, Arkansas, Florida, South Carolina, and North Carolina.

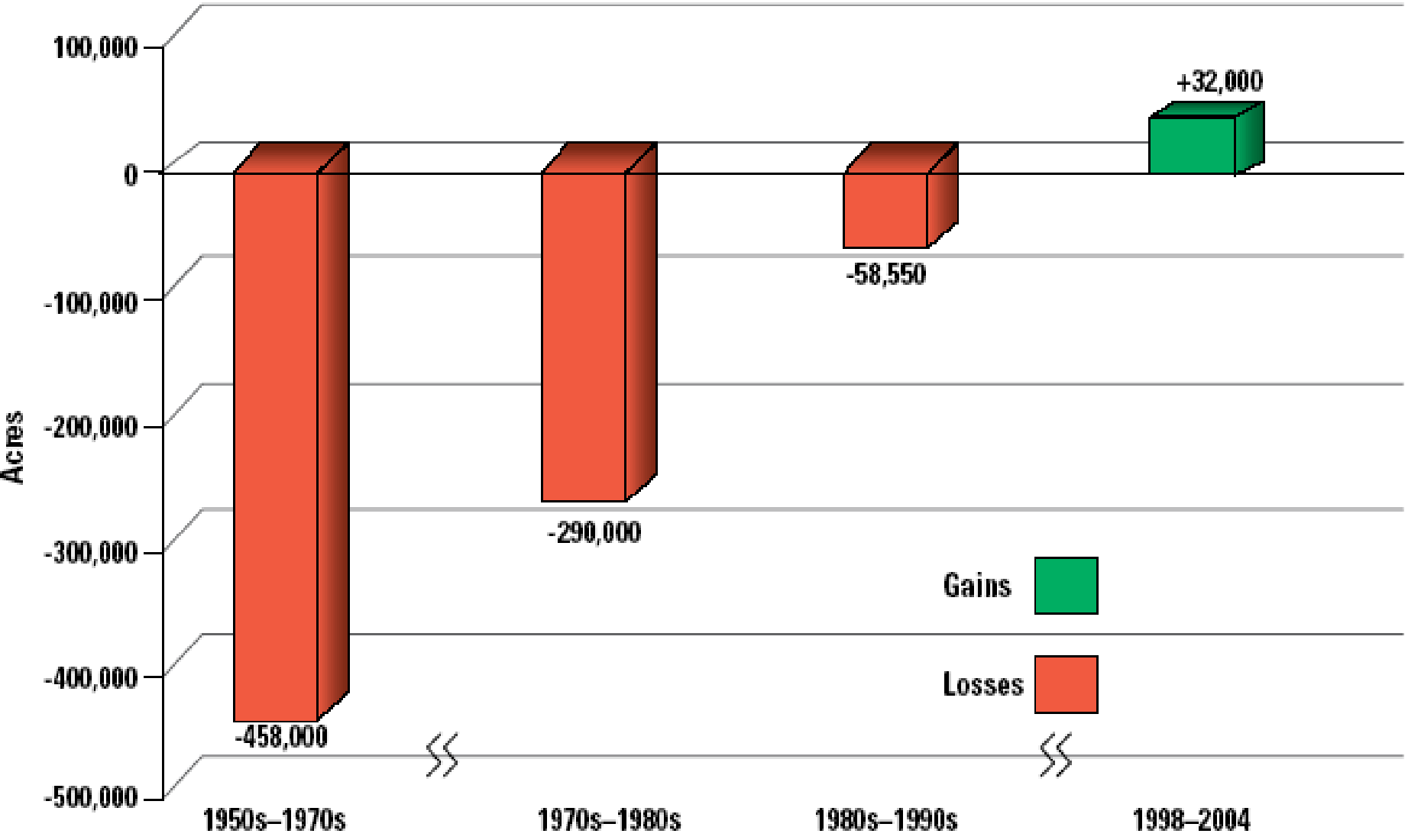
Source: Mitch and Gosselink. Wetlands. 2nd Edition, Van Nostrand Reinhold, 1993

National Wetlands Loss

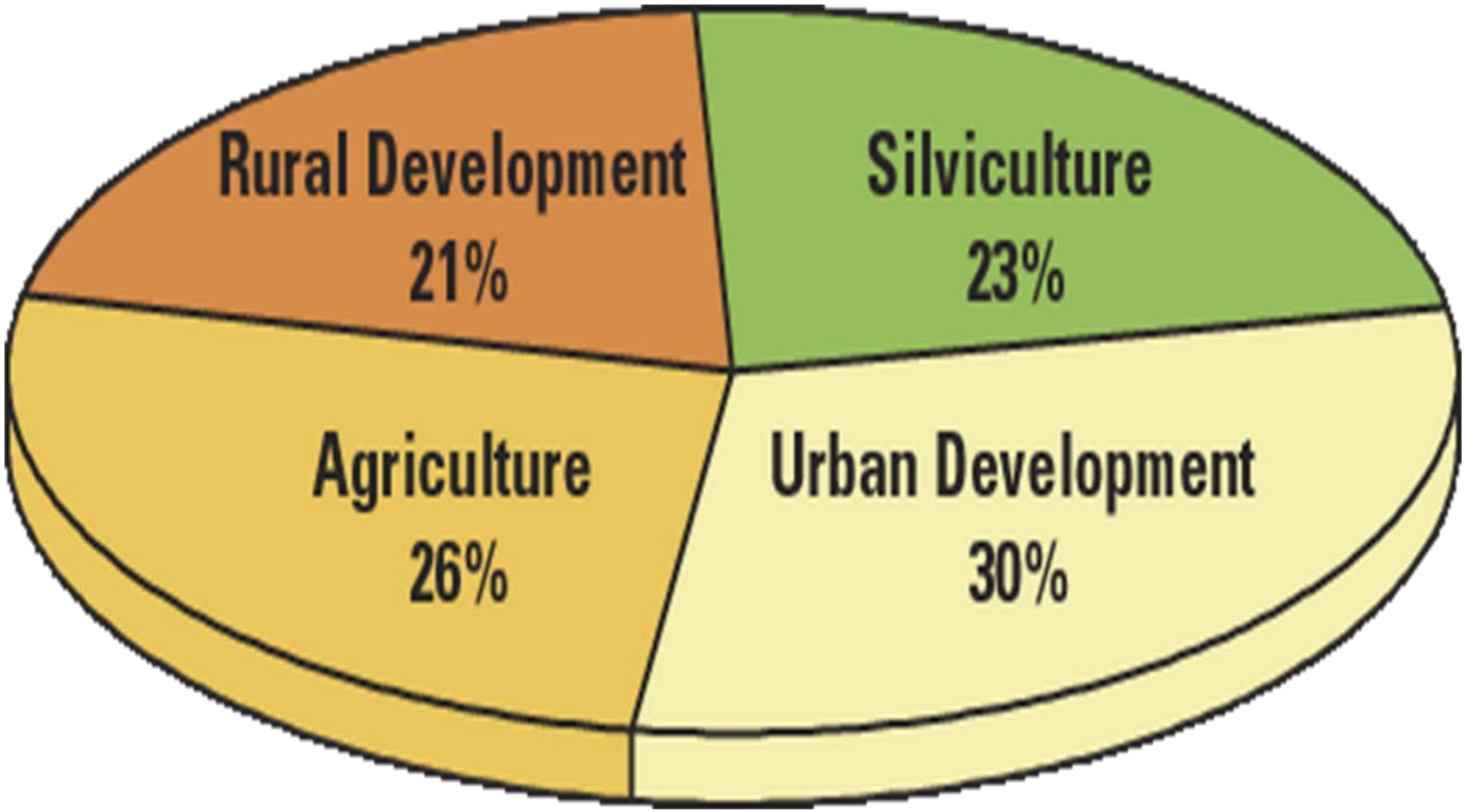



FRESHWATER MARSH
ANNUALLY FLOODED LAND OCCUPIED BY TULES, CATTAILS AND OTHER VEGETATION REQUIRING AN ABUNDANCE OF WATER
COASTAL BRACKISH MARSH
AREAS COVERED BY ALTERNATING FLOWS OF FRESH AND SALT WATER
COASTAL SALT MARSH
AREAS WITH PRIMARILY SALT-TOLERATING COASTAL PLANTS LOCATED IN SHALLOW BAYS, ESTUARIES AND LAGOONS IN THE ELEVATED PORTIONS OF INTERTIDAL ZONES
HISTORIC WETLANDS
0 20 40 60 80 100 MILES
0 50 100 150 200 KM
PLAYAS
EPHEMERAL WETLANDS
LANDS CHARACTERED BY NUMEROUS SMALL WETLANDS


CONTEMPORARY WETLANDS
0 20 40 60 80 100 MILES
0 50 100 150 200 KM
PREDOMINATELY WETLAND
LANDS CHARACTERIZED BY NUMEROUS SMALL WETLANDS


100,000
0
-100,000
-200,000
-300,000
-400,000
-500,000
Acres
+32,000
-58,550
-290,000
-458,000
Gains
Losses
1950s–1970s
1970s–1980s
1980s–1990s
1998–2004

Attribution of Losses



FWS vs. NRCS

Don’t forget: NRCS and USDA play a large role in wetlands protection through Farm Bill voluntary cost-share programs

Category	Estimates of FWS' National Wetlands Inventory covering 1985 through 1995	Estimates of NRCS' National Resources Inventory covering 1982 through 1992	Difference
Total wetlands acreage	100,900,000	112,000,000	11,100,000
Gross gain in wetlands	2,146,364	768,700	1,377,664
Gross loss in wetlands	3,357,053	1,561,300	1,795,753
Net loss of wetlands	1,210,689	792,600	418,089
Gross loss of wetlands to agriculture	1,427,598	309,000	1,118,598
Gross loss of wetlands to development	84,006	886,000	801,994

Source: Fish and Wildlife Service and the Natural Resources Conservation Service.

Clean Water Act Section 404: Overview

Section 404 Overview

- Protects wetlands and other waters from discharge of dredge and fill
- Army Corp of Engineers issues wetlands project-specific permits according to EPA guidelines (about 10% of activities)
- Regional or statewide general permits also govern entire classes of activities, pre-empting project specific review (approximately 90% of section 404 activities are covered by general permits)
- EPA can veto permits with unacceptable environmental effects; advisory role for FWS and NMFS

- Permits supposed to pass two-part test:
  1. No filling of wetlands if there is another "practicable alternative"
  2. After exhaustion of practicable alternatives, mitigation required to restore aquatic ecosystem services (the "no-net-loss" prophecy of Bush Sr.)
- Mitigation sequencing: Avoid impacts, minimize damage of unavoidable impacts, mitigate all remaining damages

Section 404 Controversies

- Many wetland destroying activities, are exempt (e.g., draining, normal agricultural activities); 1991 GAO reports says only 1/5 of wetland-destroying activities regulated
- Questions about the definition of a wetland; Corps definitions are considerably more conservative than FWS
- Very small number of wetlands permit applications are denied (.3%)
- Variation across Corps districts in policy implementation
- General permits authorizing activities in small, isolated wetlands ignore cumulative effects
- Practicable alternative test seems to be ignored; applicants self-report practicable alternatives
- Wetlands mitigation techniques an unproven science, and compliance with mitigation requirements is questionable
- Outside agencies rarely intervene in Corps decisions, and are often ignored (11 EPA vetos in 30 years)
- Weak monitoring and enforcement, especially by the Corps
- Controversy over wetlands development restrictions as “taking” of private property under 5th Amendment of Constitution

The SWANCC Case (2001)

Case Overview

- Solid Waste Agency of Northern Cook County vs. US Army Corps of Engineers
- Wanted to develop old gravel mining pits for non-hazardous waste disposal; pits had become wetlands and stopovers for migratory birds
- Ponds are “isolated” wetlands; not connected to navigable waters of US
- Since 1986, Corps said isolated wetlands fall under CWA because migratory birds cross state lines and constitute interstate commerce (Commerce clause)
- Supreme Court says CWA does not reach into isolated wetlands; Federal government cannot regulate isolated wetlands solely based on their use by migratory birds

Policy Implications of SWANCC Case

- Embedded in the broader politics of conservative Supreme Court justices emphasizing state rights and limiting scope of Federal law
- Most confusing for temporary wetlands like vernal pools
- Unclear whether or not policy will favor a broad reading (zero linkage between interstate commerce and isolated wetlands); or narrow (migratory birds cannot be a justification, but there may be other linkages, e.g., water used by interstate travelers for recreation)
- EPA and Corps started with narrow reading based on original regulations; substantial variation in current interpretation of jurisdiction at the level of Corp districts
- From 30% (narrow) to 79% (broad) of wetland acreage may be released from Fed regulation
- Narrow or broad reading could affect other Clean Water Act programs (e.g., what is a navigable water), so right now full rulemaking has been abandoned
- Must keep in mind state level regulation of wetlands
- More recent decisions focused on “adjacent” wetlands; *Rapanos*

The Bush Campaign Promise: A Net Gain in Wetlands from 1998-2004?

- Earth Day 2004: Creative, improve, or protect at least 3 million wetland acres in the next 5 years
- Primary mechanism: Funding the Farm Bill wetlands protection programs; incentive-based (Wetlands Reserve Program, Conservation Reserve Program)
- In 2005, Congress actually rejected Bush administration request for increased wetlands conservation funding
- 2005 FWS Inventory: Reports net gain of 220,000 acres of freshwater wetlands (.2%), concentrated in "freshwater ponds)
- Two problems: Reports only acres gained through various programs; 328,000 acres are man-made

Table 2. Change in wetland area for selected wetland and deepwater categories, 1998 to 2004. The coefficient of variation (CV) for each entry (expressed as a percentage) is given in parentheses.

Wetland/Deepwater Category	*Area, In Thousands of Acres*			
	Estimated Area, 1998	*Estimated Area, 2004*	*Change, 1998–2004*	*Change (In Percent)*
Marine	130.4 (20.2)	128.6 (20.5)	–1.9 (68.7)	–1.4
Estuarine Intertidal Non-Vegetated[1]	594.1 (10.7)	600.0 (10.3)	5.9 *	1.0
Estuarine Intertidal Vegetated[2]	4,604.2 (4.0)	4,571.7 (4.0)	–32.4 (32.7)	–0.7
All Intertidal Wetlands	5,328.7 (3.8)	5,300.3 (3.8)	–28.4 (48.6)	–0.5
Freshwater Non-Vegetated[3]	5,918.7 (3.7)	6,633.9 (3.5)	715.3 (12.8)	12.1
Freshwater Ponds[4]	5,534.3 (3.7)	6,229.6 (3.5)	695.4 (13.1)	12.6
Freshwater Vegetated[5]	96,414.9 (3.0)	95,819.8 (3.0)	–495.1 (35.0)	–0.5
Freshwater Emergent	26,289.6 (8.0)	26,147.0 (8.0)	–142.6 *	–0.5
Freshwater Forested	51,483.1 (2.8)	52,031.4 (2.8)	548.2 (56.1)	1.1
Freshwater Shrub	18,542.2 (4.1)	17,641.4 (4.3)	–900.8 (34.2)	–4.9
All Freshwater Wetlands	102,233.6 (2.9)	102,453.8 (2.8)	220.2 (77.3)	0.2
All Wetlands	107,562.3 (2.7)	107,754.0 (2.7)	191.8 (89.1)	0.2
Deepwater Habitats				
Lacustrine[6]	16,610.5 (10.4)	16,773.4 (10.2)	162.9 (76.2)	1.0
Riverine	6,765.5 (9.1)	6,813.3 (9.1)	47.7 (68.8)	0.7
Estuarine Subtitdal	17.680.5 (2.2)	17.717.8 (2.2)	37.3 (40.8)	0.2
All Deepwater Habitats	41,046.6 (4.6)	41,304.5 (4.5)	247.9 (51.7)	0.6
All Wetlands and Deepwater Habitats[1,2]	148,618.8 (2.4)	149,058.5 (2.4)	439.7 (31.3)	0.3

*Statistically unreliable.

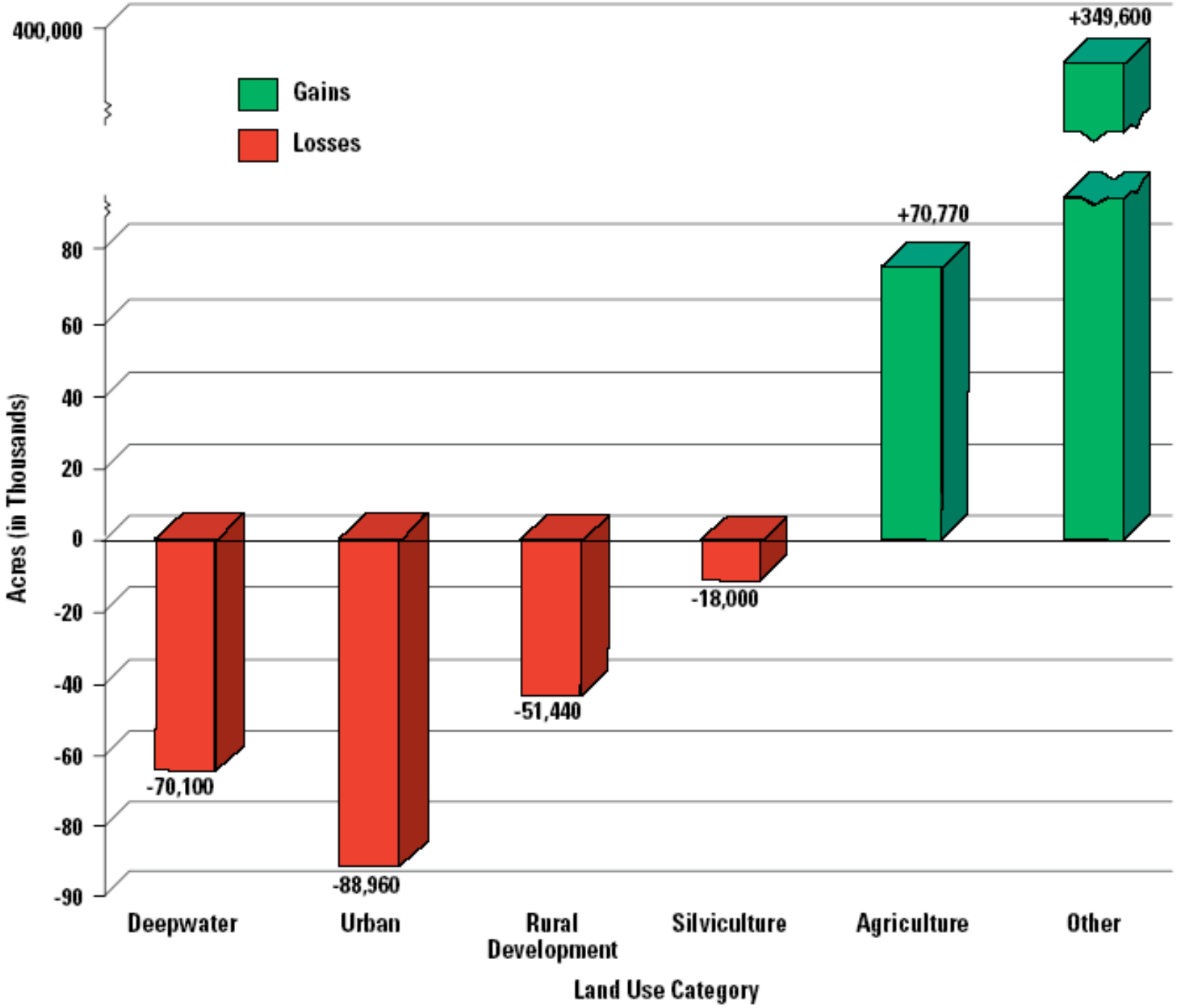

400,000
Gains
Losses
+349,600
+70,770
80
60
40
20
0
-20
-40
-60
-80
-90
Acres (in Thousands)
-18,000
-51,440
-70,100
-88,960
Deepwater
Urban
Rural Development
Silviculture
Agriculture
Other
Land Use Category

Figure 1. Progress toward the President's Wetlands Goal

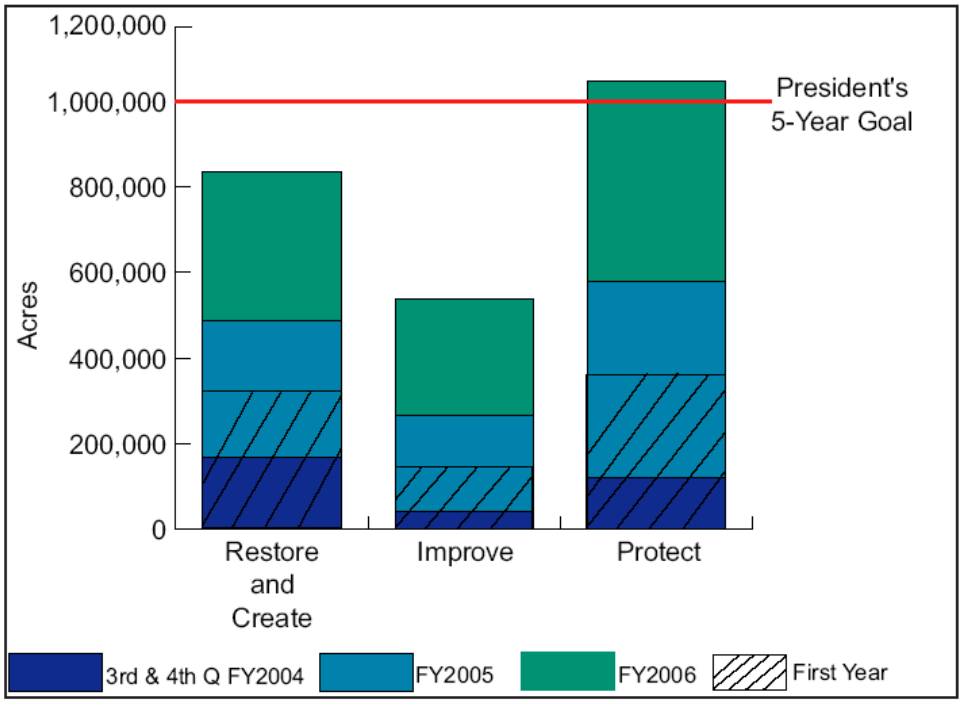


Figure 2. Proportion of Wetland Acres Anticipated to be Created or Restored by Major Programs in FY 2006

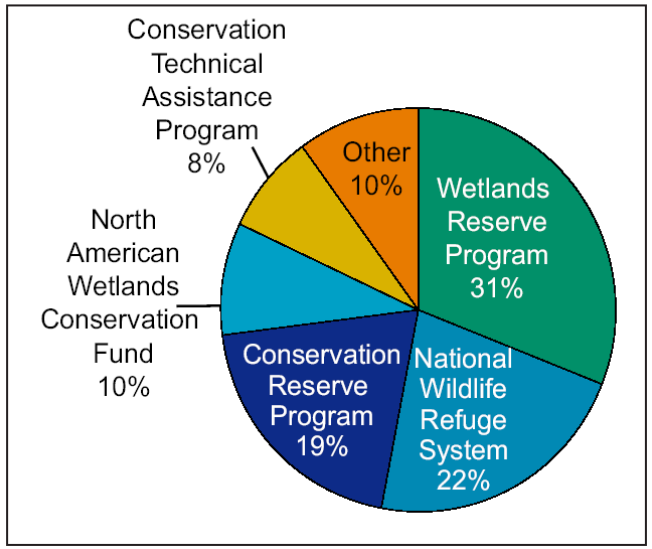
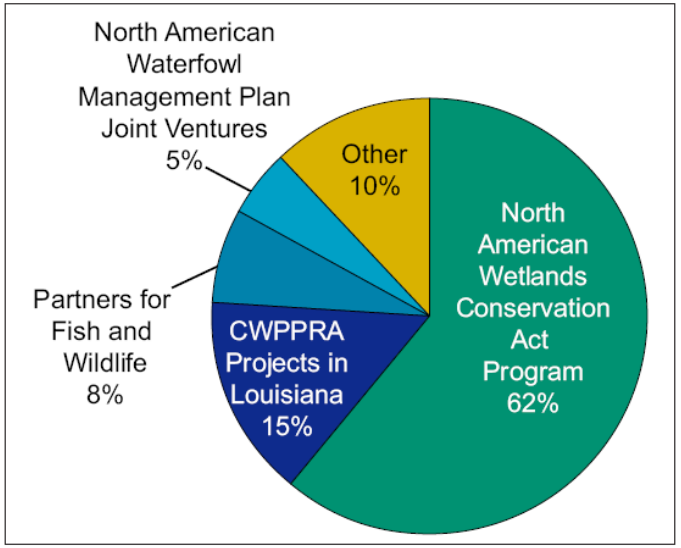


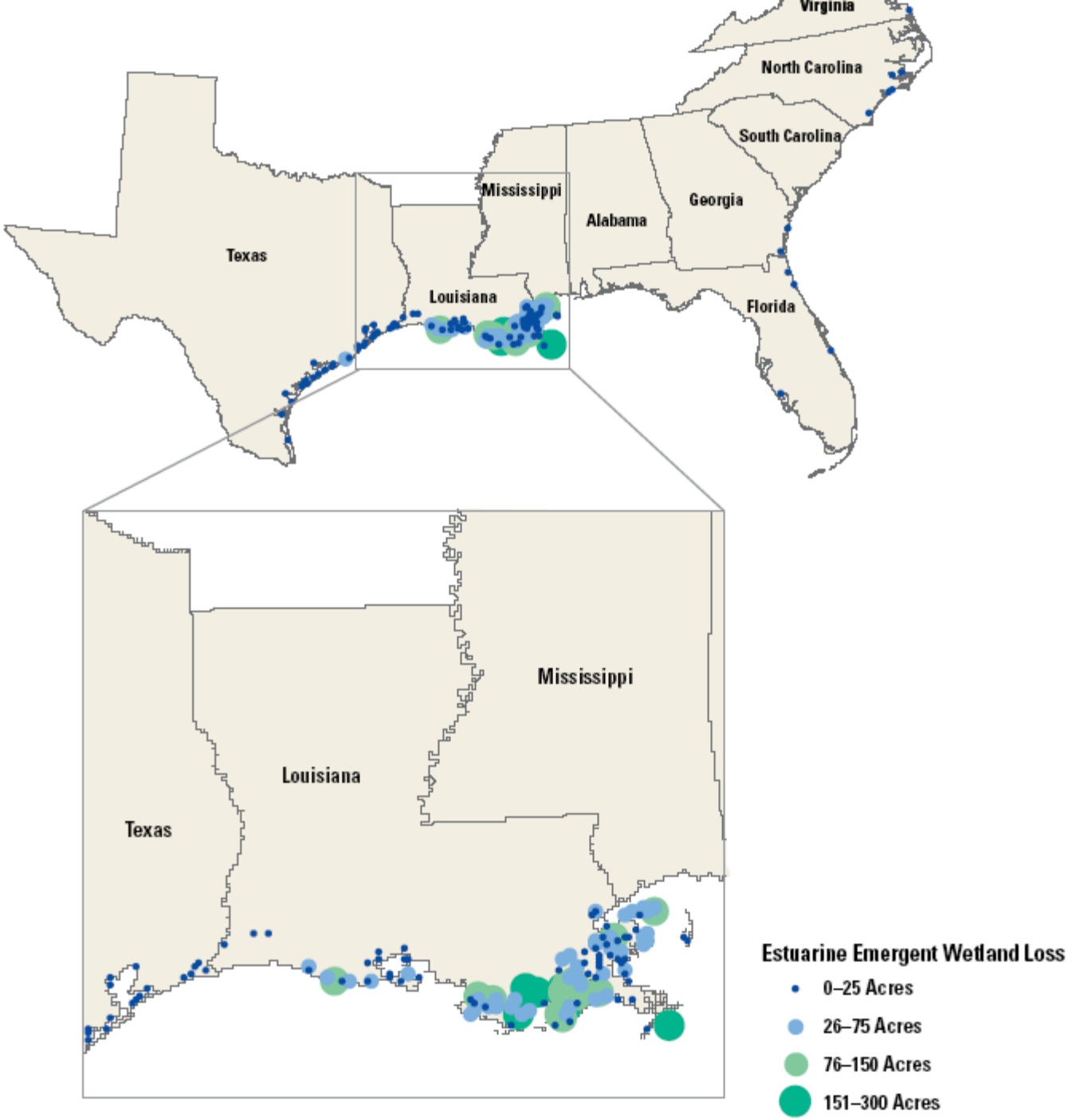
Figure 3. Proportion of Wetland Acres Anticipated to be Improved by Major Programs in FY 2006



Source: Conserving America's Wetlands: Implementing the President's Goals; Council on Environmental Quality 2005

Louisiana Wetlands

- Disappearing fast—at least 80% of coastal wetlands loss has occurred in Louisiana
- Mississippi River is not depositing sediment like it used to due to hydrological development
- Possible land subsidence from oil/gas extraction
- Massive problem because entire MS river basin is implicated
- Hurricane Katrina and other storms have accelerated wetland loss through destruction of barrier islands


Virginia
North Carolina
South Carolina
Georgia
Florida
Alabama
Mississippi
Louisiana
Texas
Mississippi
Louisiana
Texas
Estuarine Emergent Wetland Loss
0–25 Acres
26–75 Acres
76–150 Acres
151–300 Acres