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Gateways into the Atchafalaya: developing a framework for water-based recreation in the Atchafalaya Basin parishes

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GATEWAYS INTO THE ATCHAFALAYA: DEVELOPING A FRAMEWORK FOR WATER-BASED RECREATION IN THE ATCHAFALAYA BASIN PARISHES

A Thesis

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To my wife and daughter,

without their sacrifices, understanding, compassion and love,

none of this would be possible.

And to the Lord above,

he provided me with all the insight and strength that carried me through these last three years.

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I would like to extend a special thanks to the individuals in the small communities of the AB who unconditionally offered their courtesy and hospitality in directing me to the "unknown" boat launches through the cane fields or through miles of gravel/dirt roads.

Finally, my total appreciation goes to family, most notably my wife and daughter for their endless devotion over the past three years. This thesis is as much their work as it is mine.

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ABBREVIATIONS

AB – Atchafalaya Basin

ABAC – Atchafalaya Basin Advisory Committee

ABFS – Atchafalaya Basin Floodway System

ABP or Program – Atchafalaya Basin Program

ABFS-LP – Atchafalaya Basin Floodway System, Louisiana Project

ABPRB or Board – Atchafalaya Basin Promotion and Research Board

AHA – Atchafalaya Heritage Area

ATC – Atchafalaya Trace Commission

CIAP – Color Infrared Aerial Photography

CIR – Color Infrared

DAF – Department of Agriculture and Forestry

DCRT – Department of Culture, Recreation and Tourism

DNR – Department of Natural Resources

DOQQ – Digital Orthophoto Quarter Quadrangles

DPW – Department of Public Works

DWF – Department of Wildlife and Fisheries

EPA – Environmental Protection Agency

FES – First Extraordinary Legislative Session

GIS – Geographic Information Systems

GPS – Global Positioning System

HB – House Bill

HR – House Resolution

HCR – House Concurrent Resolution

IWC – Inland Waterways Commission

LAGIC – Louisiana State University Agricultural Center

LOSCO – Louisiana Oil Spill Coordinator's Office

LSU – Louisiana State University

MOU – Memorandum of Understanding

NAD83 – North American map Datum, 1983

NRCS – National Resource Conservation Service

NWR – National Wildlife Refuge

PL – Public Law

RRDI – The Regional Resources Development Institute

RS – Regular Legislative Session

SCR – Senate Concurrent Resolution

Sea Grant – Louisiana Sea Grant College Program

SLO – State Land Office

SMP – State Master Plan

TM – Thematic Mapper

UNEP – United Nations Environment Program

USACE – United States Army Corps of Engineers

USGS – United States Geological Survey

UTM – Universal Trans Mercator

WMA – Wildlife Management Area

WRDA – The Water Resources and Development Act

DEFINITIONS

Atchafalaya Basin Floodway System, Louisiana Project – A joint cooperation between the United States Army Corps of Engineers (USACE) and the State of Louisiana to construct a master plan that would "conserve, restore, and enhance (where possible) the natural habitat and give all people the opportunity to enjoy the Atchafalaya Experience" (LA, DNR, 1998). In the context of this thesis, under Senate Concurrent Resolution (SCR) No.12 of the First Extraordinary Session (FES) 2000, House Concurrent Resolution (HCR) No.90 of Regular Session (RS) 2001, SCR No. 56 of RS 2002, and SCR 30 of FES 2002, Iberia, Iberville, Assumption, St. Landry, St. Martin, St. Mary, Avoyelles and Pointe Coupee Parishes were included under Act 920 of the 1999 Legislative Session that authorized the State Master Plan (SMP) for the Atchafalaya Basin (AB). The Department of Natural Resources (DNR), as the lead Louisiana authority for this project, formed the Atchafalaya Basin Advisory Committee (ABAC) that is composed of both government employees and private citizens. This Committee provides the forum for public discussion of state and federal actions and future plans concerning the AB (LA, DNR *et al*, 1997).

Atchafalaya Heritage Area – The Atchafalaya Heritage Area (AHA), also referred to as the Atchafalaya Trace, is an area that has natural, scenic, cultural and historic resources that form a cohesive, nationally distinctive landscape arising from patterns of human activity shaped by geography (LeBlanc, 1998). According to RS No. 25, Sections 1221-1225, the Atchafalaya Trace Commission (ATC) was created and was to be composed of representatives from 13 parishes: Assumption, Avoyelles, Concordia, East Baton Rouge, Iberia, Iberville, Pointe Coupee, Lafayette, St. Landry, St. Martin, St. Mary, Terrebonne and West Baton Rouge Parishes. The 13 parishes that encompass the Basin are depicted in the map entitled the *Atchafalaya Trace*

Heritage Corridor Concept Plan copyrighted in 1996 by the Center for Landscape Interpretation. The ATC is an agency of state government within the Department of Culture, Recreation and Tourism (LeBlanc, 1998). In 2002, the Commission adopted the *Atchafalaya Trace Heritage Area Management Plan* developed by the planning firm of Mary Means and Associates, Inc. House Concurrent Resolution (HCR) No. 42 of FES 2002 approved the plan. The mission of the ATC is to "build understanding and identity, raising local, regional, and national awareness of the Atchafalaya; to expand economic opportunities; to strengthen the fabric of the place; and to increase the community capacity within the thirteen parishes constitute the Heritage Area" (Kramer, 2003).

Boat Launch – A general term used to describe an area where boats can be transferred between land and water. Boat launches may incorporate ramps, hoists or forklifts to conduct vessel transfer. This term is applied to both ramps and landings in this thesis.

Boat Ramp vs. Boat Landing – A boat ramp is any man-made structure designed to allow the passage of boats and their trailers from land into a navigable body of water. Concrete, asphalt or gravel can be used to construct the ramp. A boat landing is an area designated for the purpose of launching boats from ramps or hoists. A landing is also noted for having significant improvements such as gravel beds and concrete slabs that have been designed to accommodate trailer and motor vehicle parking, and possible other improvements.

Color Infrared Aerial Photography (CIAP) – A type of remote sensing that utilizes film that is sensitive to electromagnetic radiation with wavelengths from 0.7 microns to 0.9 microns. Color infrared (CIR) film is often employed for its sensitivity in the chlorophyll-dip spectral region (between 0.51 microns and 0.62 microns); therefore, applications in vegetative zones are common.

Geographic Information Systems (GIS) – GIS is a rapidly evolving empirical analysis of geographic problems using an array of technologies from software to satellites. GIS is led by applications such as cartography, spatial analysis and remote sensing.

Georectification – This involves correcting spatial locations and orientations of raw satellite images and aerial photographs before they can be used in GIS applications. Generally, this process involves locating Ground Control Points (GCP) on both the image and in relation to a known datum (Campbell, 1996). Software is then used to resample the image with its correct spatial location and orientation relative to the identified GCP (Campbell, 1996).

Global Positioning System (GPS) – GPS is a network of 27 NAVSTAR satellites orbiting the Earth at a height of 12,500 miles, five monitoring stations and individual receivers (Steede-Terry, 2000). The x, y, z positions of ground points can be obtained at an accuracy of better than 10 m with a GPS receiver. GPS is one of the primary means of vector data capture.

Marina – An area designated for the purpose of overnight boat storage. A marina allows boats to moor through the availability of boats slips, cleats, or other similar devices. Marinas often provide other services such as septic disposal systems, fuel stations, electrical hook-ups, ice, food and beverages.

1997 Memorandum of Understanding (MOU) – This was an agreement among eight state agencies that shared interests in AB enhancement. The state departments that signed the MOU were: Agriculture and Forestry (DAF); Culture, Recreation and Tourism (DCRT); Environmental Quality (DEQ); Health and Hospitals (DHH); Natural Resources (DNR); Transportation and Development (DOTD); Wildlife and Fisheries (DWF) and the State Land Office (SLO) (LA, DNR *et al*, 1997).

1998 Memorandum of Understanding (MOU) – This MOU formalized the shared responsibilities between the State of Louisiana and the USACE "to protect and enhance the natural resources of the Atchafalaya Basin Floodway and to benefit from its potential for use in controlling destructive floods." The MOU of October 1998 affirmed the commitment by both parties to implement the feature of the April 1998 SMP for the AB.

National Heritage Area - An area or corridor designated by an Act of Congress as an area where natural, cultural, historic and recreational resources combine to form a cohesive, nationally distinctive landscape arising from patterns of human activity shaped by geography (Hefley, 2001).

Nature-based Tourism vs. Ecotourism – Nature-based tourism is any form of tourism that relies heavily on the natural environment for its attractions and/or settings; incorporates ecotourism as well as substantial portions of adventure tourism (incorporates risk taking, physical exertion, and the need for specialized skills) and "3S" (sea, sand and sun tourism) tourism (Weaver, 2001). Services are usually provided for experiential opportunities while mitigating impacts to the attraction's environment. Ecotourism is a form of tourism that is increasingly understood to be: (i) based primarily on nature-based attractions; (ii) learning-centered; and (iii) conducted in a way that makes every reasonable attempt to be environmentally, socio-culturally and economically sustainable (Weaver, 2001).

Preservation vs. Conservation – In the context of this thesis, preservation is to protect the environment from all activities except for educational and recreational uses (McCormick, 1989); the environment is maintained in an unaltered state. Conservation is to use natural resources to their maximum potential in a rational and sustainable manner (McCormick, 1989). Conservation often involves development in order to support access or appreciation for the environment.

Raster Images – These images are visual data that represents geographic space which is divided into an array of cells or "pixels". Each pixel (picture element) represents some variation in geography that is represent by a numeric value or "digital number". Raster images are often used in GIS applications. One of the more common forms of raster data capture is by remote sensing.

Recreation vs. Tourism – Recreation is any means of refreshing one's mind or body through activity that amuses or stimulates play; it is sometimes synonymous with leisure. Tourism is the practice. Tourism can be applied to the act of traveling for recreation, which usually involves an overnight stay or the business of guiding or managing tourists (Sea Grant and LAGIC, 1992).

Remote Sensing – The measurement of physical, chemical and biological properties of earth-borne objects without direct physical contact (Longley *et al*., 2001). An active or passive sensor records the amount of electromagnetic radiation that is being collected or transferred by an object. Active sensors send radiation to an object and then measure the object's signature reflected energy. Passive sensors simply record reflected energy. Sensors are secured to platforms, typically aircrafts and satellites. When incorporated with GIS, resolution becomes the physical parameter that is determined spatially (the size of an object that can be resolved with the device), spectrally (parts of the electromagnetic spectrum being measured), and temporally (the frequency with which the images are collected for the same area) (Longley *et al*., 2001).

Shapefiles – They are the file format that Environmental Systems Research Institute (ESRI) ArcView, a form of GIS software, stores map features (real-world objects represented on maps) and their attributes (feature information).

Sportsmen – In the context of this thesis, sportsmen refers to recreational fishermen and hunters to distinguish them from commercial fishermen.

Vector Images – These images represent geographic space by points, lines or polygons. All lines are actually captured as a series of points. A geographic area captured in vector form, a polygon, is dependent on the number of vertices that constitute that polygon. Vector images are often used in GIS applications. The most common methods of vector data capture are ground surveying and GPS.

ABSTRACT

The term "gateways" has been used in many contexts as a means of providing entry or connection. Gateways are where people congregate to leave a realm of familiarity to one of uncertainty and adventure. They can also mark the entrance into an area of interest. Gateways may have a significant impact on an individual's impression of a particular destination. This thesis provides arguments for using boating gateways into the Atchafalaya Basin (AB) region as the basis for a recreational framework that encompasses eight parishes.

A common theme that exists in all eight AB parishes is their boat launches. They represent public access points or "gateways" into the forested wetlands that identify the Basin. These gateways can have a significant consequence on visitor impression. Research on human environmental preferences justifies the preference for these boat launch settings. A framework is then constructed on the basis of these settings by applying organizational principles employed by Kevin Lynch. This organization facilitates human functioning within an environment.

The framework will be offered as a proposal for updating the 1999 State Master Plan (SMP) for the Atchafalaya Basin Floodway System (ABFS). A series of maps designed from color infrared aerial photographs will communicate the boat launch data to address arguments posed by Lynch and the preference studies. Vector and satellite maps will illustrate the framework within the eight parishes.

CHAPTER 1: INTRODUCTION

> "Nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences."
>
> Kevin Lynch, 1960

BACKGROUND

In March 1999, a state master plan was endorsed by the state legislature to improve water quality, public access, environmental weaknesses and recreation in the ABFS. This master plan, completed in April of 1998, reflects an evolution of changing attitudes and policies that have their origins in the 18th century. Events that occurred within the last century, such as the Environmental Revolution of the 1960s and the Stockholm Conference of 1972, contributed to a public awareness that saved the Atchafalaya Basin's (AB) natural resources. Years of compromising between private landowners, the State of Louisiana, United States Army Corps of Engineers (USACE), conservationists, preservationists and sportsmen shaped the future of the Basin. The SMP is the Basin's future. But is this future sustainable with respect to the Basin's natural resources? Do all the ideas presented in the 1999 SMP consider how people respond to the environment? How can changes in such a vast region be communicated globally for the intended uses? How will the SMP adapt to any changes made in the territory originally covered?

The master plan addresses 595,000 acres of the AB refered to as the Atchafalya Basin Floodway System (ABFS). This system is physically defined by east and west protection levees beneath U.S. Highway 190 (Figure 1.1). The AB, itself, spans 838,000 acres of forested wetlands that are bounded on the east and west by the protection levees and north and on the south by Simmesport and Morgan City, respectively. On July 6, 1999, Governor Murphy J. "Mike" Foster signed Act 920 that declared the responsibilities of various agencies and their role in executing the provisions outlined in the master plan (Gautreaux, 1999). Act 920, also known

as the Atchafalaya Basin Bill, also delineated on the use of federal and state funds. Since Act 920, subsequent legislation extended the scope of the master plan and Act 920 to eight parishes that encompass the Basin: Avoyelles, Assumption, Iberia, Iberville, Pointe Coupee, St. Landry, St. Martin and St. Mary Parishes (Figure 1.2).

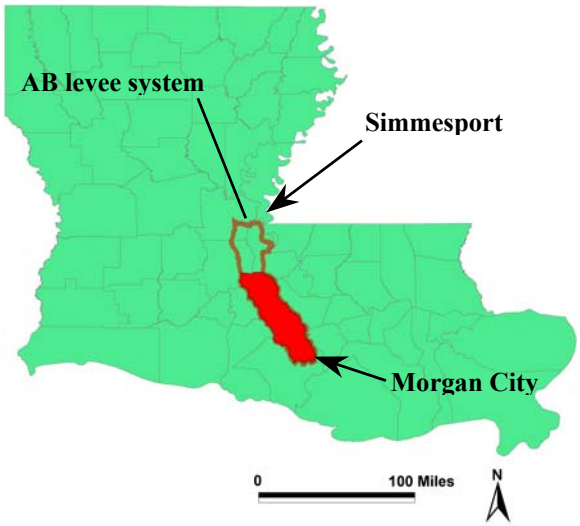


Figure 1.1: Coverage Area described in the SMP

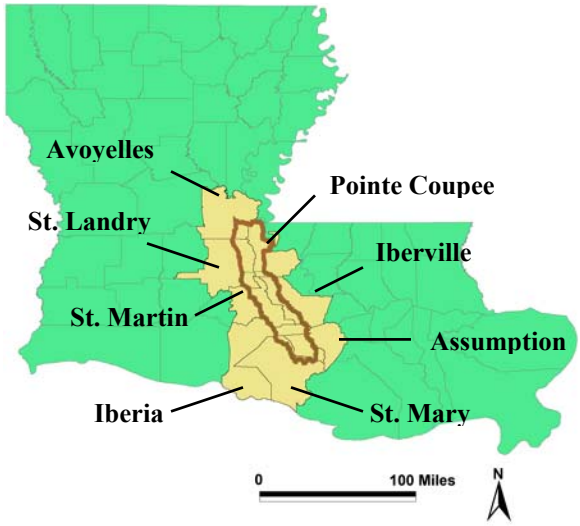


Figure 1.2: Expanded Coverage Area Authorized by Act 920 and Subsequent Legislation

PROBLEM STATEMENT

The master plan is still in its original form. Under the Memorandum of Understanding (MOU) signed in 1998, cooperative methods will be required by State of Louisiana and the USACE to structure the eight parishes into a unified entity. How can the 1999 SMP be adapted to the expanded territories? What theories should govern any techniques used to revise the SMP? Is there an efficient, easily modifiable procedure that landscape architects can employ to communicate planning schemes for diverse regions? How should a planning scheme for revising the SMP be communicated to the developers of the AB parishes? Is there an effective technique for communicating this scheme to users of the under-developed environments of the AB parishes that would promote recreation within it?

SCOPE

This thesis will address the eight AB parishes that were included in the 1999 SMP for the ABFS-Louisiana Project (ABFS-LP) per authorization by Act 920.

OBJECTIVES

A framework is necessary to simplify the continuously evolving complexity of property rights and land acquisitions issues associated with the Basin. This thesis attempts to establish a framework, initially, for coordinating the recreational improvements to the eight parishes, and then to establish a means of communicating public access within the AB region. This framework can be used as grounds for developing a revised SMP that would now include over one million acres of territory.

METHODOLOGY

The basis for the proposed framework is public boat launches. A boat launch is a type of gateway that allows passage from one realm into another. In the context of the AB, boat launches serve as gateways into and beyond the unique wetland environment associated with the Atchafalaya River flood plain. Very few roads penetrate the Basin. Interstate 10 is the only driving route that completely crosses the ABFS (Figure 1.3). Highways 975, 105 and 3177 offer partial circulation along interior Basin levees (Figure 1.3).

Roads provide limited access to areas of interest in the Basin and outer wetlands. Boat launches in this region are valued for their potential to provide access for rapid response to oil spills and pipeline maintenance (Figure 1.4) (Bender Jr. and Schultz, 2000; Hartman and Stacy, 2000). Most roads do provide vehicular access around the perimeter of the Basin's levees. Only watercraft can penetrate the majority of the Basin region. Therefore, recreation within the Basin

is primarily water-based. Public boat launches are a resource for experiencing recreational opportunities such as hunting, fishing, boating, bird watching and water sports.

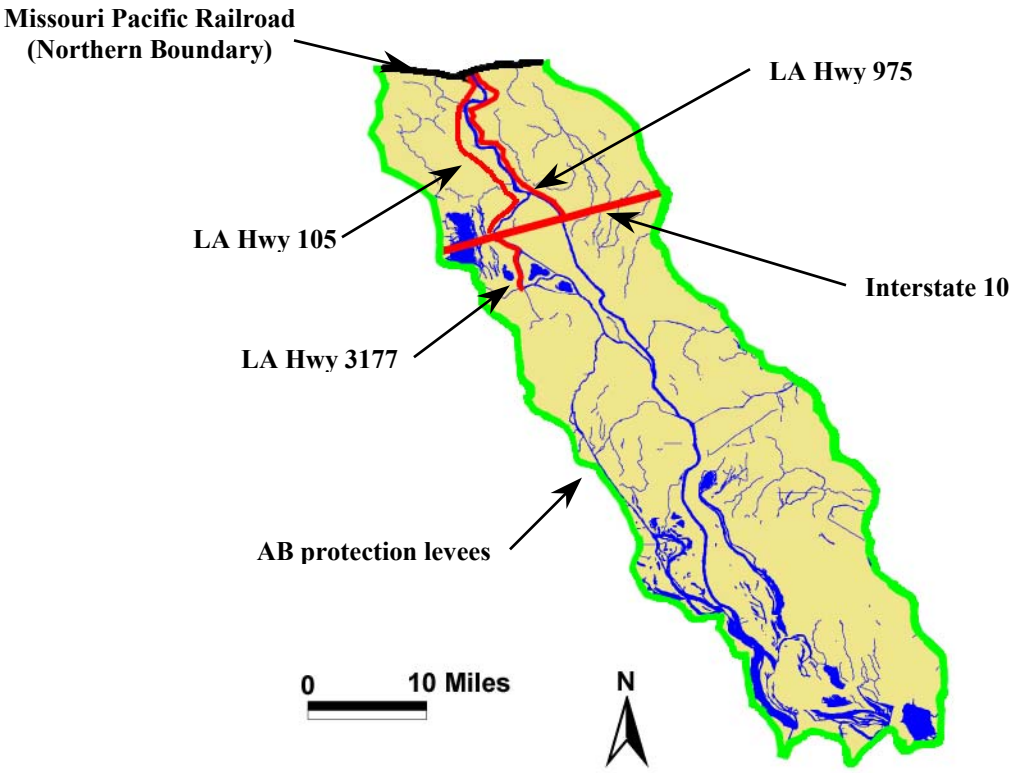


Figure 1.3: Vehicular Driving Routes that Penetrate the ABFS

Because boat launches serve as gateways into the Atchafalaya, their significance makes them worthy candidates for developing a framework for water-based recreation. Research by Rachel Kaplan and Stephen Kaplan, environmental psychologists at the University of Michigan in Ann Arbor, support the position that the launch settings can be very impressionable to visitors because of their content and spatial configurations (Kaplan and Kaplan, 1989). There are certain forms that organize these settings which influence peoples' behavior within that environment. Kevin Lynch (1934 – 1988), a former professor of city planning at the Massachusetts Institute of Technology (MIT), describes how these forms can stimulate an "environmental image" that people use to judge their ability to function within their surroundings (Lynch, 1960).

Figure 1.4: Pipeline Crossings Located in the AB Parishes

Objects that possess this energy, or "imageability", depict the legibility of an environment (Lynch, 1960). Human nature relies on finding patterns in their surroundings. Thus, an individual's preference for a particular setting is also dependent on the degree of legibility (Kaplan and Kaplan, 1989).

With respect to Lynch's theory, maps and tables were generated for this thesis to expose these influential forms in each parish. Nodes, Lynch writes, are points of concentration of a particular use. This use has a compelling effect on human behavior that radiates outward (Lynch, 1960). The boat launches, serving as gateways into the Atchafalaya's natural habitats, reflect the properties of nodes. The tables indicate all the nodes (boat launches) within each parish along with their corresponding paths (roads and navigable waterways) and additional location information. Vector and raster maps graphically illustrate these and other organization principles by Kevin Lynch and the framework for a revised SMP. Planners and designers can benefit from this framework to coordinate recreational improvements in the Basin.

A second set of maps was produced to address the Kaplans' analysis of environmental preference studies. The Kaplans devised the Preference Matrix, a framework for analyzing environmental preference test results. The Matrix provides researchers with a utility for interpreting why human test subjects preferred scenes that were dominated by nature (Hammit, 1978; Miller, 1984; Anderson, 1978) and open meadows with a definable depth (Woodcock, 1982; Anderson, 1978; Gallagher, 1977). The Matrix operates through an interaction of two domains. One is based on human needs and the second is dependent of the amount of readily available information. These lessons were incorporated into a unique form of cartography that systematically displays boat launch locations, towns, bodies of water, waterways, and major roads over color infrared (CIR) aerial photographs.

The photographs illustrate a reliable method for communicating areas of interest in highly vegetative regions (Anderson, 1971; Kim, 1974). These maps were originally produced in large-scale format to support visitor understanding and encourage exploration. They also provide immediate information about the integrity of the Atchafalaya region's landscapes and their gateways. Coordinate boat launch location data and their associated amenities are included on the CIR maps to successfully communicate water-based recreational opportunities to both domestic and international visitors. Smaller versions of these maps are included in the Appendix portion of this thesis.

CHAPTER 2: BACKGROUND LEADING TO THE SMP

INTRODUCTION

The popular view of this area once tapped for many of its natural resources (timber, minerals, wildlife) has now shifted to one of environmental awareness. This awareness is the culmination of a growing trend in the United States since the Environmental Revolution of the 1960s and global action, beginning in 1972 after the Stockholm Conference, to protect and respect the world's natural resources. One can only comprehend the birth of the AB Master Plan by realizing the events and circumstances that started American Environmentalism. This environmentalism stimulated cooperative efforts by state and federal governments to finance a restoration plan that would not only protect the AB but also promote the region as a valuable commodity for outdoor recreation and enjoyment.

Around the turn of the century, a major debate began between preservationists and conservationists. The former advocated protecting the wilderness from all except for recreational and education uses. The latter believed in using natural resources to their maximum potential in a rational and sustainable manner. The forerunner of the preservationist movement in America was the naturalist, John Muir.

THE ORIGINS OF ENVIRONMENTALISM

John Muir's legacy is the Yosemite National Park (1890); the first design that illustrated a conscious effort to protect a forested area in the United States. His philosophy reflected that of the British naturalist, Gilbert White, who wrote about his compassion for the natural surroundings in *The Natural History of Selborne*:

> "In the center of this grove there stood an oak, which, though shapely and tall on the whole, bulged out into a large excrescence about the middle of the stem. On this a pair of ravens had fixed their residence…so the ravens built on, nest upon nest, in perfect

> scrutiny, till the fatal day arrived in which the wood was to be leveled…the bird was flung from her nest…was whipped down by the twigs, which brought her dead to the ground."
>
> Gilbert White, 1788

White's letters are credited as transition point from the common belief that man's progress depended on scientific conquest over nature to the belief that man has a symbiotic relationship with nature. John Muir applied these principles to American environmentalism. Muir's beliefs are shared today by the Sierra Club, an organization he helped form. The Sierra Club is actively involved in restoring and protecting the AB. Conservationists, most notably, Gifford Pinchot, challenged Muir's preservationist approach.

Pinchot advocated the German tradition of protecting and managing forests with sustainability. The National Academy of Sciences sponsored a commission that recognized Pinchot's argument for using national forests as an economic opportunity (Worster, 1977). Contrary to Muir's beliefs, Pinchot believed that conservation was based on three principles: development (the use of existing resources for the present generation), the prevention of waste, and the development of natural resources for the many, not the few (McCormick, 1989). This approach was very utilitarian. However, not until the election of Theodore Roosevelt as president did Pinchot play an effective role in public policy.

ENVIRONMENTALISM IN THE FEDERAL GOVERNMENT

After Theodore Roosevelt became president, he named Gifford Pinchot as Chairman of the National Conservation Commission, which had been formed in 1908. Roosevelt remarked:

> "Gifford Pinchot is the man to whom the nation owes most for what has been accomplished as regards the preservation of the natural resources of our country. He led…the fight for the preservation through use of our forests"
>
> Theodore Roosevelt, 1913

The National Conservation Commission along with 36 state conservation commissions "was to prepare an inventory, the first ever made for any nation, of all the natural resources which underlay its property" (Roosevelt, 1913). The report, which was prepared in six months, was unanimously approved at the Joint Conservation Conference in 1908. This report also revealed that protecting natural resources should be an international concern. President Theodore Roosevelt had also supported John Muir's preservationist views by creating 53 wildlife reserves, 16 national monuments and five new national parks (Fox, 1981). However, President Roosevelt accepted the Gifford Pinchot philosophy of sustainable resources through effective management practices.

During the Theodore Roosevelt era, water conservation became a major concern with emphasis placed on the country's major river systems. Inland rivers were viewed as a national asset to the nation's economy. They provided inland transport, domestic and commercial water supply, flood and erosion control, and hydroelectric power. Roosevelt developed the Inland Waterways Commission (IWC) to propose a management plan that would oversee restoration and control over navigable rivers. Roosevelt extended this jurisdiction over inland waterways to include flood control, the prevention of erosion and siltation, and the construction of dams. Both Congress and the USACE did not favor the IWC. And in 1909, President William Taft took office and dismissed Roosevelt's conservationist ideals.

In the United States, environmental concerns diminished in the passing decades between 1910 and 1933 due to World War I and the Great Depression. In 1933, President Franklin D. Roosevelt rejuvenated the Pinchotistic view of conservation, which complemented the management philosophy of the New Deal. Pinchotism was a pillar in the nation's economic recovery, and the concept was embodied in the Tennessee Valley Authority (McCormick, 1989).

President Roosevelt wanted to enliven the spirits of many Americans by making public parks more accessible. This was a direct threat to preservationists who felt that any development would destroy the integrity of the wilderness. Then in 1941, public attention again shifted to the United States involvement in World War II. The rise of environmentalism did not become a major U.S. concern again until 1962, when Rachel Carson responded to the contamination of the environment by chemical pesticides and insecticides through her book, *Silent Spring*.

THE ENVIRONMENTAL REVOLUTION

Rachel Carson, a marine biologist by education, brought the hazardous effects of chemical pesticides and insectides from the scientific realm to the public arena. Viewed with much controversy, *Silent Spring* was published in 13 countries around the world. Not until President John F. Kennedy's Scientific Advisory Committee reviewed Carson's research, did the threats portrayed in *Silent Spring* become real (Brooks, 1972). *Silent Spring* also introduced a concern about the possible consequences of chemical hazards in the environment would have on humanity.

> "…chemicals sprayed on croplands or forests or gardens lie long in soil, entering into living organisms, passing from one to another in a chain of poisoning and death."
>
> Rachel Carson, 1962

Because of the global impact that *Silent Spring* had on environmental awareness, this book marks the beginning of the Environmental Revolution that lasted until 1970. In 1970, public policy began incorporating measures to save the environment as scientific evidence revealed the exhausted state of the world's natural resources. The highly emotional perspective on the environment in the 1960s shifted to a more rational, political and economic one in 1972, at the United Nations Conference on the Human Environment in Stockholm, Sweden (Stockholm Conference).

NEW ENVIRONMENTALISM

The Stockholm Conference gave a framework for addressing the evolved view of safeguarding the environment. The industrialized and developing countries that met at this conference were of the ecological view that the numbers of any species were limited by interactions with the environment, and that man was now part of this equation (Holdgate *et al*, 1982). The Conference marked the first global effort to survey, restore and protect the planet's genetic and natural resources. The meeting's greatest contribution was the creation of the United Nations Environmental Program (UNEP) (Holdgate *et al*, 1982). The framework that governed the UNEP is described in Figure 2.1.

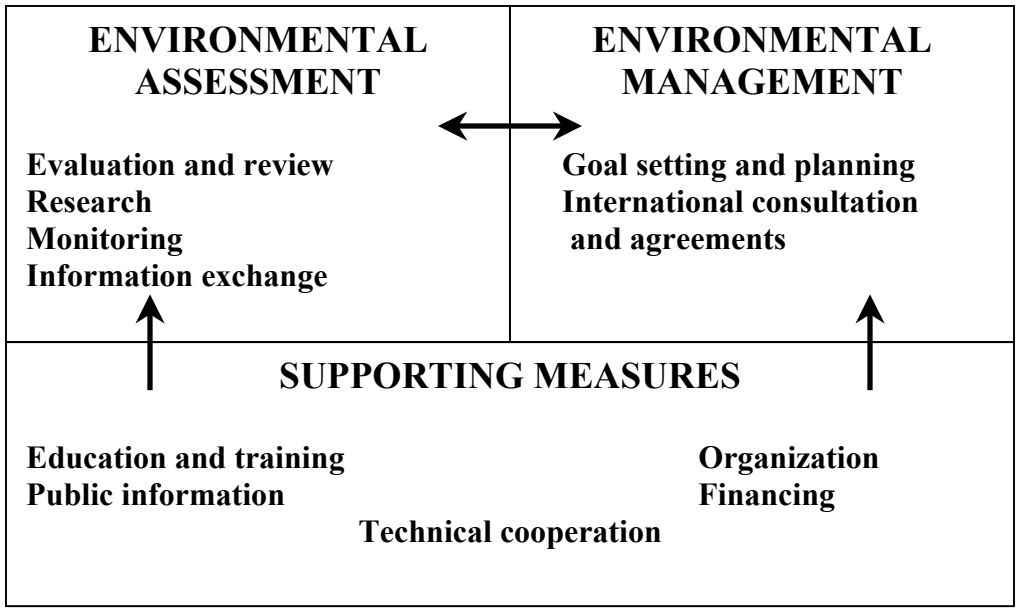


Figure 2.1: The Framework of the Stockholm Action Plan (UNEP, 1978)

The UNEP established the United Nations Environmental Secretariat that would govern an international referral system (now called INFOTERRA), which would house experts in particular disciplines concerning the environment. Governments worldwide can access

INFOTERRA to request assistance in evaluating their countries' current environmental conditions. The UNEP also created a fifty-eight nation Governing Council for the Program, a voluntary Environment Fund, and an Environment Coordination Board under the Chairmanship of the Executive Director of the UNEP, to oversee the cooperation among United Nations parties. 1970 was the dawn of New Environmentalism, and then the Stockholm Conference put this awareness into action.

ENVIRONMENTALISM IN LOUISIANA

Prior to Water Resources and Development Act

In the late 1960's, the progress of New Environmentalism appeared in Louisiana. In 1968, Governor John McKeithen established the Task Force on Parks, Recreation and Tourism. This group developed a program that would make the AB a national multi-purpose recreation area and boost Louisiana's tourism industry by $500 million (Reuss, 1998). Previously, the Basin was a floodway operated and maintained by the USACE. Aside from flood protection, the Basin was known for utilitarian importance in the sense that property owners and consumptive users exploited its natural resources with little regard to sustainability.

The USACE has been the steward of the nation's largest river swamp since the post-Civil War era. As a reflection of Theodore Roosevelt's conservative policy to federally manage flood control, the Flood Control Act of 1928 authorized the USACE to construct flood control structures to protect the lower Mississippi Valley. The USACE encountered many disputes among private landowners and commercial fishermen, but its plan prevailed, despite local criticisms, in order to preserve fresh water supplies for New Orleans and Baton Rouge as well as other smaller size communities ("Atchafalaya River Basin", 1995). For five decades, control structures were being built and upgraded by the USACE to divert the flow of the Mississippi

River into its main distributary, the Atchafalaya River. Not until the late 1960's, did a more Pinchotistic view begin to shape the AB's future.

In 1966, the USACE completed a preliminary master plan (Design Memorandum 33A) that included public access roads, parking areas, and boat launching ramps. Both the state and federal governments expanded on this plan by authorizing the leasing and/or purchasing of lands and territories to be dedicated exclusively for wildlife management areas and recreational purposes. These developments ushered in the era of New Environmentalism, not without extensive debate and conflict between the first, preservationists and conservationists, and the second, over the USACE's influence in the Basin. How could the Basin's natural resources be preserved yet oil and timber companies continue their active presence in the region? How could the State have a greater influence over the fate of the Basin while the USACE maintained jurisdiction over the Basin's flood control system?

The early efforts by Governor McKeithen to establish a national recreation area failed due to pressures of individual landowners and commercial fishermen, primarily crawfishermen. However, one compromise did arise. In 1972, both private landowners and commercial fishermen agreed to prepare a comprehensive plan for managing and preserving water and related land resources in the AB (Reuss, 1998). This Atchafalaya Basin Water and Land Resources Study were executed by the USACE in direct cooperation and consultation with relevant state and federal agencies including the Governor's Commission on the Atchafalaya Basin established in 1971. By 1972, the newly elected Governor Edwin Edwards shifted the state's responsibilities of the Basin to the Department of Public Works. Act 362 of the 1972 state legislature created the Atchafalaya Basin Division in the Department of Public Works.

During the Edward administration, the new division in the DPW pursued negotiations that led to the acquisition of the Attakapas Wildlife Management Area in 1978 (LA, DNR *et al*, 1997). In 1980, a new approach to real estate negotiating occurred. Governor David C. Treen, elected to office in 1980, completed a plan for the state to acquire land easements for public access that would satisfy landowners, conservationists and sportsmen.

Under the Treen Agreement of 1981, the state dedicated 450 acres of state-owned land, 150,000 acres of lakebed and navigable waterways that included the Attakapas Island Wildlife Management Area, and 30,000 acres of land donated by the Dow Chemical Company (ABMP, 1998) to the USACE's AB project. These lands offered public access for recreational uses but preserved the original landowner's ownership over the property and minerals (Treen, 1981). The easements also limited timber harvesting changed land use, silviculture and the development of permanent habitable structures (Treen, 1981). In 1982, the USACE implemented the Treen Agreement in the Feasibility Study for the ABFS-LP (LA, DNR *et al*, 1997). The Supplemental Appropriations Act of 1985 (Public Law 99-88) authorized the multi-purpose plan, designated as the ABFS-LP, in response to the Feasibility Study (Whitten, 1985). This Act identified the USACE as the lead federal agency responsible for implementing the ABFS-LP, in cooperation with the State of Louisiana. In 1986, the federal government strengthened the Corps' project by introducing a bill that would make the establishment of a unified recreational area in the AB an even greater success.

On October 17, 1986, Congress passed the Water Resources and Development Act, commonly known as WRDA (Public Law 99-662), which authorized approximately $16 billion for 377 different water projects, of which the federal government was to pay $12 billion (Howard, 1986). WRDA also recognized that the fish and wildlife enhancement features would

provide “national benefits”. During the McKeithen Administration, conservationists, private landowners and sportsmen disputed having the AB designated as a national recreation area. Now, these groups compromised on their opinions in regards to WRDA.

This Act has been amended in 1988, 1990, 1992 and 1996 to accommodate both federal and non-federal interests. The Water Resources and Development Act’s provisions are summarized in the following:

- It specifies the construction, operation and maintenance costs that non-federal interests are required to pay and the federal share of the cost for the overall project.
- It issues detailed cost sharing provisions for navigation projects for harbors and for inland transportation.
- It establishes an Inland Waterway Users Board composed of representatives from various regions of the U.S. The Secretary of the Army directs the Board.
- Authorizes the Secretary to direct studies for providing plans for developing, utilizing and conserving water and related land resources of the jurisdiction.
- Water resource projects should consider the quality of the total environment, including preservation and enhancement of the environment; the enhancement of national economic development; the well being of the people; the prevention of loss of life; and the preservation of cultural and historical values.
- Fish and wildlife losses must be mitigated when a project requires the acquisition of land or special interests within the land. An Environmental Protection and Mitigation Fund is available to appropriate $35 million for fiscal years beginning in September 1986.

- The Secretary of the Army will establish an Office of Environmental Policy in the Directorate of Civil Works of the Office of the Chief of Engineers. This Office will formulate, coordinate and implement all environmental quality-related matters and USACE-related policies. This Office will also establish, and monitor compliance with, guidelines for considering environmental quality in implementing and planning water resource projects.

WRDA itself is a modification other previous environmental acts such as the Clean Water Act of 1972; the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA) and the Water Resources Planning Act of 1965.

After Water Resources and Development Act

WRDA became a break through in environmental policy. The struggle for environmental awareness within the federal government was now put into action, as funds were allocated for conserving and preserving the nation's natural resources. Congress scheduled many specific projects to undergo WRDA's enhancement policies. In Louisiana, Congress viewed the AB as a national concern. Public Law (PL) 99-662 actually reauthorized and amended the ABFS-LP. It specifically authorized an initial spending of $223 million of federal funds to acquire approximately 315,000 acres of easement and 50,000 acres of to enhance the AB (Howard, 1986). In 1986, under the authority of WRDA, the U.S. Fish and Wildlife Service immediately began acquiring land for the Atchafalaya National Wildlife Refuge (NWR) (LA, DNR *et al*, 1997).

WRDA and supportive legislation, Supplemental Appropriations Act of 1985 (PL 99-88) and the Energy and Water Resources Development Appropriation Act of 1988 (PL 100-202) and 1991 (PL 100-514), altered the project goals of the USACE in the AB. In addition to flood

control, the Corps had "to preserve and restore the unique environmental values of the Atchafalaya Basin, and to provide public opportunity to observe and utilize the fish and wildlife resources of the floodway" (Morgan, 2000). Under the authority PL 99-662, PL 99-88, PL 100-202 and PL 100-514, the USACE's objectives were to acquire 338,000 acres for flood control and environment protection, 50,000 acres for public access (less mineral rights), restore historical overflow patterns to benefit fish and wildlife, and develop additional recreational features such as boat launches to support public access. In 1997, another Energy and Water Resources Development Appropriation Act (PL 104-206) appropriated the funds for constructing a boat landing and supportive facilities in Simmesport (Avoyelles Parish) as part of the recreation feature of the ABFS-LP (Myers, 1996). These laws reveal the significance that the Treen Agreement of 1981 had on land negotiations and ultimate acquisition in the AB and the ABFS-LP.

A major facet of WRDA and the Supplemental Appropriations Act of 1985 is the cooperation between state and federal agencies in the use of funds to protect and enhance the nation's natural environment. In 1996, the USACE requested Louisiana Governor Foster to appoint a lead agency to fulfill the Louisiana's responsibility in the ABFS-LP. In July of 1996, Governor Foster designated DNR as that lead agency to support the USACE's in designing "improvements for the enhancement and/or protection of the fish, wildlife and other resources of the project area, …and to manage, operate and maintain these features in accordance with the project purposes" (LA, DNR *et al*, 1997). In the same year, DNR formed the Atchafalaya Basin Advisory Committee (ABAC).

The ABAC consists of four Working Groups to address the main categories of the ABFS-LP: public access, environmental easements, and recreation and water management (Figure 2.2).

The Working Groups establish committees based on proposed projects. For example, the Recreation Working Group has appointed committees on communication, education, environmental, non-game birds and policy and planning (Caillouet Jr., 2001). In securing and defining the state's role in the ABFS-LP, eight state agencies signed a MOU on April 24, 1997.

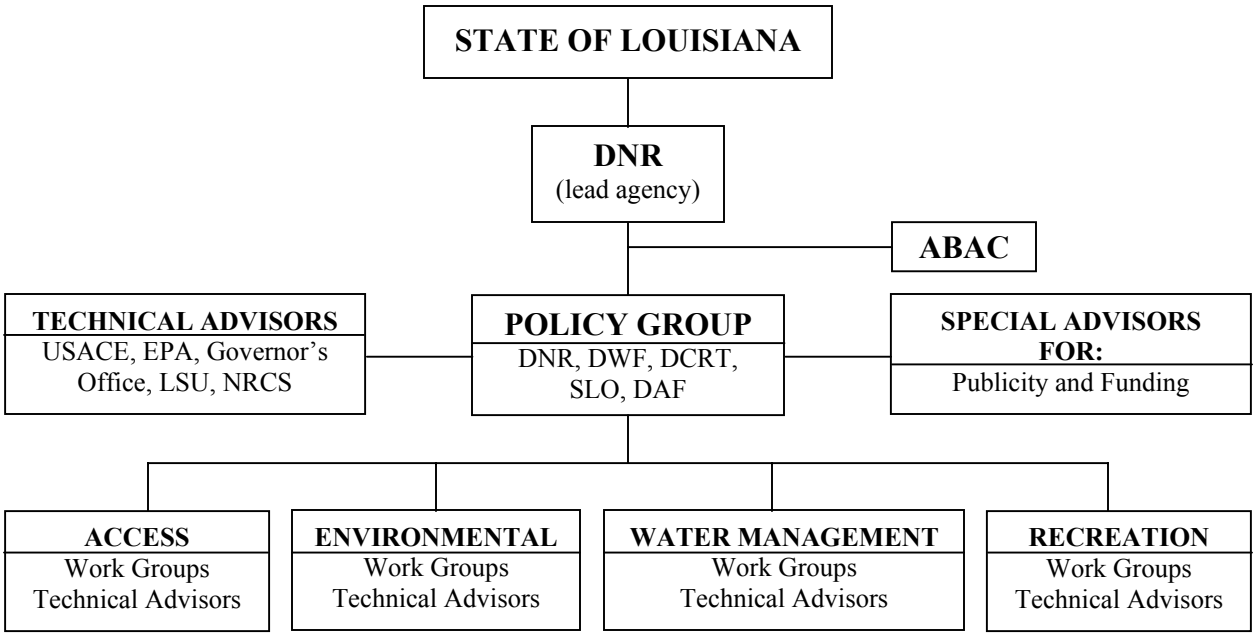


Figure 2.2: The Organizational Framework of the State's Cooperative Effort to Participate in the Implementation of the ABFS-LP (LA, DNR *et al*, 1997).

The MOU outlined the state's responsibilities as the non-federal sponsor in the implementation of the ABFS-LP (LA, DNR *et al*, 1997). An important duty of the state under the MOU was to "plan, acquire, construct, operate and maintain primitive and developed campgrounds, a visitor's center, boat ramps, nature trails and other facilities complementary to outdoor recreational activities within the Project area on 1500 acres of fee land". The state was also given a major role in dedicating, managing, operating and maintaining "portions of approximately 150,000 acres of additional state-owned lands and waterbottoms" and the state's 30,000 acres of Dow-donated lands for the purpose of public access. By this MOU and the

ABFS-LP, public access into the AB was also granted for the lands acquired under the Treen Agreement of 1981.

The MOU also expressed the need for a master plan that would promote the ABFS-LP statewide and to secure public and governmental support. From April 1997 to December 1997, the Working Groups of the ABAC, in cooperation with the USACE, developed a preliminary SMP for the AB to be presented to the state legislature, the Governor and the public (LA, DNR and USACE, 1998). In April 1998, after the preliminary plan was delivered to Governor Foster, he signed Act 3, which created the Atchafalaya Basin Program (ABP) within the office of the secretary of DNR (Gautreaux, 1998).

Act 3 placed the ABP as the governing body over all state responsibilities over the ABFS-LP. This legislation also stated that the "Atchafalaya Basin Advisory Committee is hereby established as an advisory committee within the Atchafalaya Basin Program." An Atchafalaya Basin Promotion and Research Board (ABPRB) was also established to oversee "the Program's duties and functions related to the Atchafalaya Basin Floodway System, Louisiana Project." The Act shifted the exclusive responsibility of developing the SMP from the ABAC to the ABP. Act 3 also defined the boundaries of the AB "as the area located within the guide levees of the Atchafalaya Basin and those areas directly adjacent to the levees bounded on the north by U.S. Highway 190 and on the south by Morgan City." The scope of the SMP, which was now being developed by the ABP, was defined with respect to the boundaries specified in the ABFS-LP.

The SMP put into perspective the features outlined in the original ABFS-LP that was developed by the USACE in 1985 (Whitten, 1985). In October of 1998, a second Memorandum of Understanding was signed by the USACE and the state affirming the cooperation by both

parties to protect and enhance the AB according to the new SMP (LA, DNR and USACE, 1998). This agreement formulated the cost sharing percentages between federal and non-federal sources with respect to five main concerns expressed in the SMP (Table 2.1). Funding the project became a reality as ongoing compromises among federal and state agencies, private organizations and the public.

Table 2.1: Cost-Share Percentages between the Federal and the State Governments to be Used in the SMP (LA, DNR and USACE, 1998).

	FIRST COST: PRIVATE LANDS		**OPERATION & MAINTENANCE**	
	FEDERAL	STATE	FEDERAL	STATE
PUBLIC ACCESS	100%	0	75%	25%
DEVELOPMENTAL CONTROL & ENVIRONMENTAL PROTECTION	100%	0	75%	25%
FLOWAGE EASEMENT	100%	0	100%	0
WATER MANAGEMENT UNIT, CANAL CLOSURE & CIRCULATION IMPROVEMENTS	100%	0	75%	25%
RECREATION	**50%**	**50%**	**0%**	**100%**

Act 920

On Tuesday, July 6, 1999, following unanimous approval by the state legislature, Governor Foster signed the Atchafalaya Basin Bill, Act 920 (HB No. 1262 of RS 1999). Act 920 authorized the ABP to begin work on Basin enhancement under the guidelines of the SMP (Gautreaux, 1999). The Bill summarized a 15-year schedule of funding for capital improvements that would be provided by the ABP. The 15-year plan's first phase would begin during the July 1, 1999 – June 30, 2000 fiscal year. State agencies, in partnership with the ABP,

conducted the first phase of projects that involved collecting baseline survey data of existing site conditions. The phase included recording existing timber type and quantities by the DAF, surveying existing structures on state lands by the SLO, testing water quality and habitat by LSU, and locating all publicly accessible boat launches by the Louisiana Sea Grant College Program (Sea Grant) (ABP, 2003).

The framework for Act 920 was the SMP that had undergone its final revision in June 1998. However, the SMP was restricted to "595,000 acres of the Basin south of the Missouri Pacific railway tracks (at U.S. 190)" (LA, DNR *et al*, 1998). Act 920 did provide an inclusion clause that would extend the provisions of public access, environmental easements, water management, and recreation described in the SMP to additional lands:

> "Any project proposed for inclusion that is not in the state master plan shall first be reviewed, studied and analyzed pursuant to a concurrent resolution of the legislature. Any such concurrent resolution shall provide for a one-year review, study and analysis, which shall include the proposed capital cost of operation and maintenance of such project. The board (ABPRB) may consider the proposal and if approved the results of the concurrent resolution will be considered at the next Regular Session of the legislature and provided that adequate capital, operation and maintenance funding are made available, the project will be included in the capital improvement program."
>
> Rep. D. Gautreaux, 1999

Since Governor Foster signed Act 920 into law, proposals have been accepted by the ABPRB to include the entire parishes of Avoyelles, Assumption, Iberia, Iberville, Pointe Coupee, St. Landry, St. Martin, and St. Mary in the SMP. From a geological standpoint, the AB was actually formed by the alluvial ridges of the fluctuating Mississippi River. The edges of the Basin were once Bayou Teche on the west side and Bayou Lafourche on the east (Figure 2.3). The eight parishes that were incorporated into the design of the SMP were well inside these former boundaries.

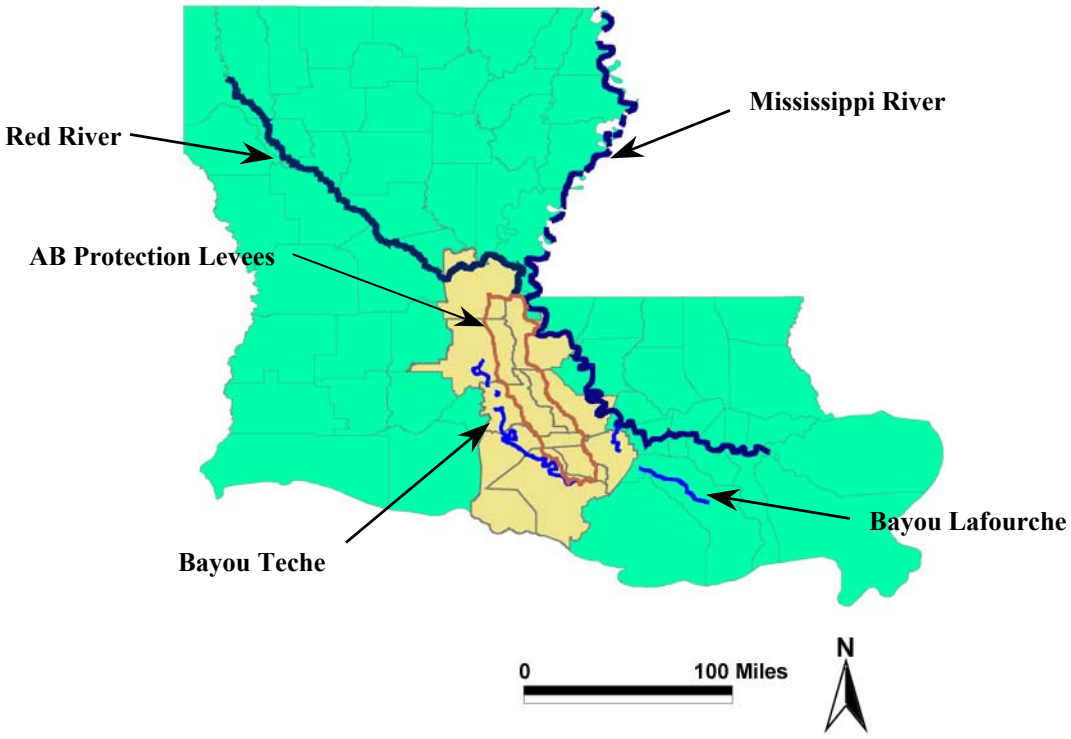


Figure 2.3: Historic Boundaries of the Atchafalaya Basin.

Today, USACE has reduced the natural size of the Basin with a network of flood protection levees. Organizations that supported the inclusion of all eight parishes realized that there were significant support facilities and structures outside the protection levees that complemented the recreational experiences that are unique to the AB. Current developments that portray the AB ambiance outside the protection levees include: Duchamp Opera House renovation in St. Martinville; Lake Martin improvements in St. Martin Parish; Eagle Point Park construction and Marshfield Landing upgrade in Iberia Parish; and bank stabilization, interpretive center construction and Lake End Park improvements along Lake Palourde (Caillouet Jr., 2001). One of the most influential organizations that has supported the regional extension of the SMP was the Atchafalaya Trace Commission (ATC).

The ATC was organized under Act 1440 (HB No. 2231 of RS 1997) to promote the AB as a heritage corridor. The Trace Commission recognized that the AB "with its adjacent lands and communities, is a place where natural, scenic, cultural and historic resources combine to form a cohesive, nationally distinctive landscape arising from patterns of human activity shaped by geography" (LeBlanc, 1997). The ATC extended their coverage area to an additional five parishes because their communities were consistent with the heritage associated with the AB environment (Figure 2.3). The ATC is currently lobbying for "National Heritage Area" designation of the 13 parishes. The ATC, an agency within Department of Culture, Recreation and Tourism, works in cooperation with the ABP to promote nature-based and culture-based recreation in the AB (LSU, 2002).

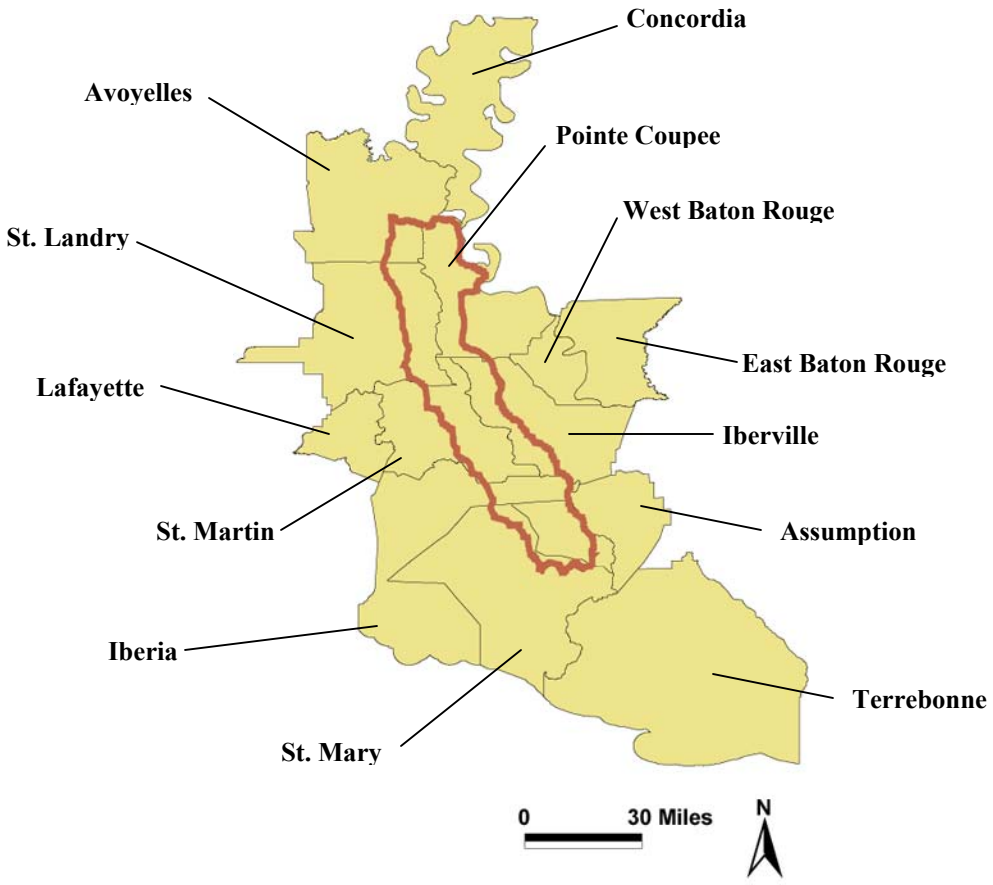


Figure 2.3: The 13 Parishes of the Atchafalaya Heritage Area

Various interest groups have sought to expand the coverage of the SMP from its original boundaries. Having already obtained the 50,000-acre limit for public access in the AB, the USACE, with the full support of the ABP, is lobbying to remove the Congressional cap (Caillouet Jr., 2001). Considering the growth that environmentalism has undergone to produce an acceptable SMP for the ABFS-LP, Congress is expected to remove this cap (Warden, 2002). However, the SMP, in its current condition, lacks a comprehensive organization or framework for accomplishing its objectives within its new eight-parish boundary. A literature review is provided to expose methods for guiding designers and relevant agencies who should consider updating the SMP for the AB.

CHAPTER 3: LITERATURE REVIEW

"Architecture is the Triumph of the Human Imagination over materials, methods, and men to put man in possession of his own Earth. It is at least the geometric pattern of things, of life, of the human and social world. It is at best the magic framework of reality that we sometimes touch upon when we use the word 'order'."

Frank Lloyd Wright 1930

INTRODUCTION

Designers of all fields produce a framework for guiding their ideas. In corporate finance, accountants use a framework to design credit assessment and transaction designs (Terry, 2000). Geologists use a framework for hydrogeologic sampling design that would assess agricultural pesticides in ground water (Lindsey, 1999). Rachel and Stephen Kaplan, environmental psychologists, use a theoretical framework for assessing human environmental preferences (Kaplan and Kaplan, 1989). Landscape architects establish frameworks to determine logical relationships between their concepts and the built and natural environments. I am proposing a framework for organizing the ABP's recreational promotion ideas as outlined in the SMP. This framework is structured by the publicly accessible boat launches that are located throughout the eight Basin parishes, and thus serve as gateways into the region's unique wetlands.

Because of the wetland nature of the Basin, most of the associated recreation is water-based. I considered two theoretical models for developing a framework. The first model is based on human environmental preferences that were investigated by psychologists, Rachel and Stephen Kaplan. They developed a "Preference Matrix", an engine for analyzing human preference scores for observed environmental settings. The second model is based on Kevin Lynch's theories that are portrayed in his book, *The Image of the City*. His studies reveal the

physical forms found in a city's environment that guide human behavior, which can also be applied to this study.

HUMAN RESPONSE TO THE EXTERNAL ENVIRONMENT

In 1970, Rachel and Stephen Kaplan began assessing various studies that had been conducted on human environmental preferences. In most of these cases, test subjects were shown a series of photographs or slides of real environments. Human responses to two-dimensional representation were similar to responses within the actual depicted setting (Kaplan and Kaplan, 1989). Whether or not the images were in color also did not prove to be a significant variable (Kaplan and Kaplan, 1989). The various experiments required that the test subjects rate various qualities about each scene. The Kaplans assembled human preferences based on two criteria: preferences based on content and preferences based on spatial configuration.

Preferences Based on Content

People rely on visual information. The environmental content of a scene can stimulate human emotions or associated information. People can have preconceived ideas about an overall experience based on the immediate information being observed. The sight of a particular environmental scene such as water can evoke other kinds opportunities such as fishing, swimming, or boating. What impact could a boat launch scene have on a visitor's impression of the entire Basin?

Studies on content-based reactions indicate that the test subjects prefer settings that illustrate nature as the dominant entity especially near waterscapes (Kaplan and Kaplan, 1989). In two particular studies, a built structure was the focal element situated harmoniously within a natural setting (Hammitt, 1978; Miller 1984) (Figure 3.1). Other research has documented that

completely built environments such as industrial scenes (Husspeth, 1982) (Figure 3.2) and heavily manipulated landscapes (Anderson, 1978) (Figure3.3) were ranked highly unfavorable. If design improvements were to focus on boat launch sites, development must complement the natural settings.

Figure 3.1: Hammitt's Boardwalk Scene. The setting reflects a built structure that does not dominate the overall image.

Figure 3.2: Husspeth's Highly Industrial Scene

Figure 3.3: Anderson's Heavily Manipulated Landscape

A boat launch located in the Basin parishes should complement its immediate surroundings or even address an experience that is offered at the location. This does not imply that boat launches located in Avoyelles Parish should resemble boat launches in St. Mary Parish. On the contrary, the landscapes should be preserved to portray a unique impression of the local area (Figures 3.4).

Alabama Bayou

Whiskey Bay

Old River

Grand Avoille Cove

Figure 3.4: Boat Launches that Complement Their Local Landscapes

Preferences Based on Spatial Configuration

Human functioning is dependent on relative orientation. People are constantly evaluating their surroundings for relevant information that contributes to level of comfort or safety. Distinctions within an environment such as smooth ground textures and trees help humans to comprehend depth and functioning capabilities.

Research conducted on human response to spatial configurations reveal that people prefer open scenery with a definable depth determined by tree locations (Woodcock, 1982; Anderson, 1978; Gallagher, 1977) (Figure 3.5). People ranked open settings lacking a sense of depth as

highly unfavorable (Ellsworth, 1982). Images that confined a viewer's operation within a scene or restricted visibility due to dense vegetation were also highly unfavorable (Woodcock, 1982; Gallagher, 1977) (Figure 3.6).

Figure 3.5: Anderson's Scene of Open Scenery with a Definable Depth

Figure 3.6: Gallagher's Scene of a Blocked View

These results can guide designers to the level of development associated with boat launch restoration and development. Most of the existing launches exhibit open views along bayous, framed viewpoints, and a sense of depth; all are established by vegetation (Figure 3.7). Human behavior is coordinated by both environment and a person's position within it. The Kaplans analyzed this behavior by studying patterns that are consistent with all humans, regardless of personal differences. From their analysis, the Kaplans created *The Preference Matrix*.

Atchafalaya Campground

Figure 3.7: Trees and Topography Create Open Views and Depth

The Preference Matrix

The Preference Matrix is a framework for analyzing preference data. It consists of two domains: one based on human understanding and exploration and the other based on degree of inference.

First Domain: Understanding and Exploration

- Understanding: Human preference is partially dependent on knowledge about the objects being observed. Preference is greater when comprehension is facilitated.
- Exploration: Scenes are preferred when they encourage exploration. Humans thrive on acquiring new information about their surroundings. More information supports the ability to function within a particular setting.

Environmental attributes have a stronger tendency to influence understanding and exploration than a person's previous experiences. Effective communication of public access into the Atchafalaya waterways would address the first domain of the matrix. If public boat launches offer a means of experiencing recreation in the Basin parishes, then a comprehensive map, for instance, illustrating the launch locations would facilitate a regional awareness. If the map were also to reveal boat-accessible waterways and associated recreational opportunities, then the map might encourage further exploration well beyond the launch sites.

Second Domain: Degree of Inference

Humans acquire immediate information two-dimensionally about a particular scene; very little inference is required (Figure 3.8). As an observer comprehends the depth of the scene three-dimensionally, he begins to interpret information based on obscure or distorted objects (Figure 3.9). People tend to prefer scenes in which information is immediate. This particular domain appears to be an artifact of using photographs and slides for the psychological

assessment. If photos were used to generate maps of the Basin parishes, the images should possess enough contrast to make components distinct. Labeling can be used to amend any ambiguity.

Less Inference

Figure 3.8: Launch on the Atchafalaya River

More Inference

Figure 3.9: Launch on Bayou Courtableau

The Preference Matrix uses an integration of the two domains to generate patterns that can be measured to explain which settings are more prone to human preference. Each scene evaluated revealed varying levels of Coherence, Legibility, Complexity and Mystery. The most influential of these patterns were Legibility and Mystery. An environment that is well structured to alleviate any disruption of human functioning or survival is legible. Kevin Lynch presents his theories on legible environments in his book, *The Image of the City* that will be discussed later in this chapter. The Kaplans discuss another major facet of preferred scenes to be Mystery:

> "This informational factor also involves promise, but here it is the promise that one could learn more. Something in the setting draws one in, encourages one to enter and to venture forth, thus providing an opportunity to learn something that is not immediately apparent from the original vantage point…Partial obstruction, often from foliage, end even modest land-form changes can enhance this sense of Mystery."
>
> Rachel and Stephen Kaplan, 1989

Mystery and legibility are the dominant contributors to highly preferred natural environments. Legibility offers confidence to the visitor as their surroundings become organized. Therefore, their ability to function safely within an environment is enhanced. Legibility encourages understanding, and Mystery encourages exploration.

Most of the boat launches surveyed in this study exemplify the preferred settings described in the Kaplan research. The key to understanding their preferences lies in their Legibility and the Mystery of their surroundings. However, the AB environment is mostly wilderness. GIS and color infrared aerial photography (CIAP), a common remote sensing technique, offer a means of interpreting and acquainting oneself with the entire AB region quickly and accurately before traveling to the area. The availability of CIAP facilitates human comprehension of the region, and therefore, supports an environmental preference according to the Preference Matrix.

COLOR INFRARED AERIAL PHOTOGRAPHY

CIAP is a form of remote sensing often used to interpret data over highly vegetative areas. *Remote sensing* is the most popular means of raster data capture that measures the physical, chemical, and biological properties of objects on earth without direct contact. Urban and regional planners have been using remote sensing devices for land use classification since the early 1970's (Anderson, 1971). Aircraft and satellites are the two most common platforms for remote sensing devices. In raster data collection, real-world objects are translated into "pixels" or picture elements that have digital numbers encoded (Sabins Jr., 1987). These digital numbers are interpreted by Geographic Information Systems (GIS) software to allow users to access the image data. GIS applications often involve using raster data models as backdrop map displays for analyzing large territories (Longley *et al*., 2001). NASA has shown that raster

images, georectified from color infrared (CIR) aerial photographs, can be essential in crop management (Blazquez and Horn Jr., 1980). The images can document tree production, trees of different sizes, healthy trees, replacement trees needed for two years from the date of photograph, missing trees and dead trees. Locally, CIAP has been proven more effective that color and black-and-white aerial photography in mapping soil types in the AB (Kim, 1974).

The greatest assets of CIAP are its haze-penetrating ability and its sensitivity to near-infrared radiation that is emitted by healthy vegetation (Kim, 1974). CIAP film is sensitized to green, red and near-infrared spectral bands when a filter is used to eliminate undesirable, highly scattered, spectral energy (Tarkington and Sorem, 1963; Heller, 1970). Chlorophyll, the green pigment found in leaves, reflects energy in the near-infrared range (0.8 microns to 1.4 microns) (Figure 3.10). This light is normally not visible to the human eye, but special dyes in the color infrared film render green objects as blue, red objects as green, and objects reflecting near infrared radiation as red (LOSCO, 1999).

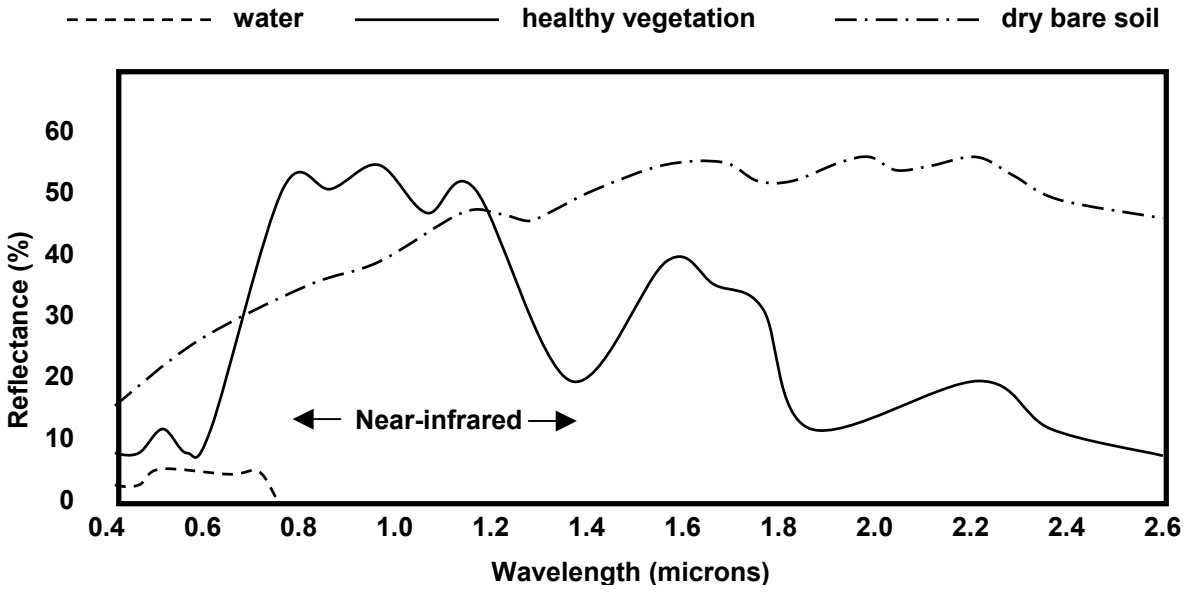
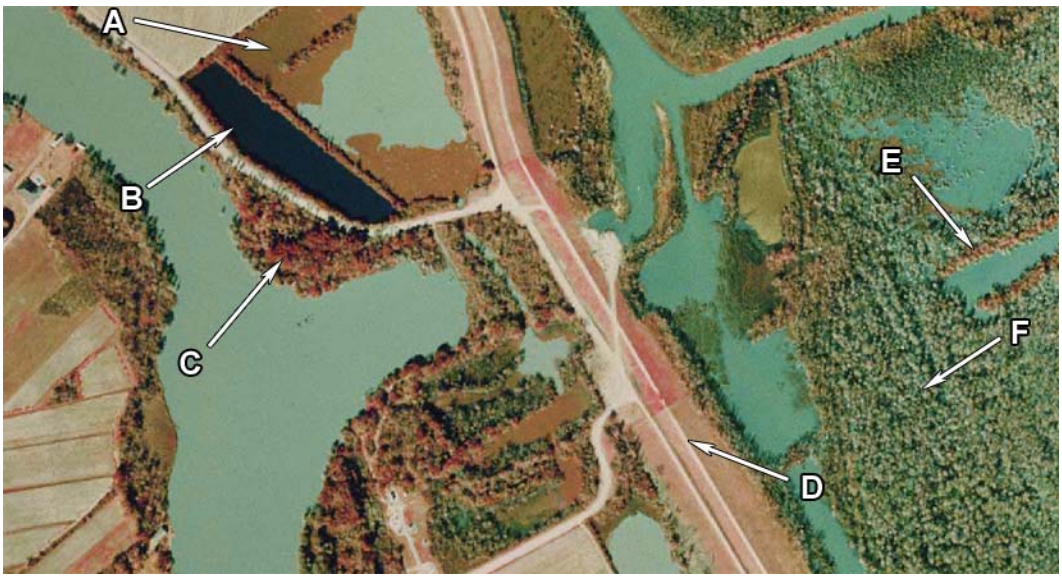


Figure 3.10: Reflectance of Typical Land Covers (reproduced from Longley *et al*, 2001)

Healthy vegetation will appear dark red versus degrading vegetation that will appear pink (Figure 3.11). The appearance of water may vary in color infrared imagery due to depths and the presence of floating vegetation and suspended matter (LOSCO, 1999; EROS, 2002) (Figure 3.11). CIAP can help illustrate an effective means of exposing boat launches located in the labyrinth of dense vegetation and waterways that are found in the eight Basin parishes.



A – Floating Vegetation
B – Stagnant Water
C – Healthy Trees
D – Levee Road
E – Degrading Vegetation
F – Unhealthy Vegetation

Figure 3.11: CIAP Illustrating Color Variations Among Land Covers

Exposing the overall integrity of the wetlands and associated development in CIR aerial photographs would encourage human exploration and movement and supply immediate information, thus supporting the Preference Matrix. The boat launch sites, complemented by the maps depicting them, conform to the Kaplans' human preference research. The Kaplans focused on what humans preferred in a particular environmental scene, but in the context of the AB, are there physical patterns that organize these boat launch scenes which, in turn, would promote

understanding, exploration and degree of inference? Can these preferred scenes be organized into a conglomeration of preferred environments? Will this organization influence human behavior?

ENVIRONMENTAL INFLUENCES ON HUMAN BEHAVIOR

People strive to pattern their surroundings in order to function and survive. A successful framework should not only be dependent on settings that people prefer, but also how the environment coerces people to move through it. Human movement or ability to function within a particular environment is dependent on an individual's impression of his surroundings. Past experiences and ability to pattern surroundings influence an individual's overall impression of the exterior world (Lynch, 1960). Kevin Lynch describes a phenomenon called "imageability"; it is an object's potential to create a generalized mental picture of the exterior physical world that is held by an observer. According to this theory, the journey to a preferred setting such as a boat launch site, contributes to the preference for that domain. The descent down a levee to a boat launch that further descends into a bayou lined with 50-foot cypresses evokes strong images of passage, tranquility or escape. A particular setting, like this one, can have emotional and practical importance to an individual based on his impression, which Lynch refers to as an "environmental image".

Components of an Environmental Image

In *The Image of the City*, Kevin Lynch classifies the components of an environmental image into three categories: identity, structure, and meaning. Identity is the attribute of an environmental image that gives it its own distinction. This component allows people to discriminate a particular object from surrounding objects. In the context of a boat launch, the identity is the conglomeration of all parts that constitute the launch: the ramp, the driveway, the

wharf, the cleats, and even the surroundings. Structure is the component that reflects an overall pattern the object possesses to give it spatial orientation in relation to its surroundings and to the observer. The structure of a boat launch is composed of the individual components and their arrangement in space. The boat launch structure is adjacent to vegetation and water, it is inclined, and it is wide enough to accommodate boats and their trailers. Meaning refers to objects being impressionable to the observer, whether practical or emotional. This concept is unique to each individual. To some, a boat launch could suggest fishing; to others, it could suggest an escape from urban pressures and stress. These environmental images are crucial to human survival as they are used to pattern an individual's surroundings (Lynch, 1960). In general, Lynch writes that a good environmental image is one that is distinctive and legible; it will not only offer security but also heighten the potential depth and intensity of human experience.

Criteria for Establishing a Good Environmental Image

Kevin Lynch describes a set of guidelines for developing an environmental image that will provide an observer with sufficient orientation in the living space:

- A map should be adequate for an individual to function within his environment to the desired extent.
- A map should be designed to enable an individual to return home.
- A map must be comprehensible.
- A map should promote safety.
- A map should allow alternative actions to occur and even encourage them.
- A map should be adaptable to change to allow future investigation.
- A map should be communicable to other individuals.

These guidelines address how a framework needs to be legible. A framework must be sensitive to human functioning and movement within an environment. Maps should guide a user through scheduled routes in order to perceive a good environmental image. Humans sense anxiety when their stability and survival is threatened by disorientation (Lynch, 1960). Human's ability to function is dependent on the imageability of an individual's surroundings. An observer will perceive an environmental image derived from five physical forms that influence imageability: paths, edges, districts, nodes and landmarks.

Influencing Imageability

In *The Image of the City*, Lynch demonstrates his theory of paths, edges, districts, nodes and landmarks in affecting imageability within a city. These elements help organize a city into a recognizable, livable pattern. Lynch recognized these patterns in cities such as Boston, Jersey City, and Los Angeles. However, these same principles can be applied to the AB. Lynch describes a city as,

> "an object which is perceived (and perhaps enjoyed) by millions of people of widely diverse class and character, but it is the product of many builders who are constantly modifying the structure for reasons of their own. While it may be stable in general outlines for some time, it is ever changing in detail. Only partial control can be exercised over its growth and form. There is no final result, only a continuous succession of phases."
>
> Kevin Lynch, 1960

As conveyed in the previous chapter, the AB is also a realm of constant manipulation and diversity. Many groups have shaped the current condition of the Basin and are still molding its future. The richness of the AB's ecosystems serves many purposes, from being a valuable natural resource for the harvest of timber and minerals to a habitat for wildlife to a place to recreate. The framework for this study will address the following environmental attributes to structure a feasible pattern for water-based recreation and support structures.

Paths

The environment is arranged around paths. They guide human movement through a particular setting. Paths can have a strong impact on an environment's imageability, thus significantly affecting human behavior. People are extracting information from their surroundings as they venture on paths. In the vicinity of boat launches, these paths can actually be highways, interstates, gravel roads or even the waterways depending upon the location of the observer. Advocates of the SMP should consider how impressionable these paths are to visitors. Roads especially along levees should be seen as strategic targets for signage, welcome centers, interpretive centers, restoration, plantings or even coordinating scenic routes devoted to Basin recreation (Figure 3.12).

Gravel path near Grand River

Bayou Path near Lake Bigeux

Figure 3.12: Paths in the Basin Region

Edges

These are boundaries between two distinct zones. The distinction could be made by linear elements or changes in vegetation. Edges represent an interruption in the continuity of a particular area. They are important organizing elements that people require to function within an area, especially a generalized area. Edges are extremely significant in differentiating

ecosystems, agriculture and populated communities in the AB parishes. Levees, vegetation, waterways, and even junctions between towns and farmlands all form edges (Figure 3.13).

The District

The Edge

Figures 3.13: New Roads is a District with a Distinctive Edge

Districts

These are the areas defined by the edges. Districts have a commonality that defines them as a unique environment. They are indefinable from the inside; therefore, they can be used as an exterior reference if visible externally. Districts are recognized from edges. Krotz Springs, Morgan City, New Iberia, St. Martinville, New Roads, and Marksville are all examples of towns whose edges are contrasted by outer natural settings (Figure 3.13).

Nodes

These are the focal points along paths. Nodes represent a transition point from one region of homogeneity to another. They can also act as points of concentration for a particular use. Their influence often radiates towards the edges of a district. Most boat launches act as nodes in the Basin parishes. If a visitor knows the location of a particular launch, he senses the

growing intensity as he approaches the launch site. The paths and the edges of the districts both add expectation and flavor to an arriving visitor.

> As a fisherman eagerly exits Interstate 10 at Whiskey Bay, he crosses through the edge of the Sherburne Wildlife Management Area. Tall reeds, ferns and bottomland hardwoods define the edge. A paved road that becomes gravel further defines this edge. Heading north on Highway 975, the driver passes along a winding levee that parallels the road. Forested wetlands accent the east side of the road. After a few miles, he approaches a tributary path leading over the levee. Now, vegetation surrounds him and the road. As he drives toward the end of the path, trees begin to thin. The fisherman notices a break in the tall reeds of grass that have accompanied him since he entered this district. There, bathed in sunlight, lies an opening, a gateway, an opportunity. He backs his truck, boat, and trailer down the gateway and into the water. He checks his fishing gear, camera, food and beverages. The driver, now boater, begins a new adventure down the Atchafalaya River, the next path (Figure 3.14).

The Path

The Node

Figure 3.14: Boat Launch in Sherburne WMA Leading into the Atchafalaya River

Landmarks

These are objects that are viewed externally by an observer and used as a reference point. People often use landmarks to guide them, especially in undeveloped territories. Landmarks are visual clues that support the identity of a district when viewed from a distance. Throughout the

Basin, people may use billboards, Department of Transportation signs, communication towers, electricity towers, bridges and even notable trees as landmarks (Figure 3.15).

The Landmark

Figure 3.15: The Twin Bridges Connecting Morgan City and Berwick

Landmarks can be used to support the first domain of the Kaplan Preference Matrix, understanding and exploration. Currently, there are few prominent landmarks in the AB parishes that would be essential to constructing a framework. Some visitors may use certain objects as landmarks within the environment where others may not (large oaks, plantation homes, radio towers, etc.) The Communication Committee of the Recreation Working Group, division of the ABAC, can adopt a series of consistent landmarks to aid visitors in locating nodes of interest. Landmarks would prove to be a useful device due to the relative flat topography of the AB.

Kevin Lynch argues that the meaning of these forms could be altered depending on the current situation or the person viewing it. The Kaplan and Kaplan research offers a profound perspective on an observer's environmental image to a given setting and its components. Planners and designers should consider that environmental images are products of a reciprocal process between people and their surroundings. Boat launches located throughout the Basin can be the strongest comprehensive entity to provide substantial influence on tourists' impression of the surrounding environment.

CHAPTER 4: METHODOLOGY

DATA RETRIEVAL AND PREPARATION

Before conducting any field reconnaissance, I investigated various authorities for any available lists that document the locations of publicly accessible boat launches within the eight parishes. The primary sources are, but not limited to, the following: the Louisiana Department of Wildlife & Fisheries, USACE, DNR, Sea Grant, the Louisiana Oil Spill Coordinator's Office (LOSCO), the Atchafalaya Basin Levee Board (levee board) and parish offices for tourist commissions. I used Internet Geographic Information Systems (GIS) (<http://www.topozone.com>) and a road atlas to track the approximate point locations of the boat launches provided. If inconsistencies in the data occurred, I scanned over CIR aerial photographs to analyze a designated area. The CIR aerial photos can be obtained from <http://atlas.lsu.edu/doqq/> in the form of digital orthophoto quarter quadrangles or DOQQs. Each DOQQ covers approximately four miles horizontally and four and a half miles vertically with each pixel, or block of light on the photograph, representing three square feet on the ground. CIR aerial photos illustrated strong color contrasts between vegetative and non-vegetative areas such as buildings, streets, and boat launches. During the scanning process, new boat launch sitings occurred which I then documented and mapped in the manner described previously.

FIELD RECONNAISSANCE

I performed a field reconnaissance on every documented and undocumented boat launch. I conducted a ground survey on all boat launch locations using a portable Garmin Global Positioning System (GPS) 76 marine navigator. After initializing the GPS, I programmed it to receive UTM (Universal Trans Mercator) coordinates in the form of waypoints configured to the NAD83 (North American map Datum, 1983). The GPS acquired at least six satellites before

recording a waypoint. The readings are automatically differentially corrected using a Wide Area Augmentation System (WAAS). WAAS performs differential correction while a surveyor is in the field (Yeazel, 2001). The system operates through a network of 25 wide area ground reference stations (WRSs). These stations positioned across the U.S. continuously monitor GPS satellite data. These WRSs determine if errors exist in the GPS data (clock and satellite orbit clock drifts, ionospheric and atmospheric disruptions) and relay this information to two wide area master stations (WMSs). The WMSs calculate corrected algorithms and send a correction message to a geosynchronous satellite (fixed position over the equator) through a ground uplink system. This information is then broadcasted on GPS frequency down to portable receivers with corrected GPS data. Accuracy is about three meters (Garmin, 2003). The WAAS system is summarized in Figure 4.1.

1. **GPS satellites send data to WRSs.**
2. **WRSs locate errors in data and then transmit info to WMSs.**
3. **WMSs calculate corrected messages that are sent to a second satellite.**
4. **This satellites broadcasts the corrected data on a GPS frequency to portable receivers.**

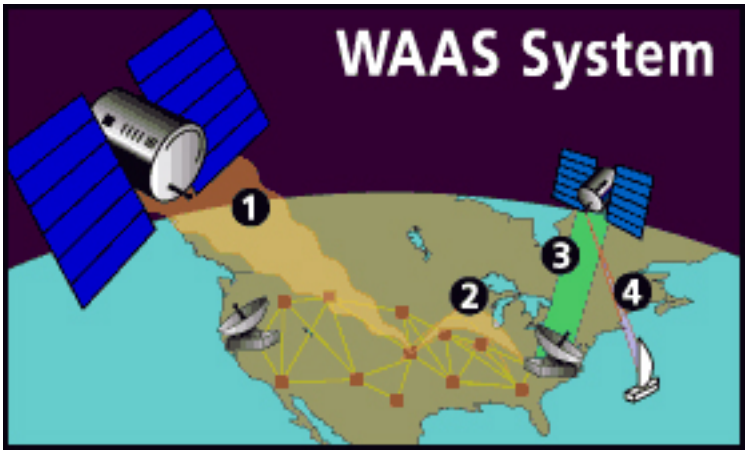


Figure 4.1: Differential Correction by WAAS System (Garmin, 2003)

The GPS indicates when WAAS satellites are being received. I took at least three readings while standing on the top center of each boat ramp. This procedure allowed for consistent and accurate data collection. If a site consisted of more than one boat launch, then one of the launches was selected for gathering position coordinates for that particular location.

Also at this time, I investigated potential sites for unlisted boat launches by driving on top of levees, along navigable waterways, and near fishing holes. I received authorization from the Atchafalaya Basin levee board and DNR to use the levee roads for surveying purposes only. I also inquired from area merchants about the locations of area fishing holes and launches.

DATA ORGANIZATION AND NOMENCLATURE

I recorded all data by hand and also stored them in the GPS memory after every reading was taken. I used Internet GIS and CIR aerial photos to verify the position coordinates recorded. The confirmed data were compiled onto a spreadsheet that included the name of the launch, type of launch (ramp, landing or marina), water access, driving access from major highways or interstates, proximal towns, origin parish and respective United States Geological Survey (USGS) quad reference. For the purpose of this thesis, I used the following hierarchical system for naming boat launches:

- If a launch has a designated name by permit, by sign or by operator, then that name was used. Depending on the location of the boat launch, parish courthouses, city halls, sheriff's offices, or USACE store permits for boat launch construction on public land.

  Example: Marshfield Landing and Dixie's Boat Ramp

Figure 4.2: Signage Designating Actual Names Given to Their Respective Boat Launches

- If there are two launch sites along the same waterway, and one can be distinguished as a ramp and the other a landing, then they were referred to by the adjacent waterway followed by *boat ramp* or *boat landing* (Figure 4.3).

  Example: Grand River Boat Ramp and Grand River Boat Landing

Figure 4.3: Distinction between a Boat Ramp and a Boat Landing

- If there is more than one ramp or landing along the same waterway, and the other type of launch is present, then the launch was referred to as stated previously but a numeric classification is added.

  Example: Bayou Courtableau Boat Ramp #1, Bayou Courtableau Boat Ramp #2, and Bayou Courtableau Boat Landing

- If there is only one launch site and no other launch exists along the same waterway, then the site was referenced by the adjacent waterway followed by *boat launch*.

  Example: Bayou Portage Boat Launch

- If there are more than one boat launch along the same waterway and no delineations of launch types are present, then the site was referred to as stated previously but a numeric classification was added.

  Example: Bayou Rouge Boat Launch #1, Bayou Rouge Boat Launch #2, and Bayou Rouge Boat Launch #3

COMMUNICATION AND GIS

Color Infrared Aerial Maps (for visitors)

Once the spreadsheet was completed, I submitted the boat launch location data to DNR and the Communications committee of the ABAC for review. Copies were sent to the offices of tourist commission in each parish also for review. To visually communicate the revised boat launch data, I mapped the launch locations over DOQQs for each parish. Environmental Systems Research Institute (ESRI) ArcView, a type of GIS software, allowed me to construct DOQQ mosaics by actual coordinate placement over a NAD83 UTM map projection. Parish and state data such as roads, parish boundaries, thematic mapper (TM) images, state-owned lands and pipeline crossings can be constructed from shapefiles located in the Louisiana GIS CD database (Braud *et al*, 1999).

I prepared separate database files on spreadsheets containing only the UTM coordinate information. I imported these database files into the ArcView to superimpose the point data over the DOQQ mosaics. I also used the GIS software to insert the proper scales and north arrows. I can export these maps as encapsulated postscript files (EPS) set at 300 dpi resolution. EPS files

are a form of programming language first introduced by the Adobe Company® that is optimized for raster and vector data (or images and text). Tagged Interchange File Format (TIFF) and Joint Photographic Expert Group Format (JPEG) do not contain provisions for storing vector graphics or text. Also, most imaging and GIS software have EPS capabilities for handling single page layouts.

I exported the maps at 300 dots-per-inch (dpi) using the EPS export option in ArcView. I opened the EPS files into Adobe Photoshop for labeling, graphics and color adjustments (Figure 4.4). I had to reduce the resolution to 150 dpi for large-scale plotting to ensure the file size was within the memory parameters of the plotter.

Figure 4.4: Color Adjustments Made in Adobe Photoshop on DOQQ Mosaics

The final layout consisted of a 36" x 32" color map of each parish containing the DOQQ mosaic at a scale of 1:350,000. I included a legend containing the names and coordinates of each boat launch and their associated amenities such as picnic tables, restrooms, refreshments, camping, ice, bait & tackle and boat rentals. Smaller contextual maps displaying the particular parish's location within the Basin and the state were also included on the large-scale maps. These were also be generated in ArcView. I labeled each major highway, town and body of water on the DOQQ mosaics using cartographic guidelines to comply with the spreadsheet data. These full-scale maps will be made available at DNR and Sea Grant. A 6.5" x 9" version of the maps is included in the Appendix section of this thesis.

These maps illustrate the realistic natural integrity of the AB in order to conform to the Understanding Domain of Kaplan's Preference Matrix and to Kevin Lynch's guidelines for developing a good environmental image. By executing their theories into my map development, I hope to facilitate human functioning within the vast forested wetlands of the AB. If human functioning is supported, then individuals might have preferences for exploring the region.

Vector and TM Maps (for planners and designers)

I composed a theoretical framework for guiding the ABP's efforts to promote tourism as outlined in the 1998 SMP. I have illustrated the framework in each parish individually and then collectively. I used ArcView software to access parish geographic data from the Louisiana GIS CD set (Braud *et al*, 1999) and to position boat launch locations on a vector map of the coverage area. These maps illustrate vector data that represent levees, major roads, local parish roads, bodies of water, navigable waterways, streams, wildlife management areas, national wildlife

refuges and boat launches. I used the vector maps to communicate the organizing forms of paths and nodes associated with the boat launch settings.

I produced a second set of maps using a 1992 TM satellite image (Braud *et al*, 1999) of each parish. These satellite images were constructed from 30-meter resolution TM imagery. The images themselves were constructed from a red, green, blue (RGB) composite of three bands, mid-infrared, near-infrared and red-visible light, which have the relative appearance of a normal color image (LOSCO, 1998). In TM imagery, remote sensing satellites are equipped with EMS detection sensors the record spatial data over regular intervals. Consumers can access the raster data from the satellites to prepare them for GIS applications or other related uses. I used the TM image to illustrate the remaining levels of organization, the districts and edges, associated with the boat launch environments. I did not include any landmarks because, as mentioned in Chapter 3, there are very few prominent structures in the study area that serve as landmarks. I used these vector maps combined with the TM raster maps to communicate the theoretical framework that I am proposing to the ABP.

CHAPTER 5: RESULTS

EXISTING DATA

I obtained two database files containing boat launch coordinate data from LOSCO and the Louisiana DWF. In 2000, Dr. Gregory Hartman and Gus Stacy, III, from McNeese State University, and Dr. Russell B. Bender, Jr. and Dr. David L. Schultz, from Nicholls State University, compiled the LOSCO databases. The Avoyelles Commission of Tourism furnished me with approximate street locations of all publicly accessible boat launches in Avoyelles Parish. I had also received a 2000 Geological Survey Map of existing boat launches in the ABFS from the ABP.

The McNeese database recorded an inventory of 42 public boat ramps located in Cameron, Calcasieu, Iberia, St. Mary and Vermilion Parishes. Of those documented, 16 boat launches were located in Iberia and St. Mary Parishes that were publicly accessible.

The Nicholls State database recorded an inventory of 666 "private", "semi-private" and "public access points" into the waterways of eleven parishes: Assumption, Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Tammany, Terrebonne and parts of St. Mary and St. Martin Parish east of the AB. The Nicholls State team described private boat launches as those not available to the public; semi-private boat launches as those that were privately owned but accessible to the public; and public boat launches as those free and maintained by a government agency (Bender and Schultz, 2000). Of those documented, 15 boat launches were located in Assumption, St. Mary and St. Martin Parishes. None of the publicly accessible boat launches in the AB parishes contain power hoists.

The Louisiana DWF, Marine Fisheries furnished a second boat launch database of Iberia and St. Mary Parishes. This database had location data that overlapped the previous two

databases mentioned. These files did provide insight into other boat launch locations; however, after conducting personal field surveys, these launches were no longer operational.

The Louisiana DWF, Inland Fisheries furnished another database containing 21 boat launch location data in St. Landry Parish. These files indicated launch location by general street locations and coordinate data. After testing the data using Internet GIS, all of the coordinates were inaccurate. However, CIR aerial photos of the areas combined with a road atlas revealed boat launches relative to their approximate street locations (Example: Off Hwy 10, 3 miles west of Melville). Of the 21 launches listed, 17 were publicly accessible and still operational.

The Avoyelles Commission of Tourism indicated the general locations of seven boat launches. Of the seven boat launches, six were currently operational. The non-functional boat launch, Spring Bayou NWR Boat Launch, was closed due to drought conditions. The Louisiana DWF station, located in Spring Bayou, stated that the NWR is undergoing renovation, especially Lake Ophelia, and expects that the boat launch will be operational again within the next three years.

The ABP furnished the 2000 Geological Survey Map of existing boat launches in the ABFS. This map illustrates 62 boat launches around the ABFS. Of the 62, five were either non-existent or privately-owned. This map indicates 62 boat launches that are located only in approximately half the overall region covered in this thesis (Figure 5.1). Following the enactment of Act 920, the ABP contracted various survey groups to expand the ABFS-LP policies to the eight Basin parishes. One of those groups, Sea Grant, was authorized by the ABP to document all existing public boat launches in the AB parishes.

Another launch located on the map, referred to as Gate #8 Canoe, did not provide enough site improvements to be classified as a boat launch in this thesis. This particular launch was

designed strictly for launching small boats, i.e. bateaus, canoes and pirogues. The restricted accessibility of this boat launch behind a flood protection gate also retards its placement into the proposed framework. This thesis focuses on developing a framework based on boat launches that serve as gateways a place where people congregate to leave a realm of familiarity to one of uncertainty and adventure. Canoeing is a valuable recreation associated with the AB. However, people do not require a designated site improvement to launch a canoe. If canoes are attached to trailers, then drivers would require the facilities outlined in this thesis.

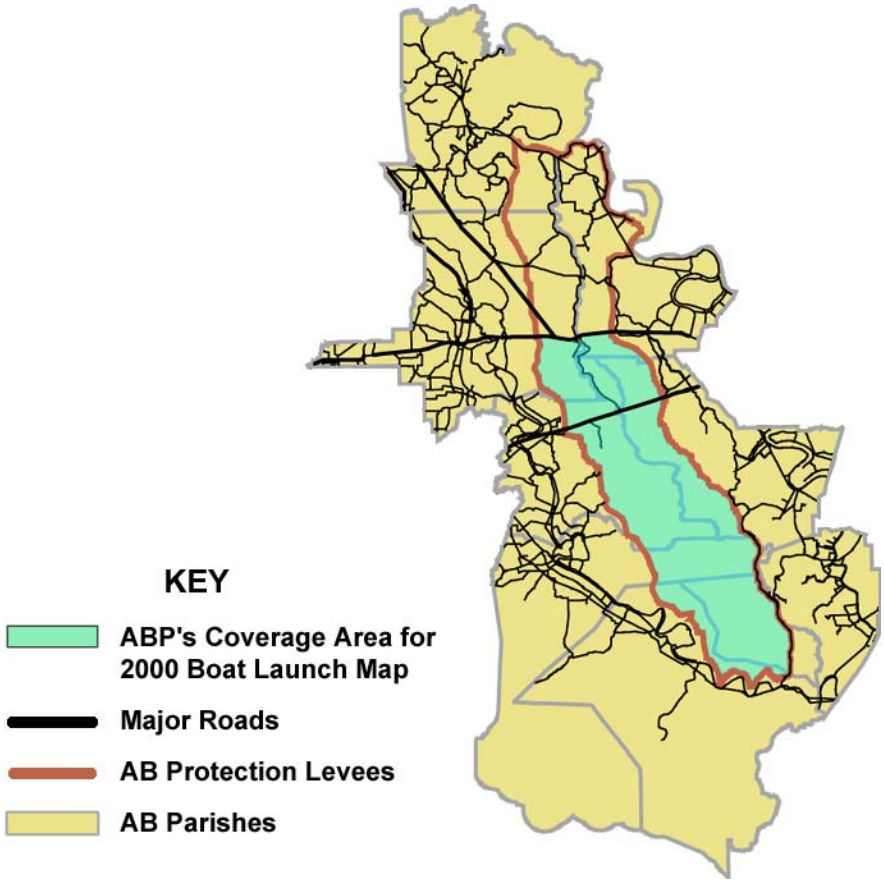


Figure 5.1: Basin Parishes Covered by the 2000 Geological Survey Map

FIELD RECONNAISSANCE

I surveyed all the documented boat launches discussed in the previous section using a hand-held GPS receiver. I even surveyed boat launches whose coordinates were already documented. There were too many discrepancies in the existing data. In order to maintain consistency, I recorded GPS readings for all boat launches with a personal hand-held receiver. The GPS was able to detect WAAS satellites during the expeditions. I divided the surveys into approximately 16 expeditions that I performed on pristine days.

There were some occasions that the road atlas, the Internet GIS and even the CIAP failed to provide me with adequate directions to documented boat launches. Local citizens then became a valuable source of information. Some volunteers even accompanied me to locate undocumented boat launches in prospective areas. Other launches were discovered by personal field investigations conducted between May 2002 and August 2002.

FRAMEWORK

Using Kevin Lynch's theories on organizational forms in the environment, I developed a framework for aiding the ABP in implementing recreational improvements in the Basin parishes. This framework can be the centerpiece for revising the 1998 SMP. The objects within the framework are the major roads (highways and interstates) that serve as "paths" connected to the boat launches that serve as "nodes." These nodes are located in natural or developed "districts" that are defined by "edges" (levees, boundary between natural and developed, banks of bodies of water). These paths, nodes, districts and edges help formulate an individual's environmental image by influencing imageability. This environmental organization is very impressionable and can be used to the advantage of the ABP. The following figures indicate the theoretical framework:

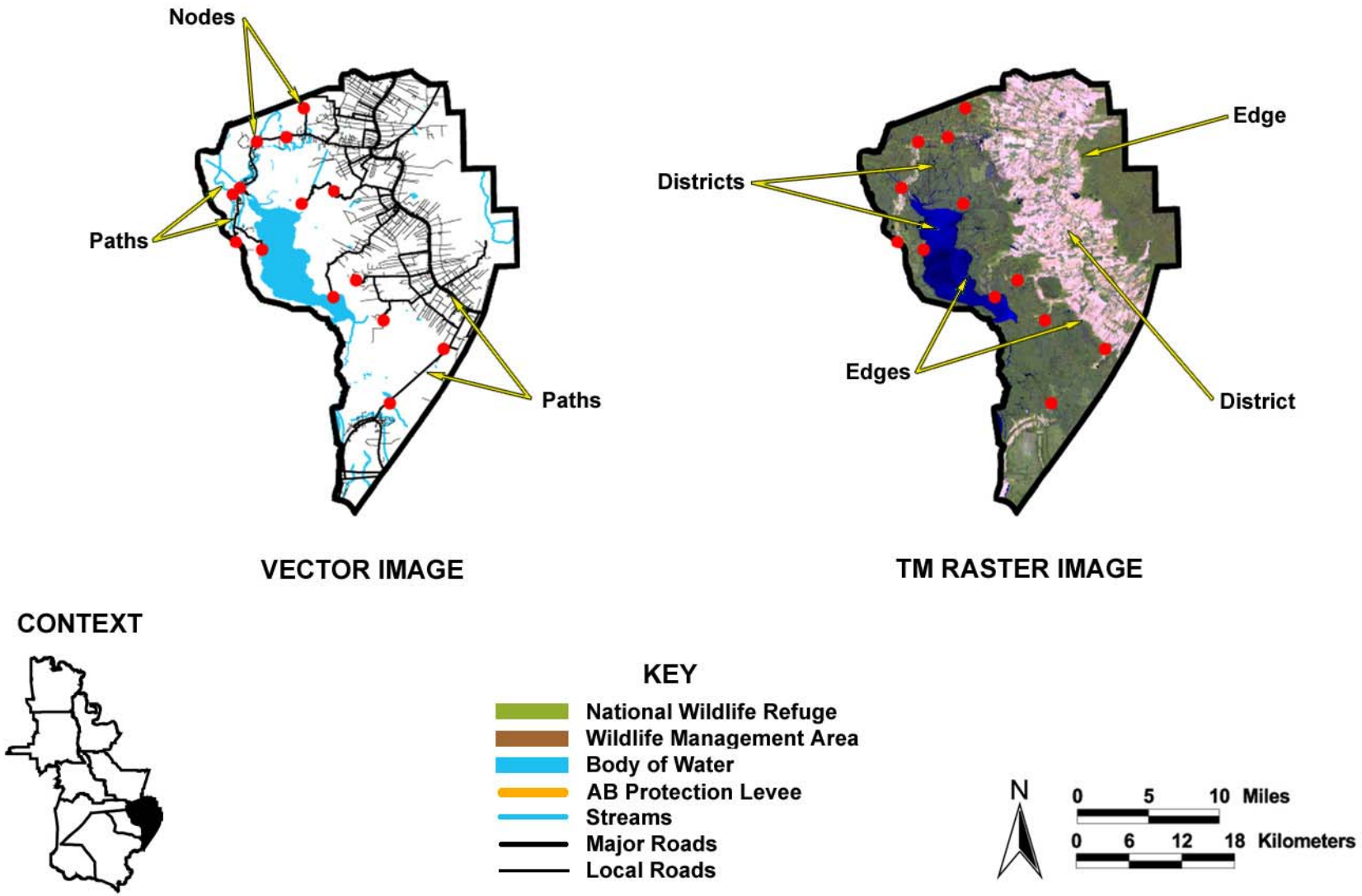


Figure 5.2: Framework for Assumption Parish

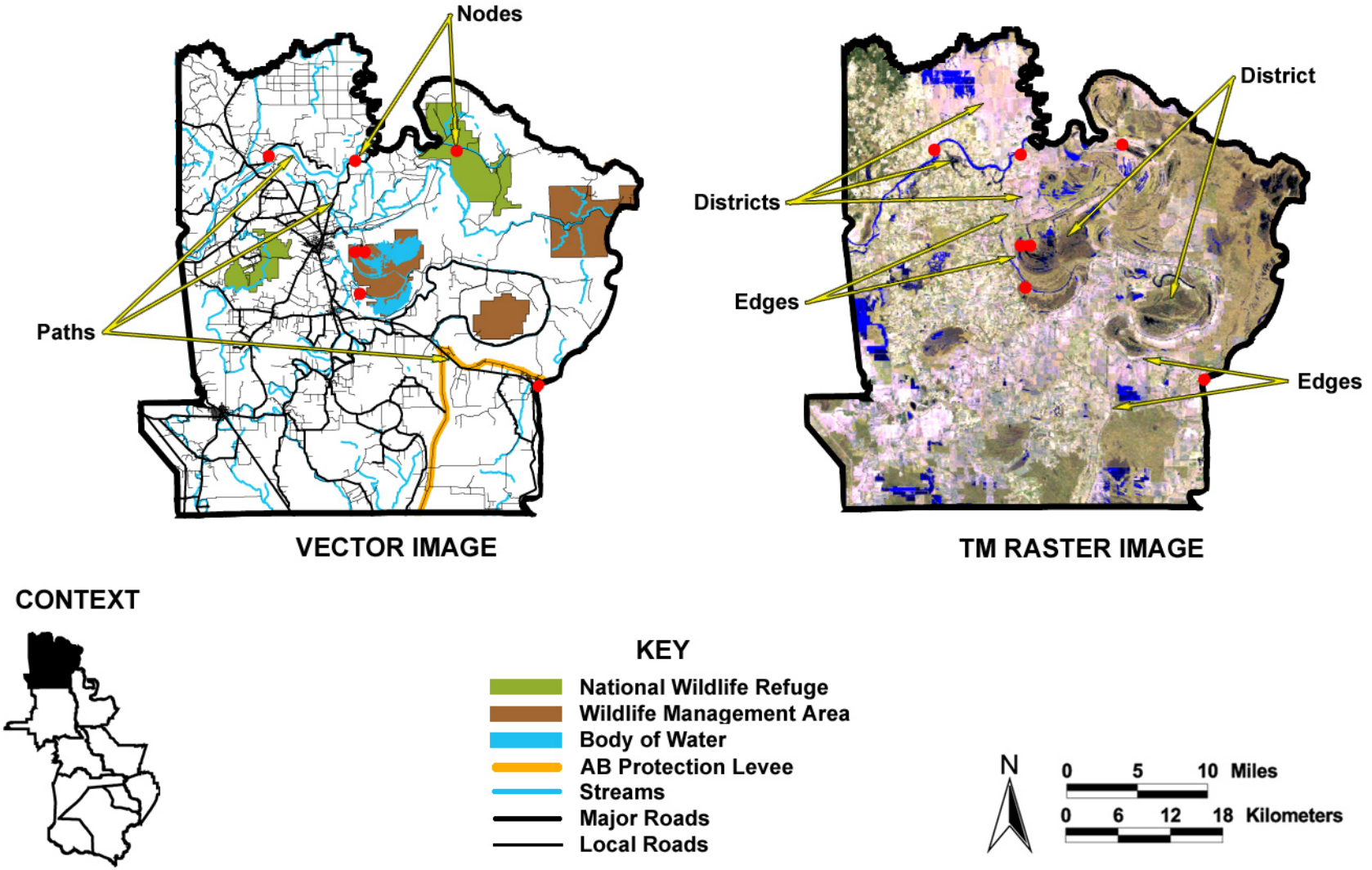


Figure 5.3: Framework for Avoyelles Parish

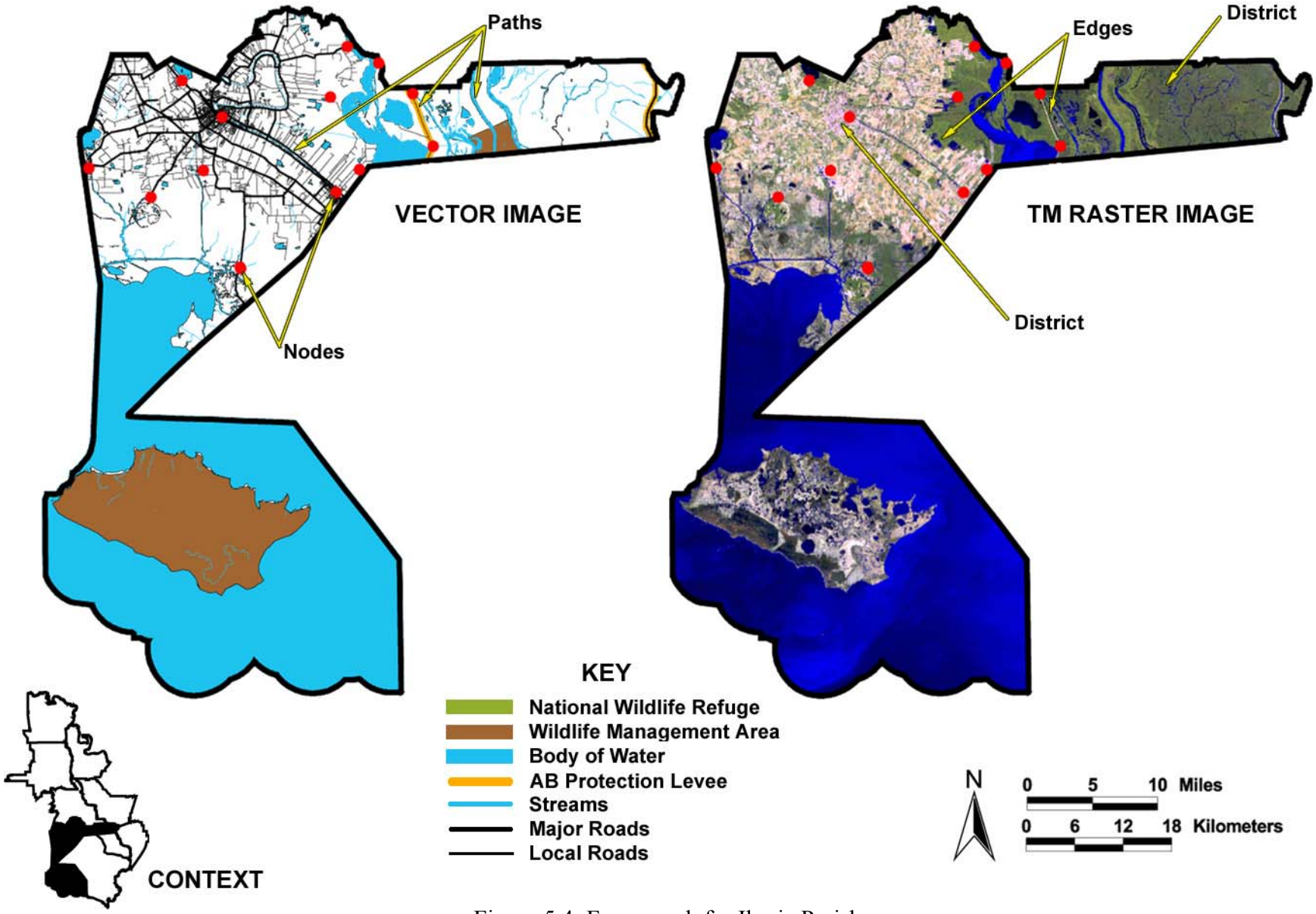
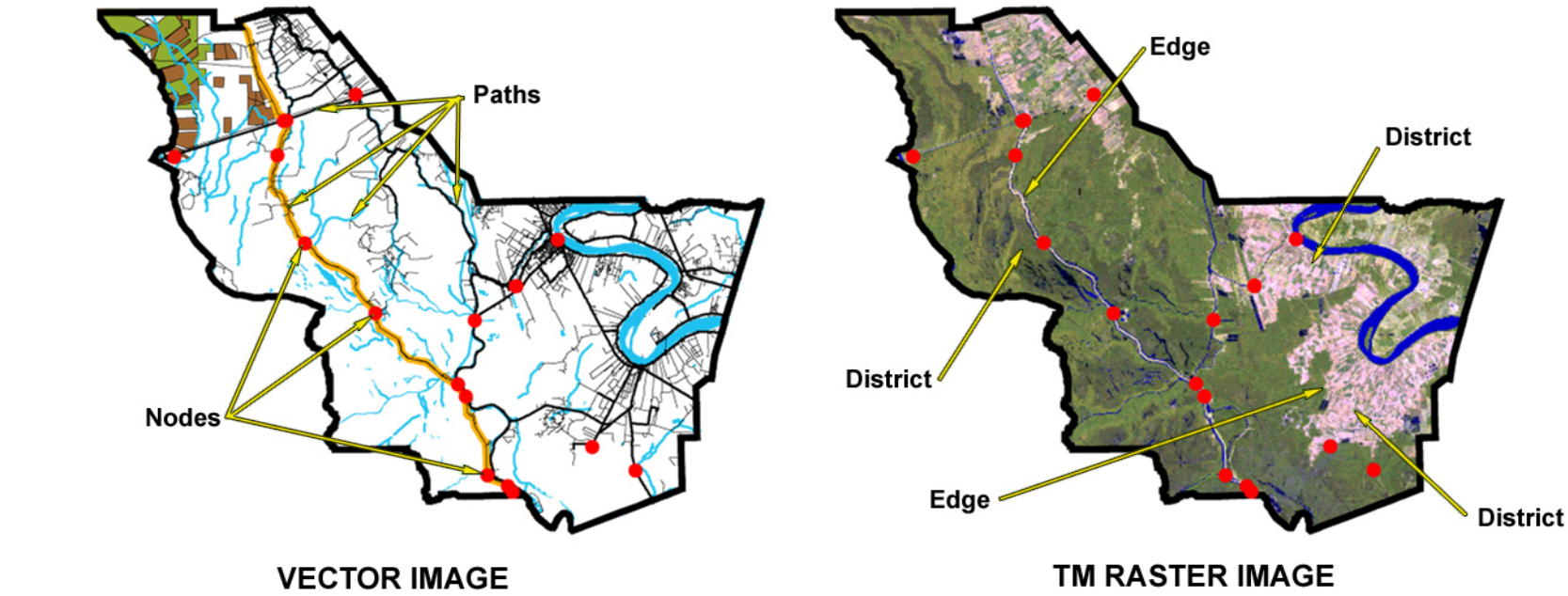


Figure 5.4: Framework for Iberia Parish



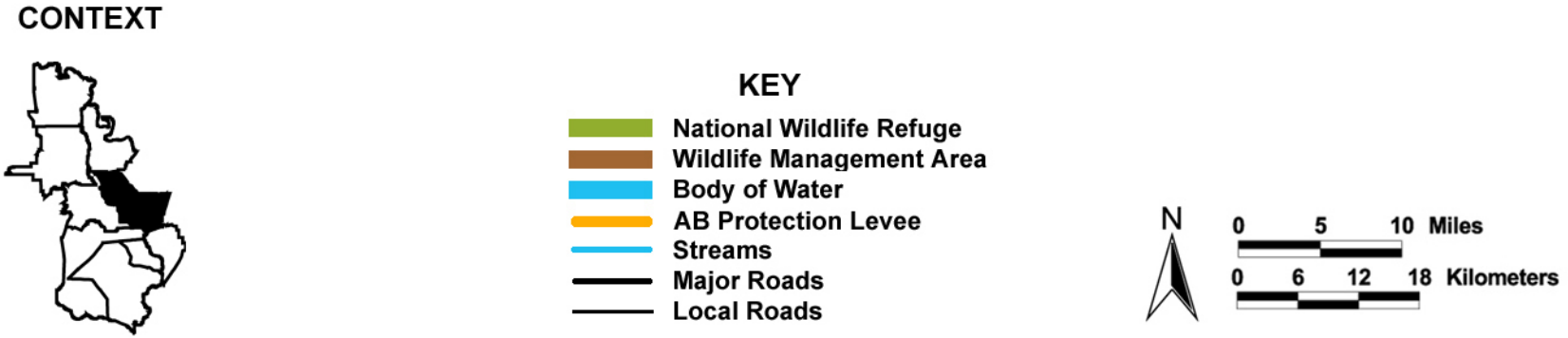


Figure 5.5: Framework for Iberville Parish

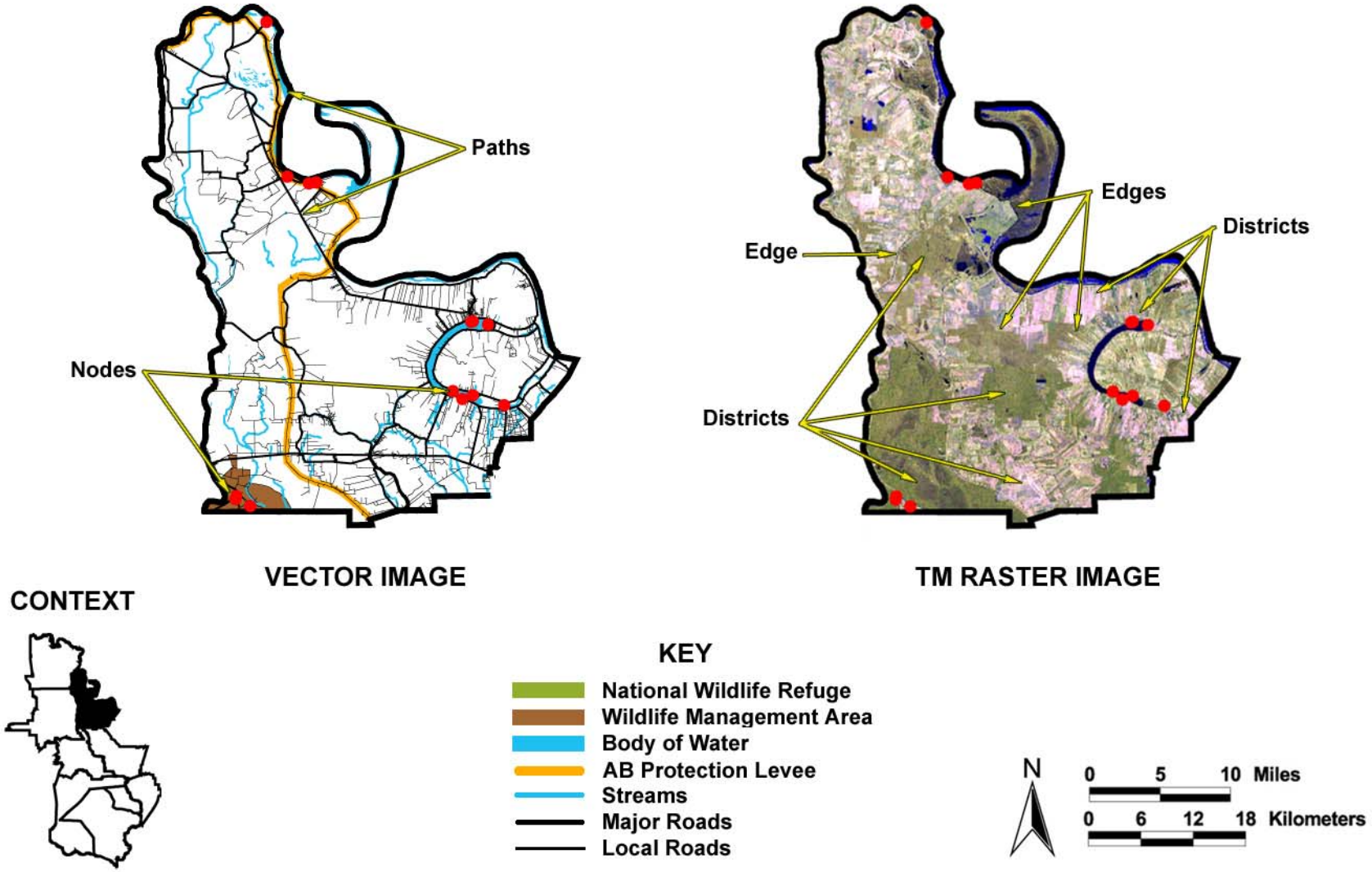


Figure 5.6: Framework for Pointe Coupee Parish

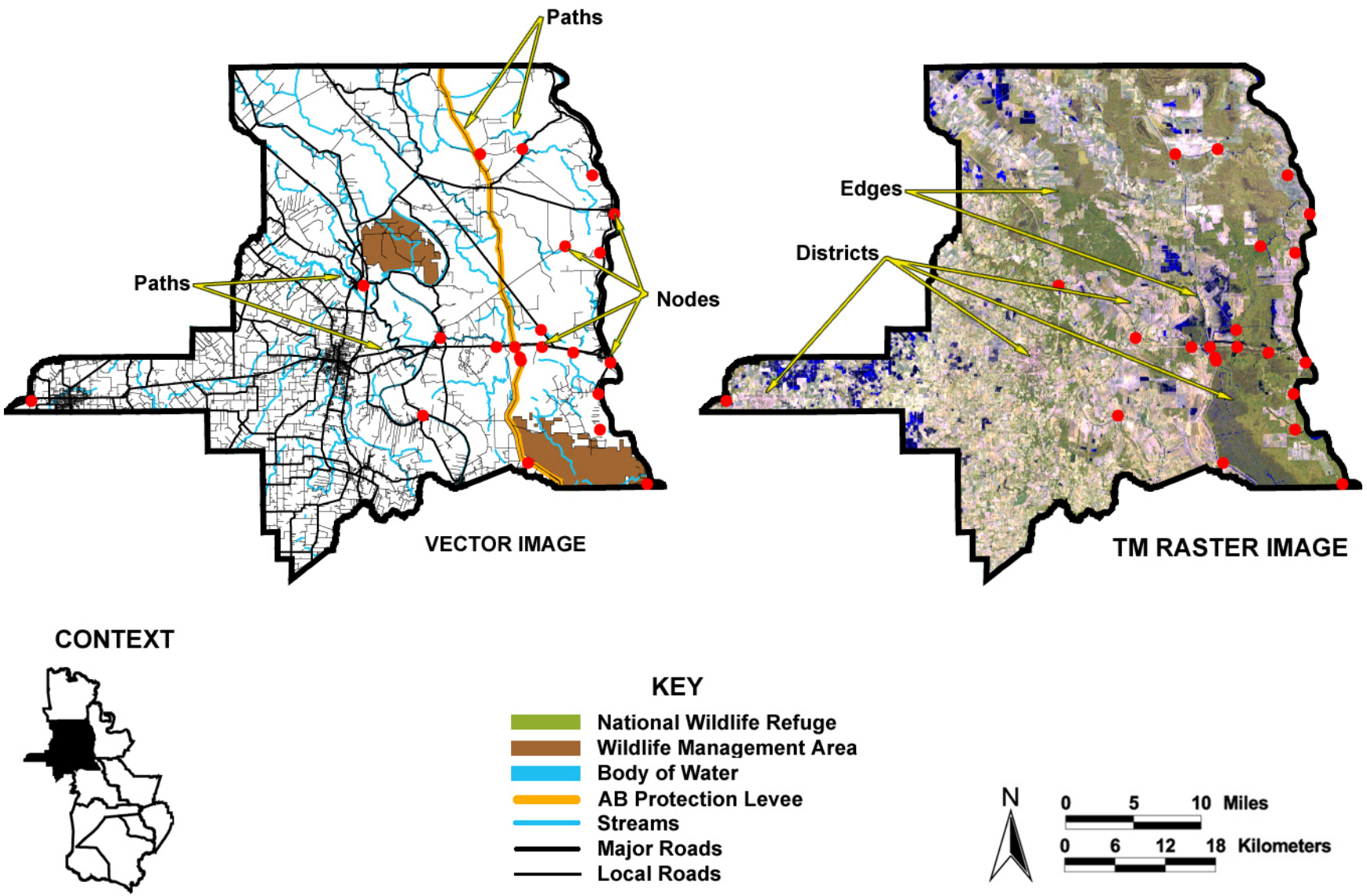


Figure 5.7: Framework for St. Landry Parish

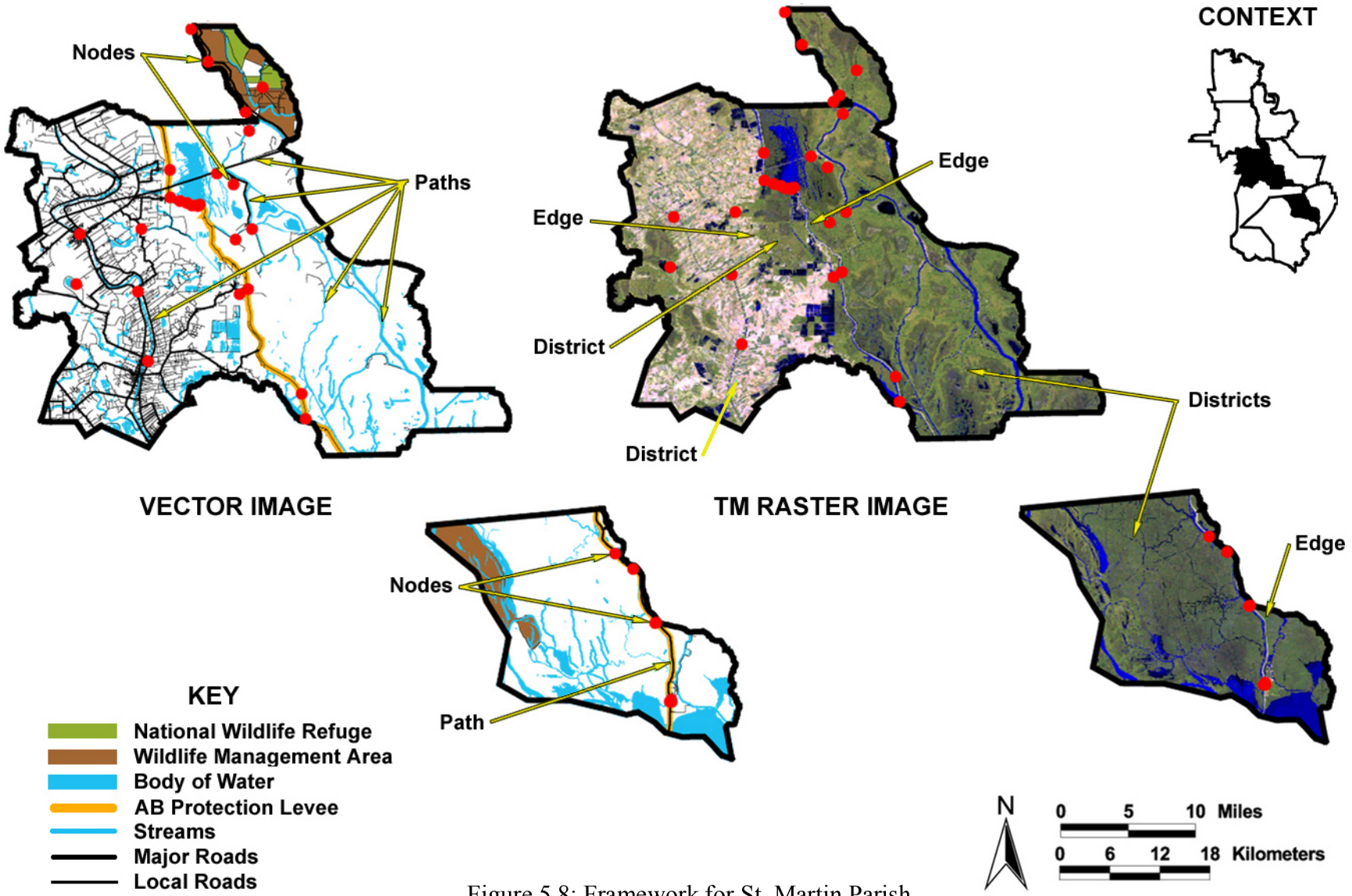


Figure 5.8: Framework for St. Martin Parish

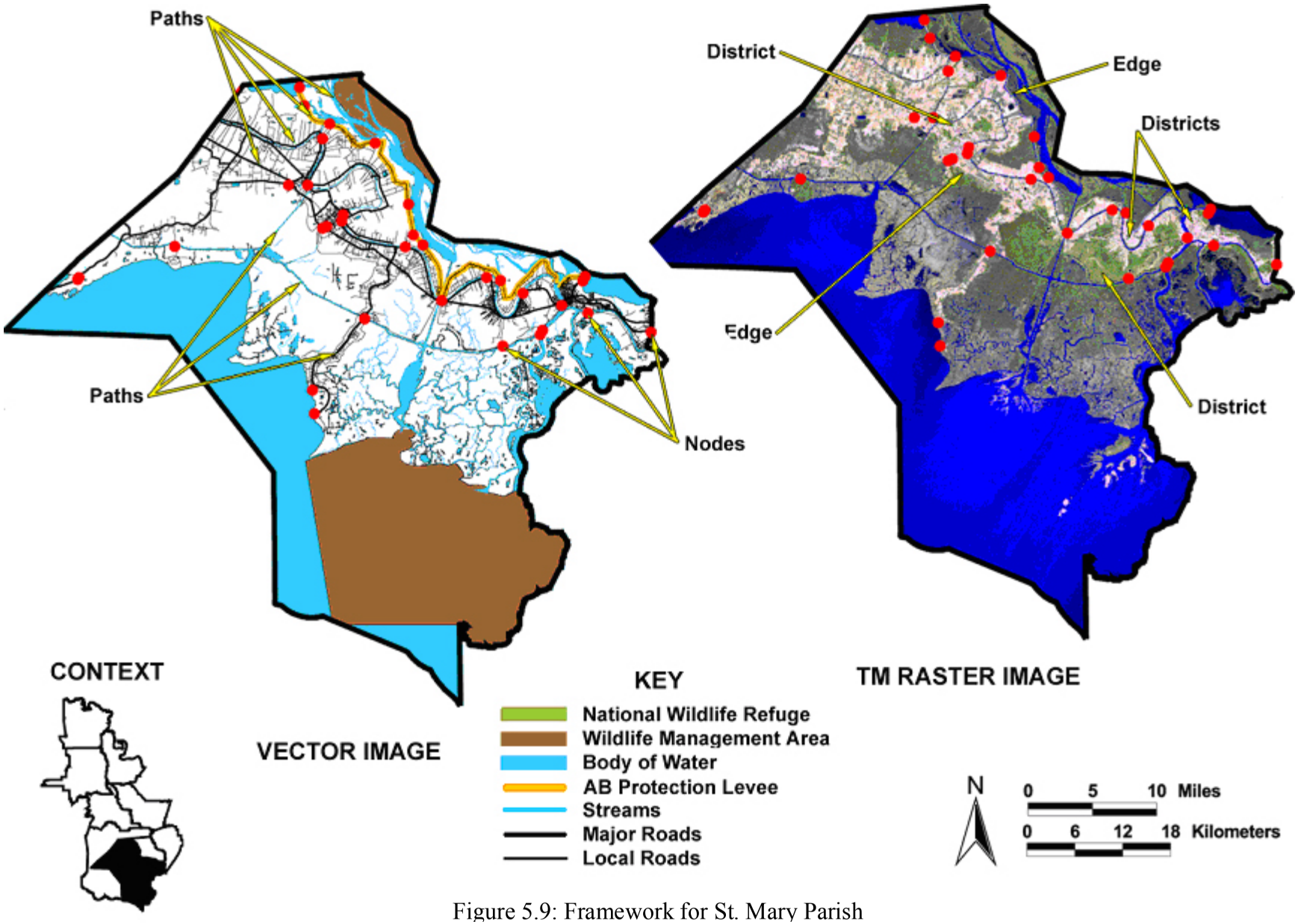


Figure 5.9: Framework for St. Mary Parish

BOAT LAUNCH LOCATIONS

The following tables indicate boat launch locations relative to their nearest water bodies, road access, proximal town, origin parish and USGS quad:

Table 5.1: Assumption Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
1	Attakapas Landing **29.85030°N 91.10254°W**	Lake Verret	lake end of LA 401	Napoleonville	Assumption	Grassy Lake	landing
2	Bayou Crab Boat Launch **29.86723°N 91.07601°W**	Cancienne Canal to Lake Verret	LA 1 to LA 400	Napoleonville	Assumption	Grassy Lake	landing
3	Bayou Morgan City Boat Launch **29.74039°N 91.03848°W**	Bayou Morgan City	LA 398 next to Bayou Morgan City Bridge	Amelia	Assumption	Amelia	ramp
4	Bayside Launch & Tackle **29.96358°N 91.21022°W**	Pierre Pass to Lake Verret	LA 70 to Pierre Pass Bridge	Pierre Part	Assumption	Pierre Part	landing
5	Fremin's Boat Launch **29.90834°N 91.21631°W**	Belle River	LA 70 to Belle River Bridge	Pierre Part	Assumption	Pierre Part	ramp
6	Grand Bayou Boat Launch **30.04441°N 91.13367°W**	Grand Bayou	LA 70 to LA 69	Belle Rose	Assumption	Lone Star	ramp
7	Landry's Boat Landing **30.01048°N 91.18961°W**	Bayou Pierre Part	LA 70 to Bayou Pierre Part Bridge	Pierre Part	Assumption	Lone Star	landing
8	Little Grand Bayou Boat Launch **29.94668°N 91.13824°W**	Little Grand Bayou to Lake Verret	lake end of LA 402	Paincourtville	Assumption	Pierre Part	ramp
9	Lower Texas Boat Launch **29.82568°N 91.04401°W**	Himalaya Canal to Lake Verret	LA 1 to LA 1010 to LA 1011	Labadieville	Assumption	Grassy Lake	ramp
10	Nerville Bayou Boat Launch **29.79565°N 90.97436°W**	Nerville Bayou	LA 398 to Delise Rd.	Labadieville	Assumption	Labadieville	ramp
11	Roger's Boat Launch **29.92788°N 91.22918°W**	Mouth of Big Goddel Bayou to Old River	LA 70 to LA 1016 north	Pierre Part	Assumption	Pierre Part	ramp
12	Shell Beach Boat Launch **29.90026°N 91.18568°W**	Lake Verret	LA 70 to LA 1016	Pierre Part	Assumption	Pierre Part	landing
13	Sportsman's Landing **30.01488°N 91.15471°W**	Bayou Corne	LA 70 next to Bayou Corne Bridge	Pierre Part	Assumption	Lone Star	landing
14	Whitmel Canal Boat Launch **29.95820°N 91.10182°W**	Whitmel Canal to Little Grand Bayou	LA 1 to LA 402	Napoleonville	Assumption	Napoleonville	ramp

Table 5.2: Avoyelles Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
15	Bayou Bourbeux Boat Launch **31.12018°N 92.01164°W**	Bayou Bourbeux	LA 1 to LA 115 north to LA 1190 to Spring Bayou Rd.; in Spring Bayou WMA	Marksville	Avoyelles	Marksville South	landing
16	Ben Routh Recreational Park **31.22043°N 92.12519°W**	Red River	LA 1 to LA 115 north to LA 1196 to Ben Routh Rd.	Effie	Avoyelles	Effie	landing
17	Brouillette Lock & Dam Boat Launch **31.21475°N 92.02181°W**	Red River	LA 1 to LA 452 to River Ramp Rd.	Marksville	Avoyelles	Marksville North	landing
18	Grand Lake Boat Launch **31.12032°N 92.02278°W**	Grand Lake	LA 1 to LA 115 north to LA 1190 to Spring Bayou Rd. to Dr. Michel Rd.; in Spring Bayou WMA	Marksville	Avoyelles	Marksville South	landing
19	La Vieille Rivier Boat Launch **31.07742°N 92.01731°W**	La Vieille Rivier to Bayou du Lac	LA 1 to Old River Rd.to Bayou de la Cabin Rd.; next to bridge	Marksville	Avoyelles	Marksville South	landing
20	Lake Ophelia NWR Boat Launch † **31.22412°N 91.89949°W**	Lake Ophelia	LA 1 to LA 452 to McGoldrick Oil Rd.	Marksville	Avoyelles	Lac Sainte Agnes	ramp
21	Simmesport Boat Launch **30.98039°N 91.80365°W**	Atchafalaya River	US 190 to LA 1 north to LA 105 north to Riverside Dr.; next to Simmesport Fish Co.	Simmesport	Avoyelles	Simmesport	ramp

Notes: * Not currently operational

Table 5.3: Iberia Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
22	Avery Island Boat Launch **29.91551°N 91.90415°W**	Bayou Petite Anse to Vermilion Bay	US 90 to LA 329 to toll bridge	Avery Island	Iberia	Delcambre	landing
23	Delcambre Canal Boat Launch **29.94831°N 91.98330°W**	Delcambre Canal to Lake Peigneur to Vermilion Bay	LA 14 to LA 330 to E. Main St. to S. Richard St.; south of Delcambre Canal Bridge	Delcambre	Iberia	Delcambre	ramp
24	Jeanerette Canal Boat Launch **29.9436°N 91.6368°W**	Jeanerette Canal to Lake Fausse Pointe	LA 182 to LA 671 to LA 87 west to Jeanerette Canal Rd.	Jeanerette	Iberia	Jeanerette	ramp
25	Jeanerette City Park **29.91854°N 91.66677°W**	Bayou Teche	LA 182 to Wormser St. to Tarleton St.	Jeanerette	Iberia	Charenton	ramp
26	Lake Dauterive Boat Launch-West **30.08052°N 91.65029°W**	Lake Dauterive	LA 86 to LA 3242	Loreauville	Iberia	Loreauville	ramp
27	Lake Fausse Pointe State Park * **30.06195°N 91.61050°W**	Lake Fausse Pointe	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Loreauville	Iberia	Jackass Bay	ramp
28	Little Lake Long Boat Launch **29.96853°N 91.54205°W**	Little Lake Long to Grand Lake	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Loreauville	Iberia	Charenton	ramp
29	Marshfield Landing **30.02456°N 91.67315°W**	Loreauville Canal	US 90 to LA 320 to LA 86 to Blackline Rd. to Marshfield Rd.	Loreauville	Iberia	Loreauville	landing
30	New Iberia City Park **30.00410°N 91.81167°W**	Bayou Teche	LA 182 to LA 86 to Marie St.	New Iberia	Iberia	New Iberia North	ramp
31	Patout Bayou Boat Landing **29.83648°N 91.79046°W**	Bayou Patout to Weeks Bay	US 90 to LA 85 to LA 83	Weeks	Iberia	Weeks	landing
32	Patout Bayou Boat Ramp **29.83482°N 91.79041°W**	Bayou Patout to Weeks Bay	US 90 to LA 85 to LA 83; next to bridge	Weeks	Iberia	Weeks	ramp
33	Port of Iberia Boat Launch **29.94445°N 91.83683°W**	Commercial Canal to Weeks Bay to Vermilion Bay	US 90 to Weeks Island Rd. south to S. Lewis St. south to Port Rd. south to Schellstede Dr.	New Iberia	Iberia	New Iberia South	landing
34	Ruiez Boat Launch **29.98671°N 91.55039°W**	Lake Fausse Pointe Cut	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Charenton	Iberia	Charenton	landing
35	Sandy Cove Boat Launch **30.02746°N 91.56700°W**	Lake Fausse Pointe Cut	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Loreauville	Iberia	Jackass Bay	landing
36	Spanish Lake Landing **30.04485°N 91.86258°W**	Spanish Lake	LA 182; look for sign	New Iberia	Iberia	New Iberia North	landing

Note: * Requires a fee to enter the facility

Table 5.4: Iberville Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
37	Allemand's Landing **30.07903°N 91.30693°W**	Intracoastal Waterway & Bayou Pigeon	LA 1 to LA 75 to LA 3066 to LA 997; west side of levee	Pigeon	Iberville	Pigeon	landing
38	Bayou Bait Shop RV Park & Cabins **30.16153°N 91.33644°W**	Lower Grand River	LA 1 to LA 75 to LA 3066	Bayou Sorrel	Iberville	Bayou Sorrel	ramp
39	Bayou Grosse Tete Boat Launch **30.42255°N 91.43772°W**	Bayou Grosse Tete	I-10 to Grosse Tete/ Rosedale exit to LA 77 north	Grosse Tete	Iberville	Grosse Tete	landing
40	Bayou Hooper Boat Launch **30.28975°N 91.49197°W**	Bayou Hooper	I-10 to Ramah/Maringouin exit; south on levee rd; east side of levee	Grosse Tete	Iberville	Grosse Tete SW	ramp
41	Bayou Plaquemine Boat Launch #1 **30.24857°N 91.27466°W**	Bayou Plaquemine	LA 1 to LA 3066	Crescent	Iberville	Bayou Sorrel	ramp
42	Bayou Plaquemine Boat Launch #2 **30.24874°N 91.27439°W**	Bayou Plaquemine	LA 1 to LA 3066	Crescent	Iberville	Bayou Sorrel	ramp
43	Bayou Sorrel Boat Landing **30.15014°N 91.32799°W**	Bayou Sorrel & Intracoastal Waterway	LA 1 to LA 75 to LA 3066 to Bayou Sorrel Rd. to levee rd. south; west side of levee	Bayou Sorrel	Iberville	Bayou Sorrel	landing
44	Bayou Sorrel Boat Ramp **30.15010°N 91.32787°W**	Lower Grand River	LA 1 to LA 75 to LA 3066 to Bayou Sorrel Rd. to levee rd. south	Bayou Sorrel	Iberville	Bayou Sorrel	ramp
45	Berthelot's Grocery **30.06924°N 91.28577°W**	Lower Grand River	LA 1 to LA 75 to LA 3066 to LA 997; next to bridge	Pigeon	Iberville	Pigeon	ramp
46	Court Street Boat Launch **30.28988°N 91.23051°W**	Mississippi River	LA 1 to Court St. east to Seminary St.	Plaquemine	Iberville	Plaquemine	ramp
47	Grand River Boat Landing **30.23291°N 91.42648°W**	Bayou Maringouin & Upper Grand River	LA 1 to LA 75 to LA 3066 to Bayou Sorrel Rd. to levee rd. north; west side of levee	Bayou Sorrel	Iberville	Grand River	landing
48	Grand River Boat Ramp **30.22772°N 91.42069°W**	Upper Grand River	LA 1 to LA 75 to LA 3066 to Bayou Sorrel Rd. to levee rd. north	Bayou Sorrel	Iberville	Grand River	ramp
49	Jack Miller's Landing **30.21853°N 91.31752°W**	Intracoastal Waterway & Upper Grand River	LA 1 to LA 75; at the LA 75 & LA 3066 intersection	Crescent	Iberville	Bayou Sorrel	landing
50	King's Ditch Boat Launch **30.36879°N 91.51970°W**	Bayou Maringouin	I-10 to Ramah/Maringouin exit; south down levee road; west side of levee	Grosse Tete	Iberville	Cow Bayou	ramp
51	Muddy Bayou Boat Launch **30.08156°N 91.15430°W**	Muddy Bayou	LA 70 to LA 69; next to Muddy Bayou Bridge	Belle Rose	Iberville	Lone Star	ramp
52	Ramah Boat Landing **30.39965°N 91.51240°W**	Maringouin Canal	I-10 to Ramah/Maringouin exit to LA 3000 north; west side of levee next to north I-10 bridge	Grosse Tete	Iberville	Maringouin	landing

Table 5.4 continued on next page

53	Ramah Boat Ramp **30.40003°N** **91.50976°W**	Maringouin Canal	I-10 to Ramah/Maringouin exit to LA 3000 south to Frontage Rd.; between I-10 bridges	Grosse Tete	Iberville	Maringouin	ramp
54	Vaughn's Boat Launch **30.06394°N** **91.28104°W**	Intracoastal Waterway	LA 997; west side of levee	Pigeon	Iberville	Pigeon	ramp
55	Whiskey Bay Boat Launch **30.36867°N** **91.62599°W**	Bayou Des Glaises	I-10 to Whiskey Bay exit; between I-10 bridges	Butte La Rose	Iberville	Butte La Rose	landing
56	White Castle Canal Boat Launch **30.10342°N** **91.19849°W**	White Castle logging canal to Lake Natchez Pass	LA 1 to LA 993; at turn	White Castle	Iberville	Lone Star	landing

Table 5.5: Pointe Coupee Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
57	Alabama Bayou Boat Launch #1 **30.51582°N 91.71864°W**	Alabama Bayou	US 190 to LA 975 south; next to Alabama Bayou Bridge	Sherburne	Pointe Coupee	Lottie	ramp
58	Alabama Bayou Boat Launch #2 **30.50561°N 91.70193W**	Alabama Bayou	US 190 to LA 975 south to Alabama Bayou; within private camping area	Sherburne	Pointe Coupee	Lottie	ramp
59	Bergeron's on the Bayou **30.60589°N 91.39693°W**	Bayou Chenal to False River	LA 1 to LA 413 to Zach Rd.; next to bridge	Lakeland	Pointe Coupee	Erwinville	ramp
60	Big Daddy's Boat Launch **30.83712°N 91.62704°W**	Raccourci Old River	LA 1 to LA 972 to 6500 LA 419	Batchelor	Pointe Coupee	Batchelor	landing
61	Bonaventures Landing **30.61271°N 91.44699°W**	False River	LA 1 to 6716 False River Rd.	Oscar	Pointe Coupee	Erwinville	landing
62	Jerry's Landing **30.61664°N 91.43473°W**	False River	LA 1 to LA 413; across from the LA Express Food Store	Jarreau	Pointe Coupee	Erwinville	landing
63	Jim's Campground & RV Park **30.68931°N 91.41531°W**	False River	LA 1 to LA 413 to 7913 Park St.	Ventress	Pointe Coupee	New Roads	ramp
64	Little Alabama Bayou Boat Launch **30.51233°N 91.71885°W**	Little Alabama Bayou	US 190 to LA 975 south to Little Alabama Bayou	Sherburne	Pointe Coupee	Lottie	ramp
65	Morrison Parkway Boat Launch-West **30.69238°N 91.43538°W**	False River	LA 1 to Main St. behind New Roads City Hall	New Roads	Pointe Coupee	New Roads	landing
66	Morrison Parkway Boat Launch-East **30.69255°N 91.43322°W**	False River	LA 1 to Main St. next to Satterfield's Restaurant & Bar	New Roads	Pointe Coupee	New Roads	landing
67	Old River Landing **30.83787°N 91.61837°W**	Raccourci Old River	LA 1 to LA 972 to 6250 LA 419	Batchelor	Pointe Coupee	Lacour	landing
68	Old River Locks Boat Launch **31.00451°N 91.67566°W**	Lower Old River	LA 1 to LA 15; next to Old River Locks	Lettsworth	Pointe Coupee	Turnbull Island	ramp
69	Parrot's Bar & Grill Boat Launch **30.62112°N 91.45832°W**	False River	LA 1 to LA 413 to 6901 Island Rd.; next to bar	Jarreau	Pointe Coupee	Erwinville	ramp
70	Raccourci Landing **30.84421°N 91.65243°W**	Raccourci Old River	LA 1 to LA 972 to 5162 LA 419	Batchelor	Pointe Coupee	Batchelor	landing

Table 5.6: St. Landry Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
71	Atchafalaya Basin Campground **30.49634°N 91.75941°W**	Atchafalaya River	US 190 to LA 105 south to sign; east side of levee	Krotz Springs	St. Landry	Portage	ramp
72	Atchafalaya River Boat Landing **30.52959°N 91.74395°W**	Atchafalaya River	US 190 to LA 105 south; east side of levee	Krotz Springs	St. Landry	Lottie	landing
73	Bada's Bait Stand & Bar **30.54771°N 91.88532°W**	Bayou Courtableau	US 190; west of Bayou Courtableau Bridge; next to Bada's store	Port Barre	St. Landry	Port Barre	ramp
74	Bayou Courtableau Boat Landing **30.53296°N 91.85541°W**	Bayou Courtableau	US 190 to Bayou Courtableau Bridge; exit to Spillway Rd. south	Krotz Springs	St. Landry	Krotz Springs	landing
75	Bayou Courtableau Boat Ramp #1 **30.54743°N 91.86259°W**	Bayou Courtableau	US 190 to Bayou Courtableau Bridge; under bridge	Krotz Springs	St. Landry	Krotz Springs	ramp
76	Bayou Courtableau Boat Ramp #2 **30.61533°N 92.05001°W**	Bayou Courtableau	I-49 to LA 103 west; west of I-49 bridge	Washington	St. Landry	Opelousas	ramp
77	Bayou Petite Prairie Boat Launch **30.64774°N 91.75529°W**	Bayou Petite Prairie	US 190 to LA 105 north to Majors Rd.	Melville	St. Landry	Swayze Lake	ramp
78	Bayou Portage Boat Launch **30.42297°N 91.84776°W**	Bayou Fusilier & Bayou Amy	I-10 to LA 686 to LA 737	Arnaudville	St. Landry	Portage	ramp
79	Bayou Rouge Boat Launch #1 **30.7599°N 91.8506°W**	Bayou Rouge	US 190 to LA 105 north to LA 360 south; west side of Bayou Rouge Bridge	Palmetto	St. Landry	Bayou Current	ramp
80	Bayou Rouge Boat Launch #2 **30.73110°N 91.76357°W**	Bayou Rouge	US 190 to LA 105 north to Goudeau Rd.	Melville	St. Landry	Swayze Lake	ramp
81	Bayou Rouge Boat Launch #3 **30.75511°N 91.90344°W**	Bayou Rouge	US 190 to LA 105 north to LA 10 west to Veazie Rd.; east side of Savage Bridge	Palmetto	St. Landry	Bayou Jack	ramp
82	City Lake Park **30.49378°N 92.46281°W**	City Lake	US 190 next to Eunice Country Club golf course	Eunice	St. Landry	Eunice South	ramp
83	Darbonne Bay Boat Launch **30.56552°N 91.83001°W**	Darbonne Bay	US 190 to US 71; east side of Darbonne Bay Bridge	Krotz Springs	St. Landry	Krotz Springs	ramp
84	Dixie's Boat Ramp **30.45798°N 91.75778°W**	Bayou Courtableau to Atchafalaya River	US 190 to LA 105 south to West Atchafalaya Levee Rd. to Dixie's Boat Ramp Rd.	Sherburne	St. Landry	Portage	ramp
85	Half Moon Bayou Boat Launch **30.54090°N 91.79004°W**	Half Moon Bayou	US 190 to LA 3174 to PR 412; south side of Missouri Pacific RR next to Half Moon Bayou Bridge	Krotz Springs	St. Landry	Krotz Springs	ramp
86	Half Moon Lake Boat Launch **30.65545°N 91.79835°W**	Half Moon Lake to Second Lake	US 190 to LA 105 north to LA 10 west to Second Lake Rd.	Melville	St. Landry	Swayze Lake	ramp

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87	Indian Bayou WMA Boat Launch † **30.39919°N 91.7000°W**	Indian Bayou	I-10 to Butte La Rose exit to LA 105 north to Indian Bayou	Butte La Rose	St. Landry	Maringouin NW	ramp
88	Joe Stoute Landing **30.47510°N 91.97719°W**	Bayou Teche	I-10 to LA 31; across from Leonville Town Hall	Leonville	St. Landry	Arnaudville	ramp
89	Melville Ferry Boat Launch **30.68900°N 91.73723°W**	Atchafalaya River	US 190 to LA 105 north to south side of Melville Bridge; east side of levee	Melville	St. Landry	Melville	ramp
90	Port Barre Boat Launch **30.55827°N 91.95486°W**	Bayou Courtableau	US 190 to LA 103 north; east of bridge	Port Barre	St. Landry	Port Barre	landing
91	Terrytown Campground **30.54733°N 91.82873°W**	Two O'Clock Bayou	US 190 to LA 3174 to PR 412; south side of Missouri Pacific RR on Kimbleton Ln.	Krotz Springs	St. Landry	Krotz Springs	ramp
92	The Landing **30.53651°N 91.85630°W**	Bayou Courtableau	US 190 to Bayou Courtableau Bridge; exit to Spillway Rd. south	Krotz Springs	St. Landry	Krotz Springs	landing

Notes: * Under construction

Table 5.7: St. Martin Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
93	Adams Landing-Belle River **29.84945°N 91.19113°W**	Belle River	LA 70	Pierre Part	St. Martin	Napoleonville SW	landing
94	Adams Landing-Spillway **29.84882°N 91.19247°W**	Intracoastal Waterway	LA 70; west side of levee	Pierre Part	St. Martin	Napoleonville SW	landing
95	Alabama Bayou Boat Launch #3 **30.43273°N 91.67091°W**	Alabama Bayou	I-10 to Whiskey Bay exit to LA 975 north	Sherburne	St. Martin	Maringouin NW	ramp
96	Angelle's Whiskey River Landing **30.30611°N 91.76057°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	landing
97	Atchafalaya Basin Landing & Marina **30.30866°N 91.76691°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	landing
98	Atchafalaya River Boat Ramp #1 **30.46090°N 91.73871°W**	Atchafalaya River	I-10 to Whiskey Bay exit to LA 975 north	Sherburne	St. Martin	Maringouin NW	ramp
99	Atchafalaya River Boat Ramp #2 **30.40632°N 91.69232°W**	Atchafalaya River to Whiskey Bay Pilot Channel	I-10 to Whiskey Bay exit to LA 975 north	Sherburne	St. Martin	Maringouin NW	ramp
100	Bayou Amy Boat Launch **30.30537°N 91.75325°W**	Bayou Amy	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.; across from McGee's Landing	Henderson	St. Martin	Cecilia	ramp
101	Bayou Benoit Boat Launch **30.10171°N 91.62705°W**	Bayou Benoit	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Loreauville	St. Martin	Loreauville	landing
102	Bayou Portage Guidry Boat Launch **30.28122°N 91.82391°W**	Bayou Portage Guidry	I-10 to Henderson/Cecilia exit; LA 352 to LA 349; next to Bayou Portage Guidry Bridge	Henderson	St. Martin	Cecilia	ramp
103	Belle River Landing **29.92416°N 91.24072°W**	Intracoastal Waterway	LA 1 to LA 75 to LA 3066 to LA 997; west side of levee	Pierre Part	St. Martin	Pierre Part	landing
104	Breaux Bridge Boat Launch **30.27644°N 91.90016°W**	Bayou Teche	I-10 to Breaux Bridge exit to LA 31 south to E. Bridge St.; across from Bayou Teche Visitors Center	Breaux Bridge	St. Martin	Breaux Bridge	ramp
105	Breaux's Boat Launch **30.38595°N 91.68858°W**	Atchafalaya River near Indian Bayou	I-10 to Butte La Rose exit to LA 105 north to Indian Bayou	Butte La Rose	St. Martin	Maringouin NW	ramp
106	Butte La Rose Boat Launch **30.26884°N 91.70709°W**	Butte La Rose Bay	I-10 to Butte La Rose exit to LA 3177 south	Butte La Rose	St. Martin	Butte La Rose	ramp
107	Captain Hedges' Landing **30.28027°N 91.68601°W**	Bayou Butte La Rose & Upper Grand River	I-10 to Butte La Rose exit to LA 3177 south	Butte La Rose	St. Martin	Butte La Rose	landing
108	Catahoula Landing **30.21508°N 91.69201°W**	West Atchafalaya Basin protection Levee borrow pit	I-10 to Butte La Rose exit to LA 3177 south to Henderson Levee Rd. south; east side of levee	Catahoula	St. Martin	Catahoula	landing

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109	Clayton P. Boudreaux Memorial Park **30.21006°N 91.70228°W**	Catahoula Lake	I-10 to Butte La Rose exit to LA 3177 south to Henderson Levee Rd. south to LA 96	Catahoula	St. Martin	Catahoula	ramp
110	Cypress Cove Landing † **30.30732°N 91.75026°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	landing
111	Doiron's Boat Landing #1 **29.76340°N 91.17609°W**	Intracoastal Waterway	LA 70; west side of levee	Morgan City	St. Martin	Napoleonville SW	landing
112	Doiron's Boat Landing #2 **29.76552°N 91.17423°W**	Bayou Long	LA 70 to Stephenville Rd.	Morgan City	St. Martin	Napoleonville SW	landing
113	Doiron's Boat Landing #3 **29.76351°N 91.17348°W**	Bayou Milhomme	LA 70 to Stephenville Rd.	Morgan City	St. Martin	Napoleonville SW	landing
114	Frenchman's Wilderness Campground * **30.32857°N 91.70844°W**	Gim Slough to Lake Bigeux	I-10 to Butte La Rose exit to LA 3177 south	Butte La Rose	St. Martin	Butte La Rose	ramp
115	George Dupree Bridge Boat Launch **30.34464°N 91.78757°W**	Bayou Portage & Bayou Amy	I-10 to Henderson/Cecilia exit to LA 686 to LA 678	Cecilia	St. Martin	Cecilia	ramp
116	Kern's Landing **30.31515°N 91.78703°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	ramp
117	Lake Dauterive Boat Launch-East **30.07442°N 91.62238°W**	Lake Dauterive	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Loreauville	St. Martin	Jackass Bay	ramp
118	Lake Martin Boat Launch **30.22270°N 91.90565°W**	Lake Martin	I-10 to Breaux Bridge exit to LA 31 south to Lake Martin Rd.	Parks	St. Martin	Broussard	ramp
119	Magnolia Park **30.13847°N 91.81759°W**	Bayou Teche	I-10 to Breaux Bridge exit to LA 31 south	St. Martinville	St. Martin	Parks	ramp
120	McGee's Landing **30.30645°N 91.75632°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	landing
121	Parks Recreation Area **30.21362°N 91.82911°W**	Bayou Teche	I-10 to Breaux Bridge exit to LA 31 south to LA 350	Parks	St. Martin	Parks	ramp
122	Pelba Landing **30.34073°N 91.72899°W**	Lake Pelba to Lake Bigeux	I-10 to Butte La Rose exit	Butte La Rose	St. Martin	Butte La Rose	landing
123	UNOCAL Old Belle River Landing **29.90743°N 91.21853°W**	Intracoastal Waterway	LA 70; west side of levee	Pierre Part	St. Martin	Pierre Part	ramp
124	Wiltz Boat Landing **30.31106°N 91.77546°W**	Henderson Lake	I-10 to Henderson/Cecilia exit to LA 352 to Henderson Levee Rd.	Henderson	St. Martin	Cecilia	ramp

Notes: * Requires a fee to enter the facility
† Launch only available to facility guests

Table 5.8: St. Mary Parish Boat Launches

	Name	Water Bodies	Access Routes	Proximal Town	Parish	USGS Quad	Type
125	Baldwin Boat Launch **29.83301°N 91.54276°W**	Bayou Teche	LA 182 to Baldwin City Playground	Baldwin	St. Mary	Franklin	landing
126	Berwick Bay Boat Launch **29.69296°N 91.21560°W**	Berwick Bay	US 90 to Sixth St. south to Canton St. through levee locks to Bellview Front	Berwick	St. Mary	Morgan City	ramp
127	Berwick Boat Ramp **29.66509°N 91.24108°W**	Intracoastal Waterway protection levee borrow pit	US 90 to Sixth St. south to Canton St. to Third St. south to River Rd. south	Berwick	St. Mary	Morgan City	ramp
128	Burns Point Launch & Campground * **29.57503°N 91.53763°W**	Bayou Sale Bay to East Cote Blanche Bay	US 90 to LA 317 south to 195 Burns Pt. Ln.	Centerville	St. Mary	Point Chevreuil	ramp
129	Cabot Boat Landing **29.68125°N 91.47100°W**	Intracoastal Waterway	US 90 to LA 317 south; next to North Bend Bridge	Centerville	St. Mary	North Bend	ramp
130	Calumet Launch & Campground * **29.70053°N 91.37121°W**	Wax Lake Outlet	US 90 to Calumet exit to Wax Lake Outlet levee rd.; west of levee	Patterson	St. Mary	Patterson	landing
131	Charenton Beach Boat Launch **29.90201°N 91.51277°W**	Grand Lake	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. north side of levee	Charenton	St. Mary	Charenton	landing
132	Choupique Boat Launch **29.83305°N 91.56754°W**	Bayou Choupique to West Cote Blanche Bay	US 90 to LA 83 west to Martin Luther King St.; next to bridge	Baldwin	St. Mary	Franklin	ramp
133	Cote Blanche Island Boat Launch **29.76572°N 91.71571°W**	Intracoastal Waterway to West Cote Blanche Bay	US 90 to LA 83 to Cote Blanche Rd.; next to ferry	Weeks	St. Mary	Kemper	ramp
134	Cotten Road Boat Launch **29.64831°N 91.29282°W**	Intracoastal Waterway protection levee borrow pit	US 90 to Cotten Rd.; end of Cotten Rd.	Patterson	St. Mary	Patterson	ramp
135	Cypremort Point State Park **29.7313°N 91.8400°W**	Quintana Canal to Vermilion Bay	US 90 to LA 83 to LA 319	Weeks	St. Mary	Hammock Lake	landing
136	Fairfax Foster Bailey Memorial Landing **29.78400°N 91.52434°W**	Franklin Canal	LA 182 to Willow St. south to Frontage Rd; under US 90 overpass	Franklin	St. Mary	Franklin	landing
137	Franklin Canal Boat Launch **29.78629°N 91.51833°W**	Franklin Canal	LA 182 to Willow St. south	Franklin	St. Mary	Franklin	ramp
138	Grand Avoille Cove Boat Launch **29.92263°N 91.54556°W**	Grand Avoille Cove to Lake Fausse Pointe	LA 182 to LA 326 to LA 324 to LA 87 to Charenton Beach Rd. to Henderson Levee Rd. north	Charenton	St. Mary	Charenton	landing
139	Jesse B. Hayes Jr. Memorial Boat Launch **29.72575°N 91.31214°W**	Bayou Teche	LA 182	Patterson	St. Mary	Patterson	landing

Table 5.8 continued on next page

140	Jesse Fontenot Memorial Boat Landing **29.66072°N 91.24403°W**	Intracoastal Waterway to Lower Atchafalaya River	US 90 to Sixth St. south to Canton St. to Third St. south to 700 River Rd.	Berwick	St. Mary	Morgan City	landing
141	Joe C. Russo Memorial Boat Landing **29.72512°N 91.18498°W**	Intracoastal Waterway to Flat Lake	LA 70; west side of levee	Morgan City	St. Mary	Morgan City	landing
142	Lake End RV Park & Campground * **29.72012°N 91.18770°W**	Lake Palourde	LA 70	Morgan City	St. Mary	Morgan City	ramp
143	Lawrence J. Michel Jr. Memorial Boat Landing **29.68377°N 91.18179°W**	Bayou Boeuf	US 90 to East Blvd. exit west to Railroad Ave. to Avoca Rd. south, to Youngs Rd. east; on south side of levee by Bayou Boeuf locks	Morgan City	St. Mary	Morgan City	landing
144	Luke Landing Boat Launch **29.60151°N 91.53976°W**	East Cote Blanche Bay	US 90 to LA 317 to Luke's Landing Rd.	Centerville	St. Mary	Point Chevreuil	ramp
145	Myette Point Boat Launch **29.87956°N 91.45406°W**	Grand Lake	LA 182 to LA 87 to Martin Ridge Rd; north side of levee	Charenton	St. Mary	Centerville NW	landing
146	Parc-Sur-La-Teche Landing **29.79201°N 91.49923°W**	Bayou Teche	LA 182 to LA 3069; next to bridge	Franklin	St. Mary	Centerville	landing
147	Quintana Boat Launch **29.72921°N 91.84188°W**	Quintana Canal to Vermilion Bay	US 90 to LA 83 to LA 319	Weeks	St. Mary	Hammock Lake	ramp
148	R.J. Marcel Memorial Boat Launch **29.66144°N 91.10059°W**	Bayou Boeuf	US 90 to Lake Palourde Rd.; under the south bridge	Amelia	St. Mary	Amelia	landing
149	Rock Weir Boat Launch **29.80953°N 91.41211°W**	Sixmile Lake	LA 182 to LA 87 to levee rd. north; east side of levee near Verdunville	Centerville	St. Mary	Centerville	landing
150	Roseville Street Boat Launch **29.79861°N 91.49726°W**	Bayou Teche	LA 182 to Roseville St.; behind cemetery	Franklin	St. Mary	Centerville	ramp
151	Sanaran Street Boat Launch **29.88523°N 91.52273°W**	Bayou Teche	LA 182 to LA 326 to Sanaran St.; east of LA 324 bridge	Charenton	St. Mary	Charenton	ramp
152	Schwan Park & Boat Launch **29.76164°N 91.41718°W**	Bayou Teche	LA 182 to Centerville Bridge to LA 87 east	Centerville	St. Mary	Centerville	ramp
153	Two Sisters Boat Launch & Campground **29.70728°N 91.26566°W**	Bayou Teche	LA 182 to Two Sisters Court	Patterson	St. Mary	Patterson	landing
154	Verdunville Boat Landing **29.76382°N 91.39392°W**	Sixmile Lake	LA 182 to Centerville Bridge to LA 87 to levee rd. north; east side of levee in Verdunville	Centerville	St. Mary	Centerville	landing

Table 5.8 continued on next page

155	Verdunville Boat Ramp **29.77524°N 91.40648°W**	Yellow Bayou	LA 182 to LA 87 to levee rd. north; west side of levee near Verdunville	Centerville	St. Mary	Centerville	ramp
156	Wilson's Landing Boat Launch **29.72246°N 91.29430°W**	Bayou Teche to Cypress Pass	LA 182 to Red Cypress Rd. east over bridge to Victoria Riverside Rd. north; over levee, near floodgate	Patterson	St. Mary	Patterson	landing

Notes: * Requires a fee to enter the facility

COMMUNICATIONS

I have displayed all boat launch locations on color infrared aerial photos of each parish. The dimensions of the large format maps are 36" wide by 32" long and are available to the public through Sea Grant and DNR. I included smaller images of these maps in the Appendix section of this thesis. I illustrated all boat launch locations using a numeric scheme that corresponds to Tables 5.1 – 5.8 and to a reference grid placed on each map. The reference grid also contains information about each launch that would interest visitors. Sea Grant and DNR funded all map production.

CHAPTER 6: DISCUSSION

HISTORICAL IMPACT ON THE SMP

The SMP is already shaping the Basin's future, after having undergone years of negotiations and debate among various interest groups including federal and state authorities. On July 6, 1999, the action plan was finally adopted by federal, state and local officials to use federal and state funds to enhance and protect the AB. This SMP for the ABFS-LP had evolved from the following key historical occurrences: the Environmental Revolution, the Stockholm Conference, the Treen Agreement, WRDA and Act 920.

- The Environmental Revolution in the 1960s created environmental awareness among the general public. Public pressures for saving the Earth's natural resources forced the federal government to act against chemical threats to the environment.
- The Stockholm Conference highlighted the first international concern for protecting the global environment. The Conference established the UNEP that issued the first framework for internationally assessing and responding to potential dangers to natural resources.
- The Treen Agreement outlined the insight of Governor David C. Treen to devise a means of satisfying the disparate wishes of private landowners, conservationists, the USACE, the state and sportsmen to acquire land in the AB for public use. His tactic of purchasing easements for public access and recreation, while preserving mineral and title rights to the owner, established the basis for the 1985 ABFS-LP.
- WRDA has enabled the federal government to fund environmental development projects around the country, especially in the AB. WRDA outlined a cost-share mechanism between the federal and state government for improving the AB. These improvements

included maintaining flood protection and producing a plan that would support public appreciation of the Basin's natural resources. This Act altered the USACE goals from flood protection alone to other non-traditional interests.

- Act 920, the Atchafalaya Basin Bill, authorized the beginning of a 15-year SMP for the ABFS-LP. This Act designated the responsibilities the ABP within DNR to act on behalf of the State of Louisiana in partnership with the USACE to implement the SMP to the AB. Act 920 also enabled proposals for additional projects outside the original scope of the SMP. Under state mandate, eight parishes were included in the SMP.

KAPLANS' AND LYNCH'S INFLUENCE ON FRAMEWORK

The ABP requires a method for executing the provisions specified in the 1998 SMP over the revised boundaries. Before Act 920, the geography of the plan was controlled by a protection levee system. Now the ABFS represents half of the total coverage area after the addition of the eight parishes. By expanding the Plan beyond the Basin's protection levees, the complexity of agriculture, residences, businesses, traffic and townships distort the ambiance of the AB. From a planner's standpoint, if recreation was methodically coordinated to preserve the impression of the AB in the exterior environments, then the complexities can actually stimulate that impression. This coordination can be accomplished by considering the levels of organization by Kevin Lynch.

These nature-based environments are preferred, as the Kaplans' research has shown. If the boat launch setting's imageability is controlled or even considered, then planners and designers can support an intended human function. Agencies of the ABP can promote recreation in the Basin parishes by focusing any recreational improvements, outlined in the SMP, on persuading human behavior. This is done by controlling the settings associated around boat

launches. The levels of organization that Kevin Lynch provides in a cityscape can actually be used to connect one boat launch setting to another to create an overall preferred environment in the eight parishes that encompass the Basin. This framework would allow one setting to support other settings. Boat launch sites lacking in qualities of a human preference would have less impact on visitors compared to the overall Basin environment.

LIMITATIONS OF THIS THESIS

The framework described in this thesis is a "developing" one. The vector maps indicate that all major roads connecting boat launches serve as paths that might be considered for signage, surface improvements, planting, controlled development, welcome centers, interpretive centers or other support facilities. However, these highways as well as actual boat launches can be ranked according to their strengths and weaknesses for human preference and for the "environmental image" of the AB.

These boat launches should also be investigated for condition and importance to upgrade. If upgrades are necessary, then what is the cost and who will pay? This might be the ultimate factor in establishing any improvements in the Basin and its respective parishes. However, if one considers the income the state generates from nature-based recreation (Table 6.1), then funds may be allotted for the proposed improvements.

FUTURE CONSIDERATIONS

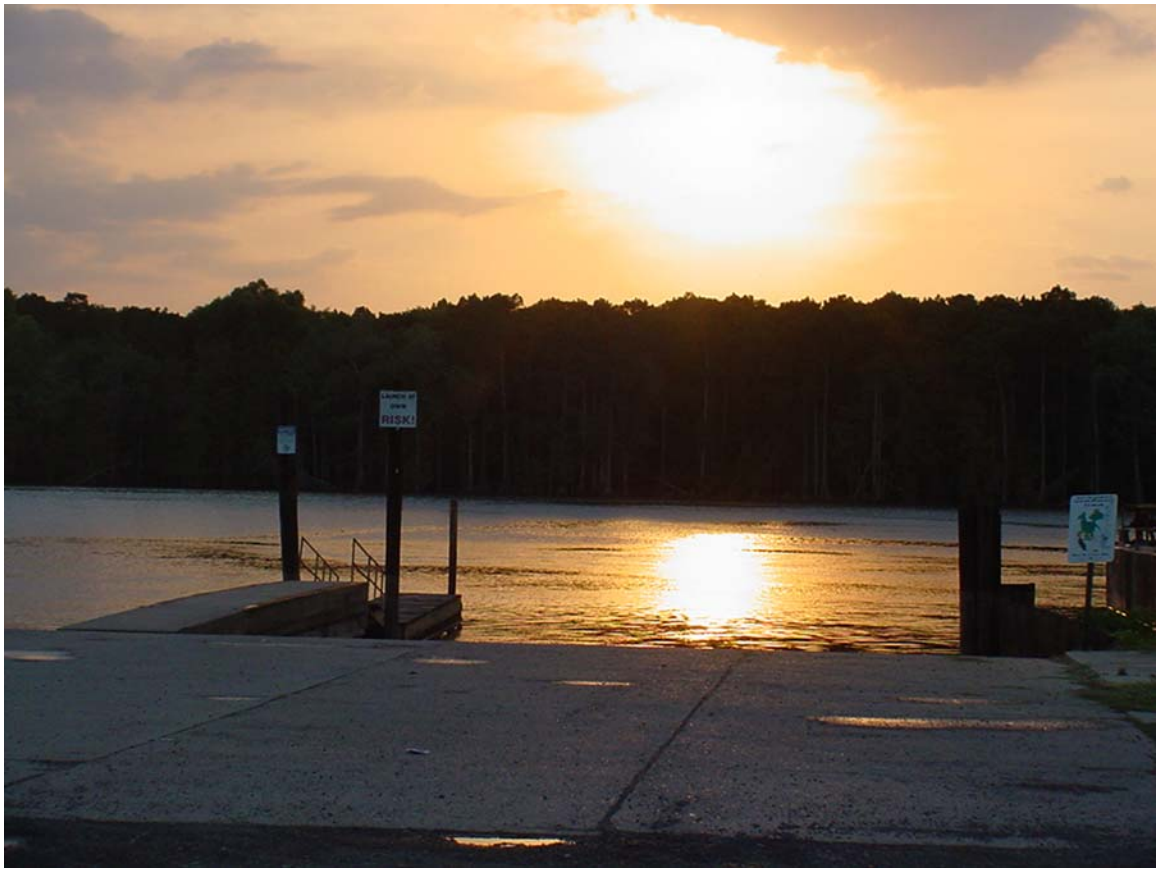
The data used to build the framework and the CIR maps for this thesis is electronic. With the availability of GIS and the Internet, these files can be easily amended and advertised. New shapefiles were generated from originals that were extracted from the Louisiana GIS CD set. These files and the boat launch point data have been projected on the NAD83, UTM Zone 15 coordinate system; so they can be superimposed over the DOQQs that were used to develop the

map series in the appendices. Over time, when more current DOQQs are made available, they can be easily imported into the GIS files to replace the original CIR aerial photos. This digital resource can serve as a framework for communicating a range of information related to the Basin. GIS software can facilitate the inclusion of data such as canoe tours, bird sanctuaries or distressed forests that would not be easily communicated by conventional means. GIS software can also incorporate digital photos of actual sites, such as boat launches, with the point data. This would complement the Kaplans' research even further. The ultimate goal of these projects should be to broadcast this information over the Internet or distribute CD-ROMs, similar to the LA GIS CD set, to interested parties.

Table 6.1: Economic Impacts of Fisheries, Wildlife and Boating Resources, Louisiana, 1996 (Southwick, 1997)

SUMMARY TABLE	**RETAIL SALES (million $)**	**TOTAL ECONOMIC EFFECT (million $)**	**JOBS (number)**	**STATE SALES TAX & INCOME TAX REVENUES (million $)**
RECREATIONAL HUNTING	389.2	758.5	9,800.0	20.8
RECREATIONAL FISHING	790.0	1,600.0	18,400.0	38.5
NON-CONSUMPTIVE FISH & WILDLIFE RECREATION	253.3	512.3	6,800.0	21.0
RECREATIONAL BOATING	1,500.0	3,000.0	26,600.0	72.6
COMMERCIAL FISHING *	2,100.0	2,800.0	31,400.0	107.0
ALLIGATOR HARVESTS	23.0	40.2	430.0	1.2
REPTILE & AMPHIBIAN COLLECTION	1.3	2.5	20.0	0.1
FUR HARVEST	1.4	2.5	36	0.1
TOTAL	**5,047.0**	**8,700.0**	**93,500.0**	**261.0**

* Retail sales in Commercial Fishing include dockside sales of $315.8 million and sales at the processing, wholesale, retail and restaurant levels.



Sunset at a Boat Launch along the Intracoastal Waterway

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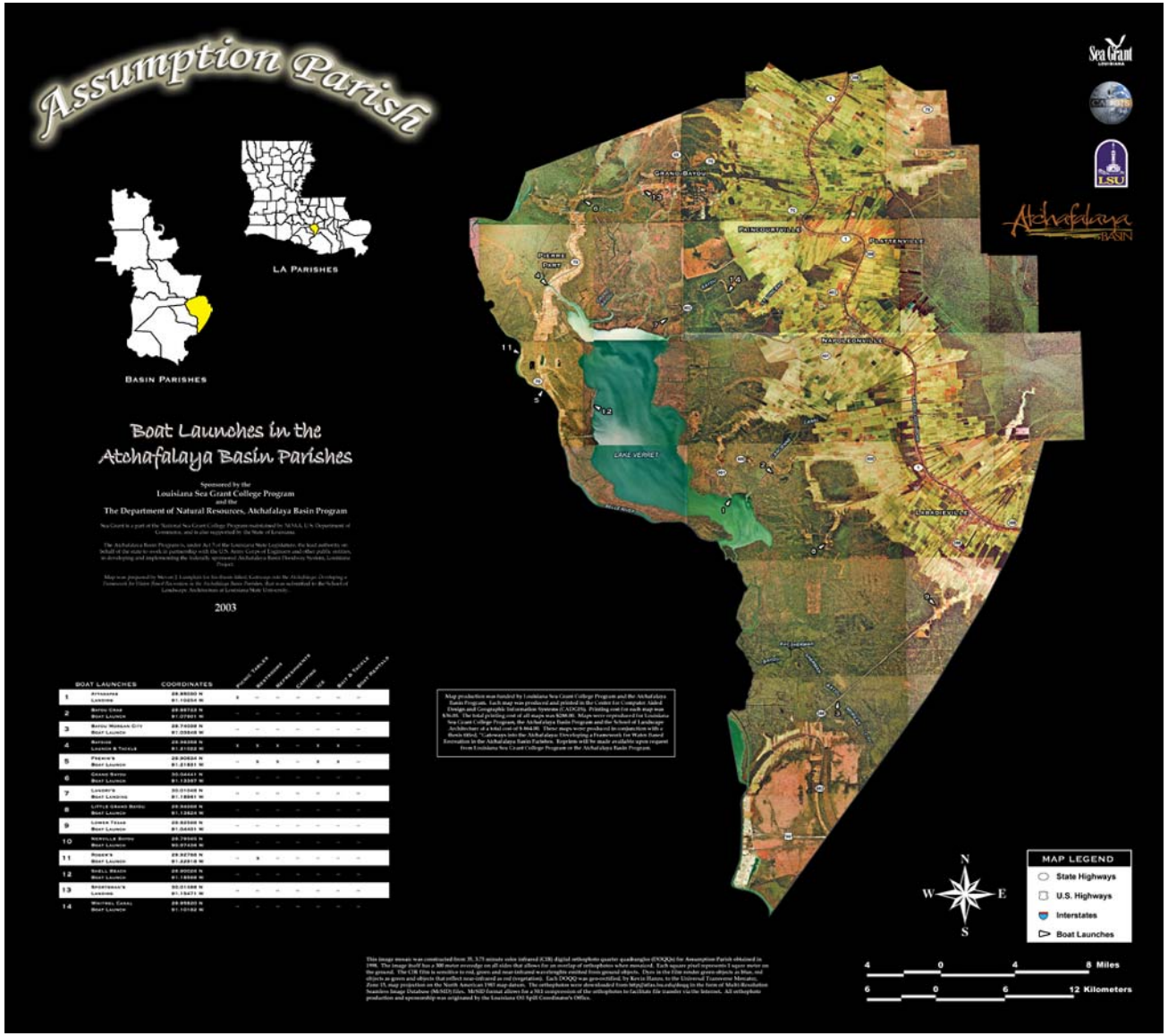
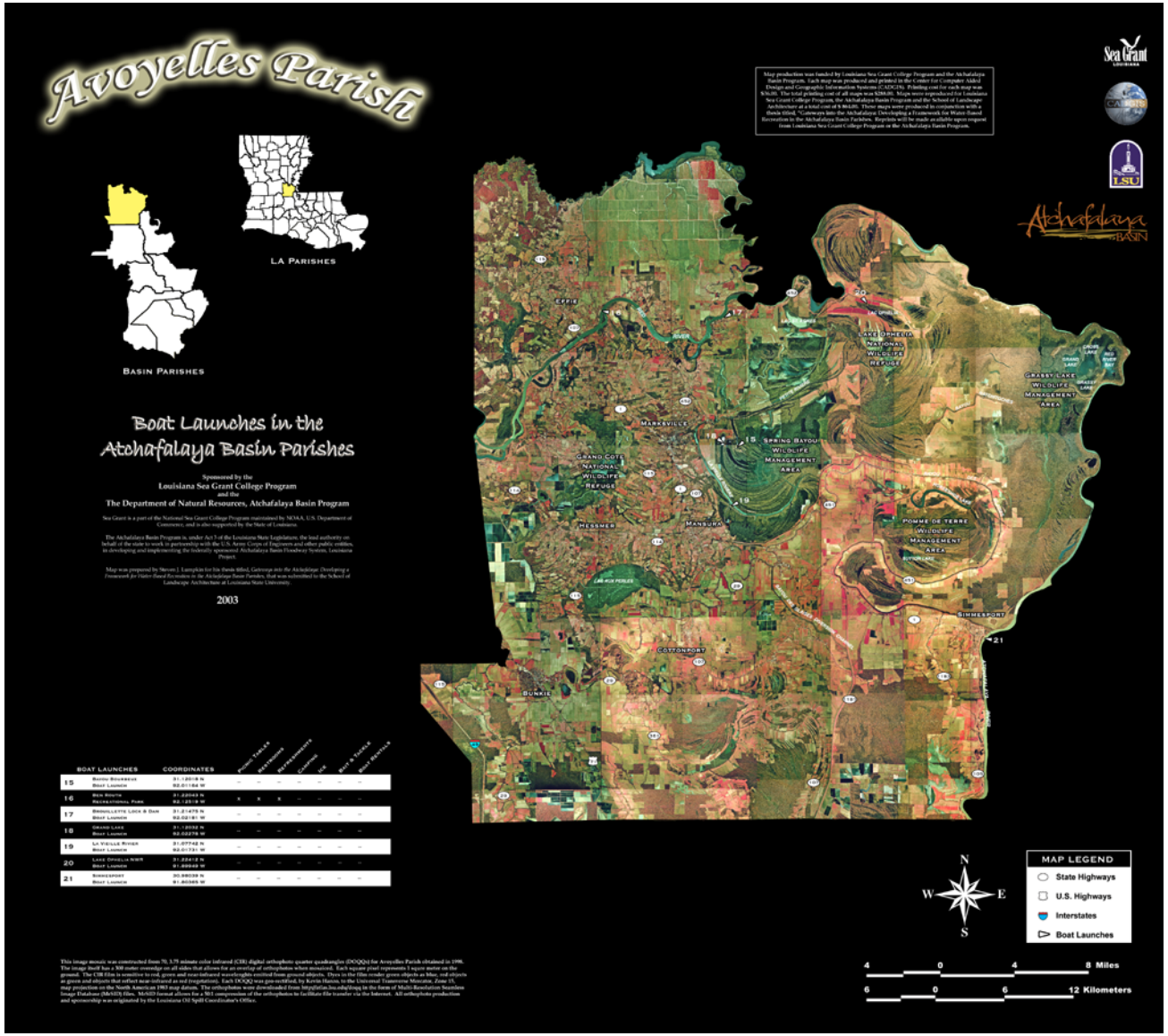
APPENDIX A: ASSUMPTION PARISH BOAT LAUNCH MAP



APPENDIX B: AVOYELLES PARISH BOAT LAUNCH MAP



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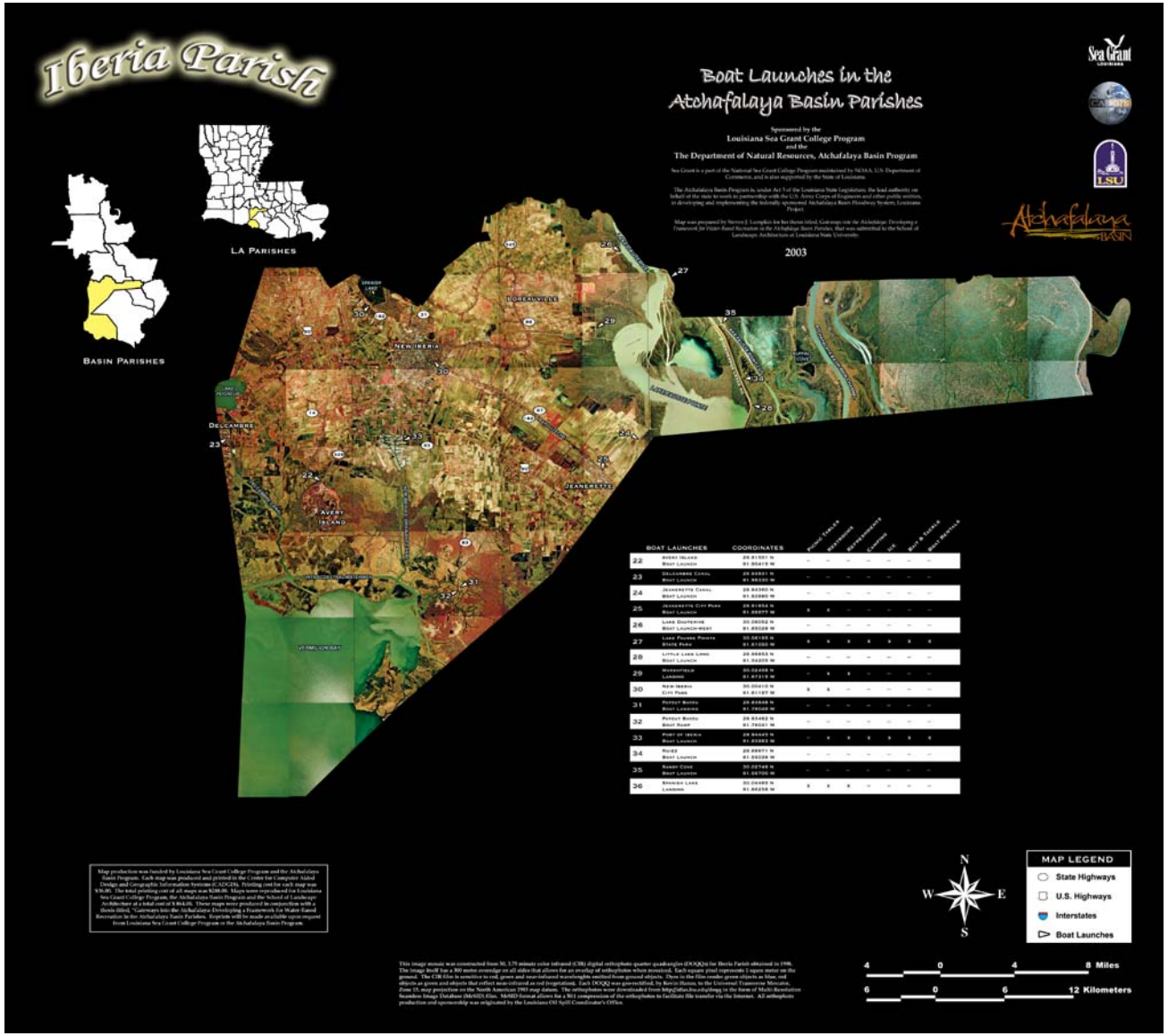
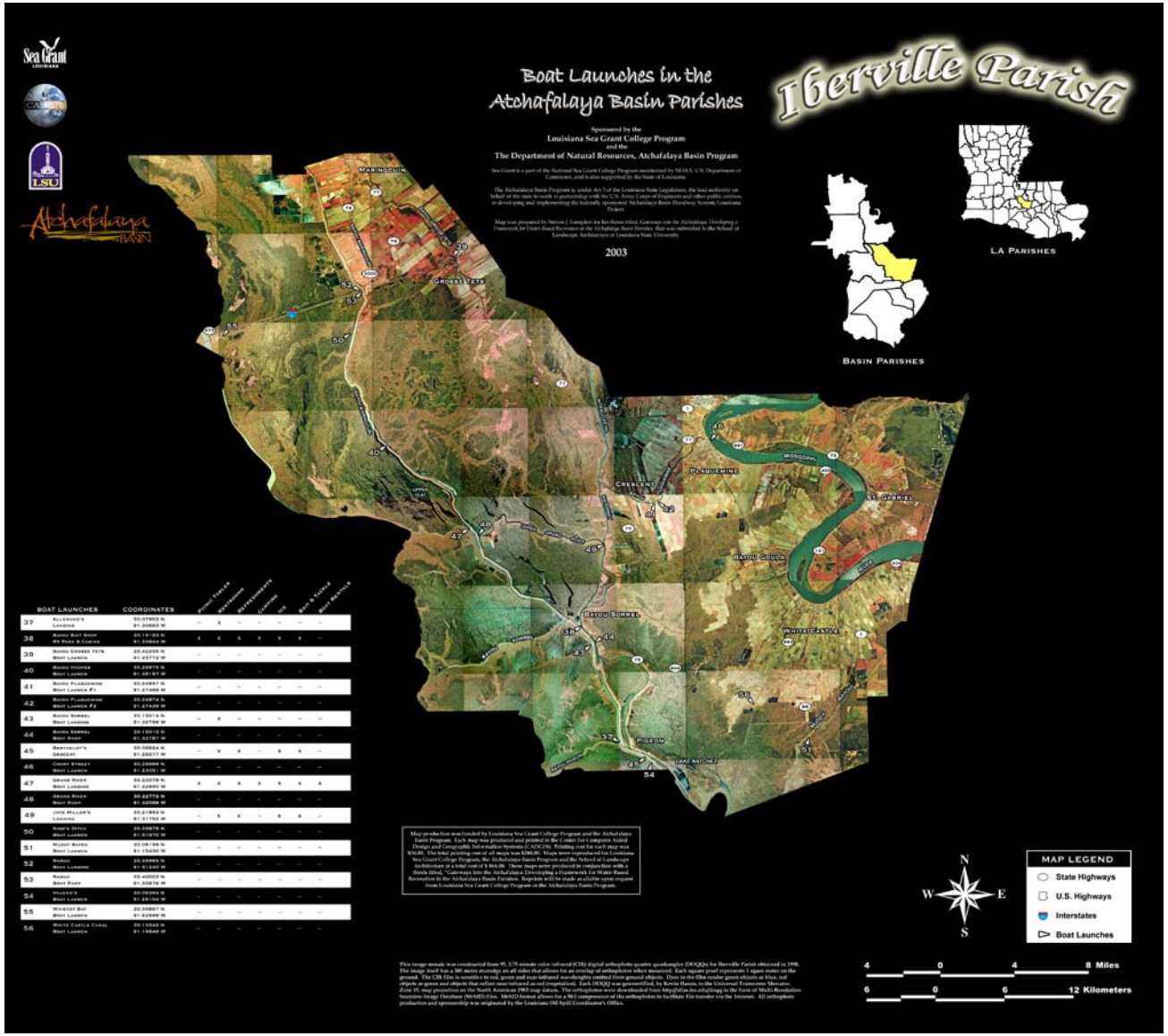
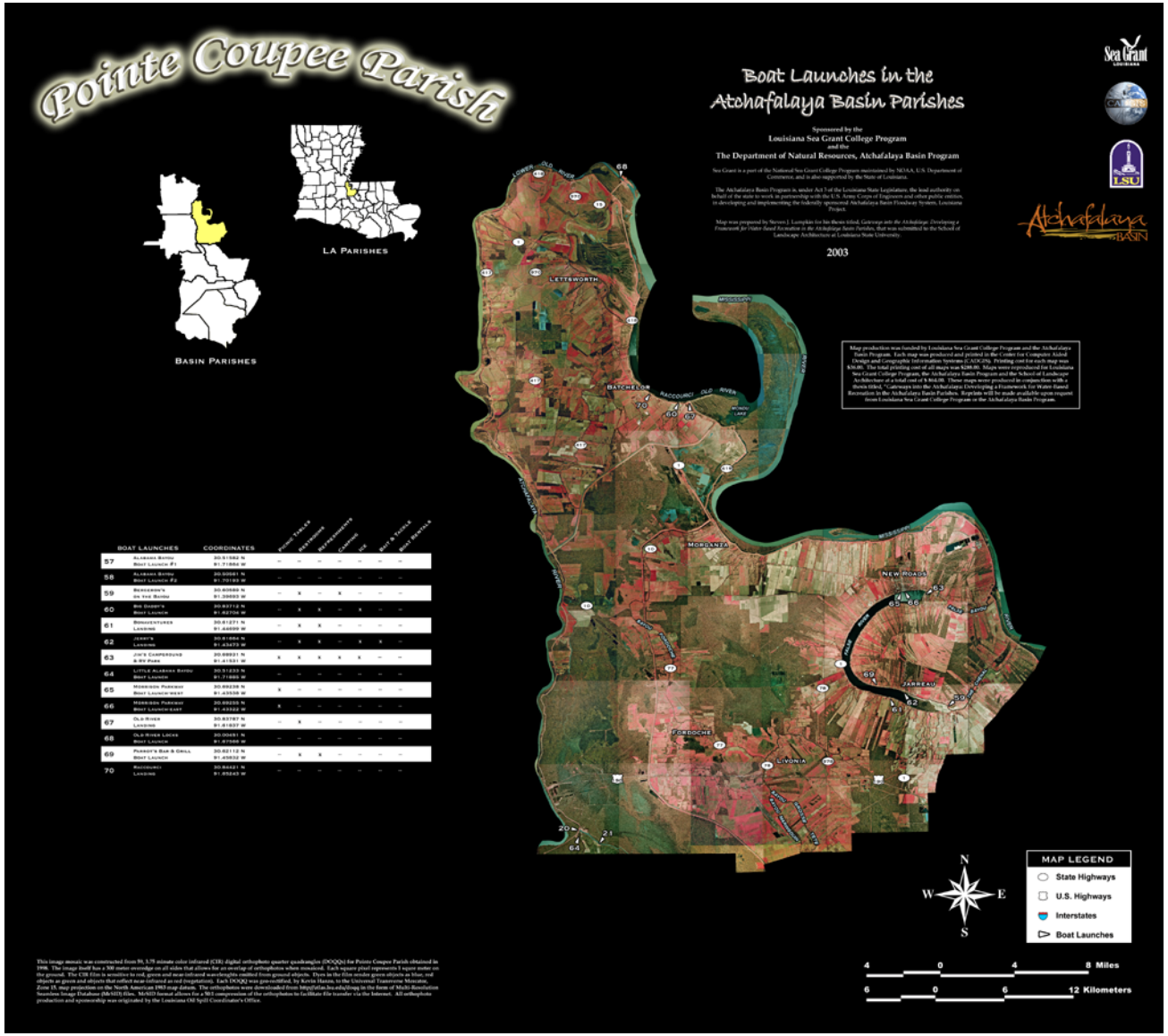


APPENDIX D: IBERVILLE PARISH BOAT LAUNCH MAP

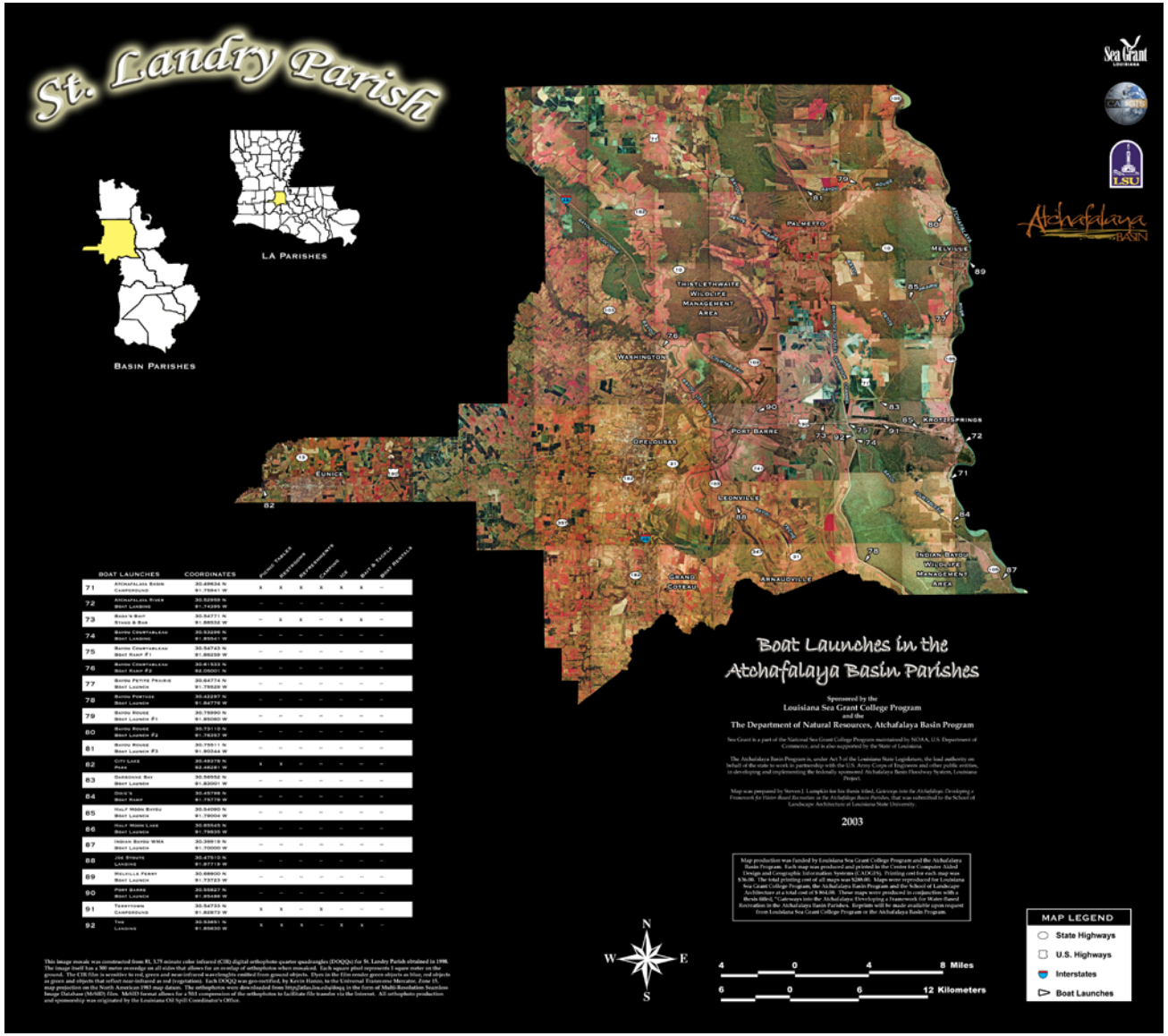


APPENDIX E: POINTE COUPEE PARISH BOAT LAUNCH MAP



	BOAT LAUNCHES	COORDINATES	PUBLIC TOILETS	PAVILIONS	BARBEQUE PITS	CAMPING	FEE	BAIT & TACKLE	BOAT RENTALS
57	Alabama Bayou Boat Launch #1	30.51582 N 91.71866 W	–	–	–	–	–	–	–
58	Alabama Bayou Boat Launch #2	30.50581 N 91.70189 W	–	–	–	–	–	–	–
59	Bergeron's on the Bayou	30.60589 N 91.39953 W	–	X	–	X	–	–	–
60	Big Daddy's Boat Launch	30.83712 N 91.62706 W	–	X	X	–	X	–	–
61	Bonaventures Landing	30.81271 N 91.44699 W	–	X	X	–	–	–	–
62	Jerry's Landing	30.81664 N 91.43479 W	–	X	X	–	X	X	–
63	Jim's Campground & RV Park	30.69931 N 91.41531 W	X	X	X	X	X	–	–
64	Little Alabama Bayou Boat Launch	30.51533 N 91.71985 W	–	–	–	–	–	–	–
65	Morrison Parkway Boat Launch-West	30.69238 N 91.43539 W	X	–	–	–	–	–	–
66	Morrison Parkway Boat Launch-East	30.69255 N 91.43542 W	X	–	–	–	–	–	–
67	Old River Landing	30.83787 N 91.81937 W	–	X	–	–	–	–	–
68	Old River Locks Boat Launch	30.90451 N 91.81566 W	–	–	–	–	–	–	–
69	Parrot's Bar & Grill Boat Launch	30.82112 N 91.49832 W	–	X	X	–	–	–	–
70	Raccourci Landing	30.84421 N 91.85243 W	–	–	–	–	–	–	–

APPENDIX F: ST. LANDRY PARISH BOAT LAUNCH MAP

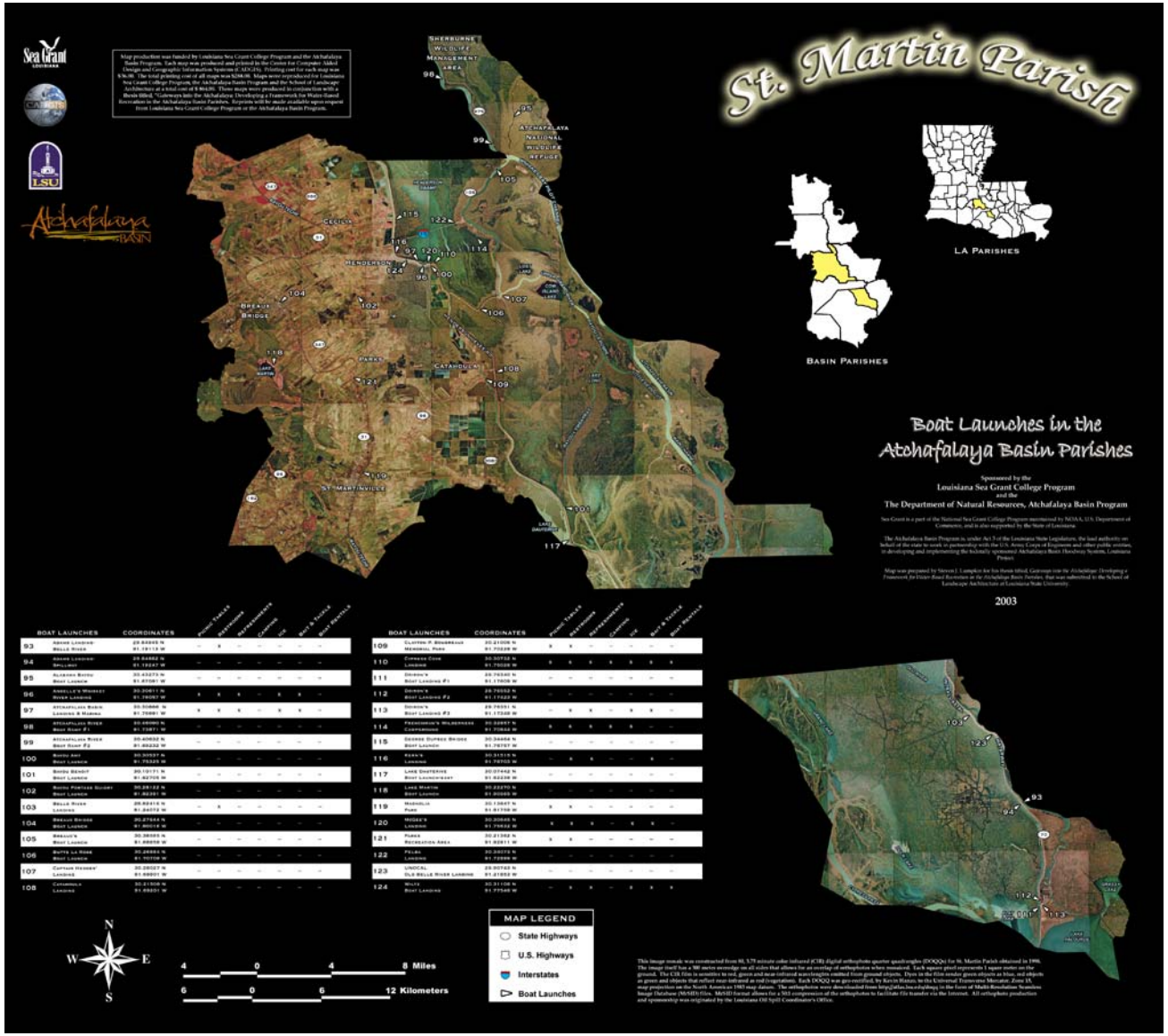


	BOAT LAUNCHES	COORDINATES	PUBLIC TOILETS	WATERFOWL	REFRESHMENTS	CAMPING	ICE	BAIT & TACKLE	BOAT RENTALS
71	Atchafalaya Basin Campground	30.69634 N 91.75941 W	X	X	X	X	X	X	–
72	Atchafalaya River Boat Landing	30.52959 N 91.74395 W	–	–	–	–	–	–	–
73	Bado's Bait Stand & Bar	30.54771 N 91.88532 W	–	X	X	–	X	X	–
74	Bayou Courtableau Boat Landing	30.53295 N 91.85541 W	–	–	–	–	–	–	–
75	Bayou Courtableau Boat Ramp #1	30.54743 N 91.86230 W	–	–	–	–	–	–	–
76	Bayou Courtableau Boat Ramp #2	30.61533 N 92.05001 N	–	–	–	–	–	–	–
77	Bayou Petite Prairie Boat Launch	30.64774 N 91.78529 W	–	–	–	–	–	–	–
78	Bayou Portage Boat Launch	30.48187 N 91.84778 W	–	–	–	–	–	–	–
79	Bayou Rouge Boat Launch #1	30.75990 N 91.85060 W	–	–	–	–	–	–	–
80	Bayou Rouge Boat Launch #2	30.73110 N 91.79307 W	–	–	–	–	–	–	–
81	Bayou Rouge Boat Launch #3	30.75511 N 91.80344 W	–	–	–	–	–	–	–
82	City Lake Park	30.49278 N 92.46281 W	X	X	–	–	–	–	–
83	Darbonne Bay Boat Launch	30.56558 N 91.82001 W	–	–	–	–	–	–	–
84	Dick's Boat Ramp	30.45799 N 91.78718 W	–	–	–	–	–	–	–
85	Half Moon Bayou Boat Launch	30.54590 N 91.79004 W	–	–	–	–	–	–	–
86	Half Moon Lake Boat Launch	30.65545 N 91.79835 W	–	–	–	–	–	–	–
87	Indian Bayou WMA Boat Launch	30.39919 N 91.70000 W	–	–	–	–	–	–	–
88	Joe Sylvette Landing	30.47510 N 91.87719 W	–	–	–	–	–	–	–
89	Melville Ferry Boat Launch	30.68900 N 91.73723 W	–	–	–	–	–	–	–
90	Port Barre Boat Launch	30.59827 N 91.95498 W	–	–	–	–	–	–	–
91	Territown Campground	30.54733 N 91.82872 W	X	X	–	X	–	–	–
92	The Landing	30.53451 N 91.85650 W	X	X	X	–	X	X	–

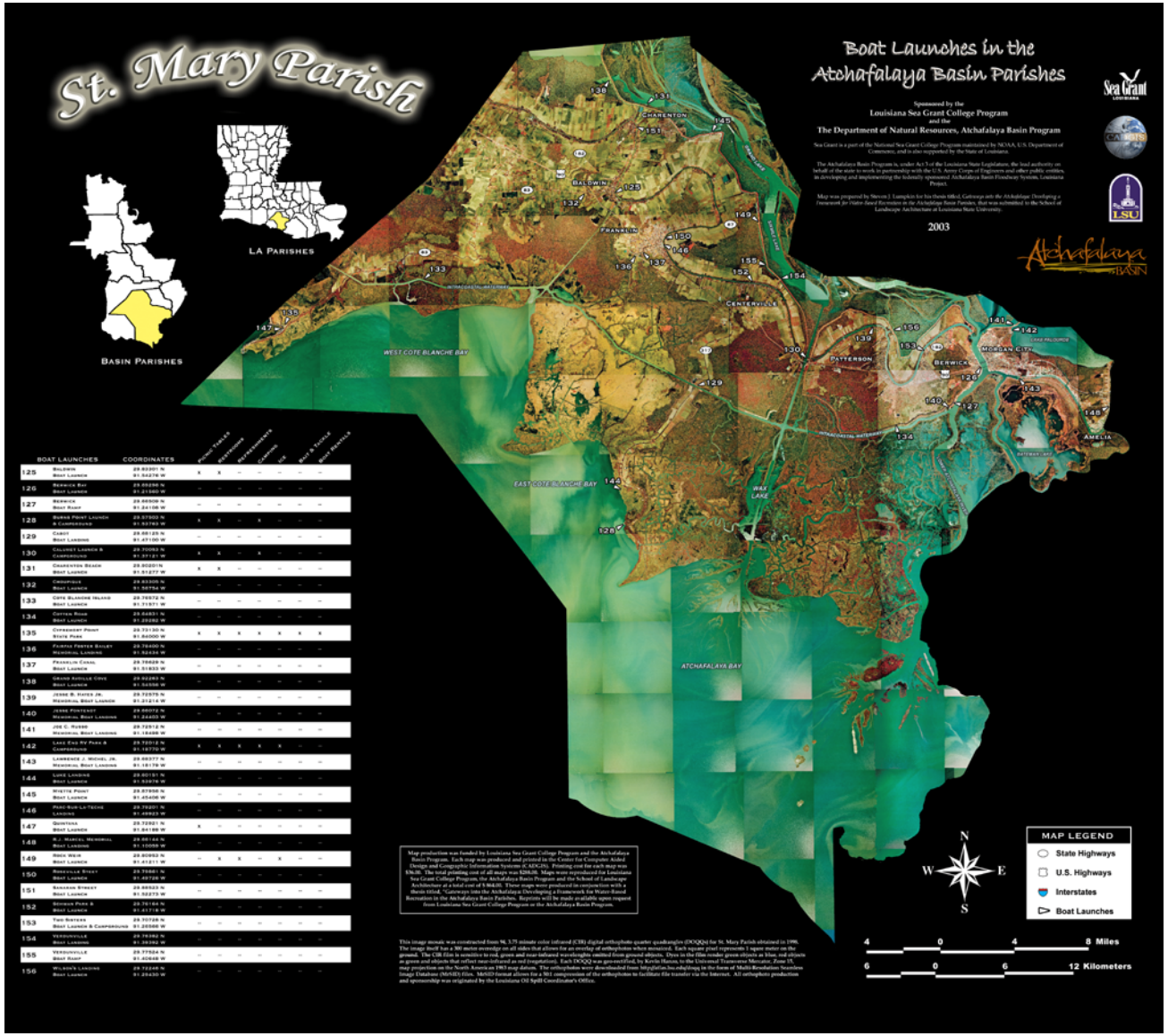
This image mosaic was constructed from 91, 1:3 minute color infrared (CIR) digital orthophoto quarter quadrangles (DOQQs) for St. Landry Parish obtained in 1998. The image itself has a 300 meter overedge on all sides that allows for an overlap of orthophotos when mosaicked. Each square pixel represents 1 square meter on the ground. The CIR film is sensitive to red, green and near-infrared wavelengths emitted from ground objects. Dyes in the film render green objects as blue, and objects as green and objects that reflect near-infrared as red (vegetation). Each DOQQ was geo-rectified, by Kevin Hanno, to the Universal Transverse Mercator, *Zone 15*, map projection on the North American 1983 map datum. The orthophotos were downloaded from http://atlas.lsu.edu/doqq in the form of Multi-Resolution Seamless Image Database (MrSID) files. MrSID format allows for a 50:1 compression of the orthophotos to facilitate file transfer via the Internet. All orthophoto production and sponsorship was originated by the Louisiana Oil Spill Coordinator's Office.

Map production was funded by Louisiana Sea Grant College Program and the Atchafalaya Basin Program. Each map was produced and printed in the Center for Computer Aided Design and Geographic Information Systems (CADGIS). Printing cost for each map was $36.38. The total printing cost of all maps was $280.85. Maps were reproduced for Louisiana Sea Grant College Program, the Atchafalaya Basin Program and the School of Landscape Architecture at a total cost of $ 864.08. These maps were produced in conjunction with a thesis titled, "Gateways into the Atchafalaya: Developing a Framework for Water-Based Recreation in the Atchafalaya Basin Parishes, Reprints will be made available upon request from Louisiana Sea Grant College Program or the Atchafalaya Basin Program.

APPENDIX G: ST. MARTIN PARISH BOAT LAUNCH MAP



APPENDIX H: ST. MARY PARISH BOAT LAUNCH MAP



VITA

Steven Joseph Lumpkin was born on April 11, 1973, in Metairie, Louisiana. He was raised in Metairie and graduated from Jesuit High School in 1991. In 1991, he enrolled at Millsaps College in Jackson, Mississippi, for one year, and then continued his education at Louisiana State University where he received a Bachelor of Science degree in 1997 in biochemistry. For three years, Steven worked as a research associate and an instructor in biological and veterinary sciences at Louisiana State University. After a change of heart, he entered the graduate program in the School of Landscape Architecture at Louisiana State University in the fall of 2000 and anticipates graduating in May with a Master of Landscape Architecture degree.

After graduation, Steven and his wife, Angel, and his daughter, Lakelyn, will relocate to balmy central Florida, where he has accepted the position of Junior Landscape Architect at a multi-disciplinary firm.