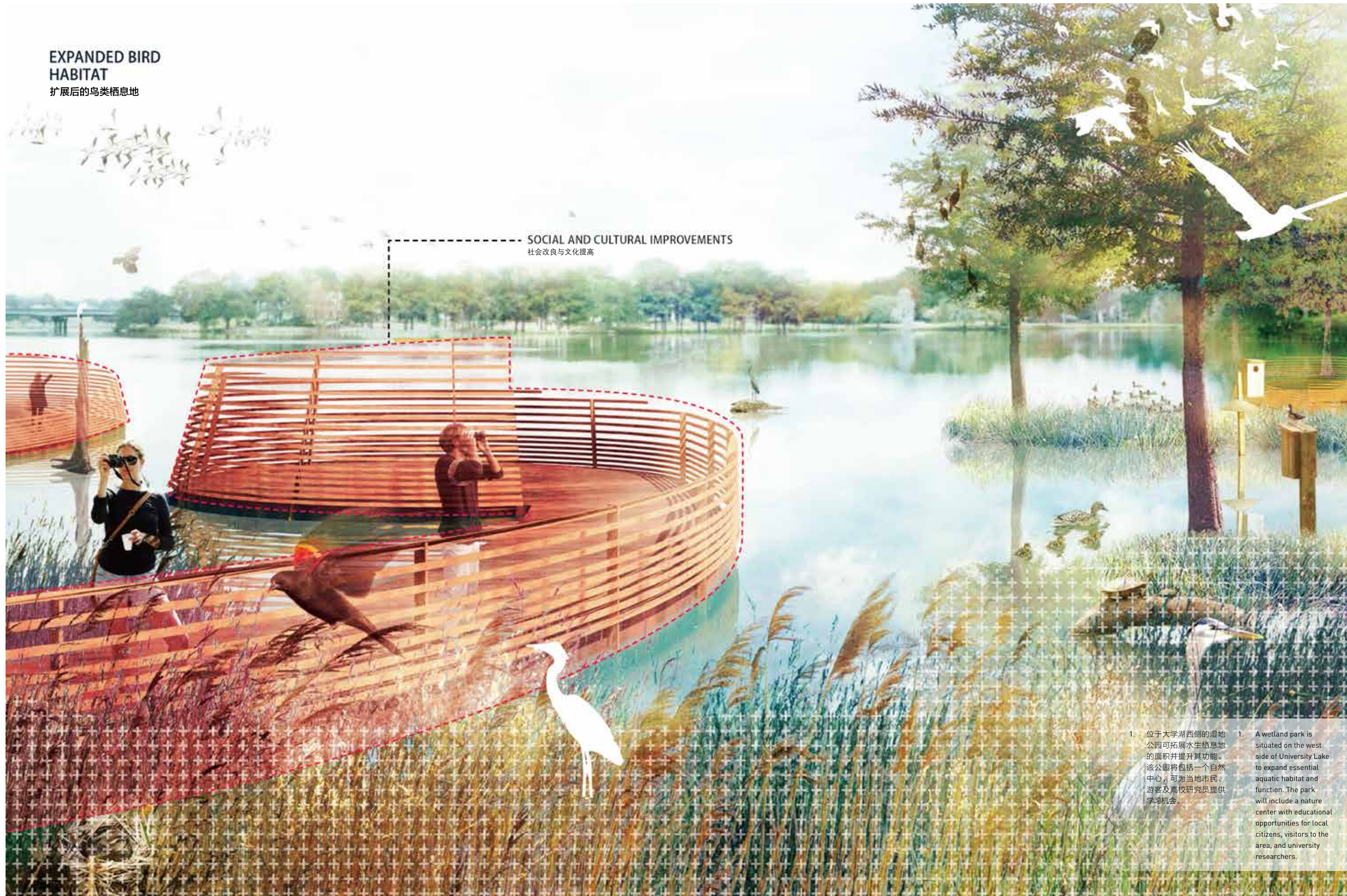


EXPANDED BIRD
HABITAT
扩展后的鸟类栖息地

SOCIAL AND CULTURAL IMPROVEMENTS
社会改良与文化提高



1. 位于大学湖西侧的湿地公园可拓展水生栖息地的面积并提升其功能。该公园将包括一个自然中心，可为当地市民、游客及高校研究员提供学习机会。

1. A wetland park is situated on the west side of University Lake to expand essential aquatic habitat and function. The park will include a nature center with educational opportunities for local citizens, visitors to the area, and university researchers.

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由生态濒危区向文化保护区的转变 ——路易斯安那州巴吞鲁日湖修复 FROM ECOLOGICAL COLLAPSE TO CULTURAL SANCTUARY — RESTORATION OF THE BATON ROUGE LAKES, LOUISIANA

SWA休斯顿分公司 / SWA-Houston

巴吞鲁日市和路易斯安那州拥有着独特的人水关系——二者相互影响而又相互依存。近来，由于巴吞鲁日市其中一支主要水系的功能逐渐衰退，原本的和谐关系受到了挑战。

巴吞鲁日湖修复项目正是在这样的危机中发现了机遇。项目场地位于路易斯安纳州首府的核心区域，合理的生态修复方法不仅可以恢复这一濒临崩溃的湖泊系统，更能够将城市与生态及文化遗产重新联系起来。巴吞鲁日湖项目将帮助城市摆脱“癌谷”的羞名，转而通过合理的最佳管理实践，构建人与水的平等关系，让城市拥有独特的魅力。

历史背景

这个湖泊系统由巴吞鲁日市中部的6个湖泊组成，总面积达111hm²。这些湖泊邻近路易斯安纳州立大学、3个主要的城市公园和人口多样化的社区。这里曾是落羽杉-水紫树混生林泽，而非今日的开阔水域。1929年，人们清除了流经这片场地的河湾中的树林，并筑起大坝，第一个湖泊由此建成。随后，另外几个湖泊也相继建成。不久之后，湖泊沿

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摘要

对于路易斯安那州的核心区域，合理的生态修复方法不仅有益于其濒危湖泊系统的恢复，更可将城市与生态及文化遗产重新联系起来。在巴吞鲁日湖修复项目中，通过合理的最佳管理实践，该城市作为人与水和谐共处之地的形象将得以提升。

关键词

生态；文化；修复

ABSTRACT

For the centerpiece of Louisiana, sound ecological restoration methods will heal a dying lake system while also reconnecting a city to its ecological and cultural heritage. The Restoration of the Baton Rouge Lakes project will elevate the city's identity to one based on sound best management practices where man and water exist in equilibrium.

KEY WORDS

Ecology; Culture; Restoration

整理 王颖

译 高银锋 王颖

EDITED BY Ying WANG

TRANSLATED BY Yin-feng GAO Ying WANG

项目位置:
美国路易斯安那州巴吞鲁日市

项目面积:
111hm²

项目委托:
巴吞鲁日基金会

景观设计:
SWA休斯顿分公司、CARBO景观设计事务所

项目负责人:
Kinder Baumgardner

项目团队:
SWA休斯顿分公司、CARBO景观设计事务所、GEC工程咨询公司、Biohabitats有限公司、顶级规划中心、Pros咨询公司、Stantec事务所、Suzanne Turner事务所

设计时间:
2014-2015年

所获奖项:
2016年美国景观设计师协会分析与规划类荣誉奖

LOCATION:
Baton Rouge, Louisiana, USA

AREA (SIZE):
275 acres

CLIENT:
Baton Rouge Area Foundation

LANDSCAPE ARCHITECTURE:
SWA-Houston, CARBO Landscape Architecture

PROJECT LEADER:
Kinder Baumgardner

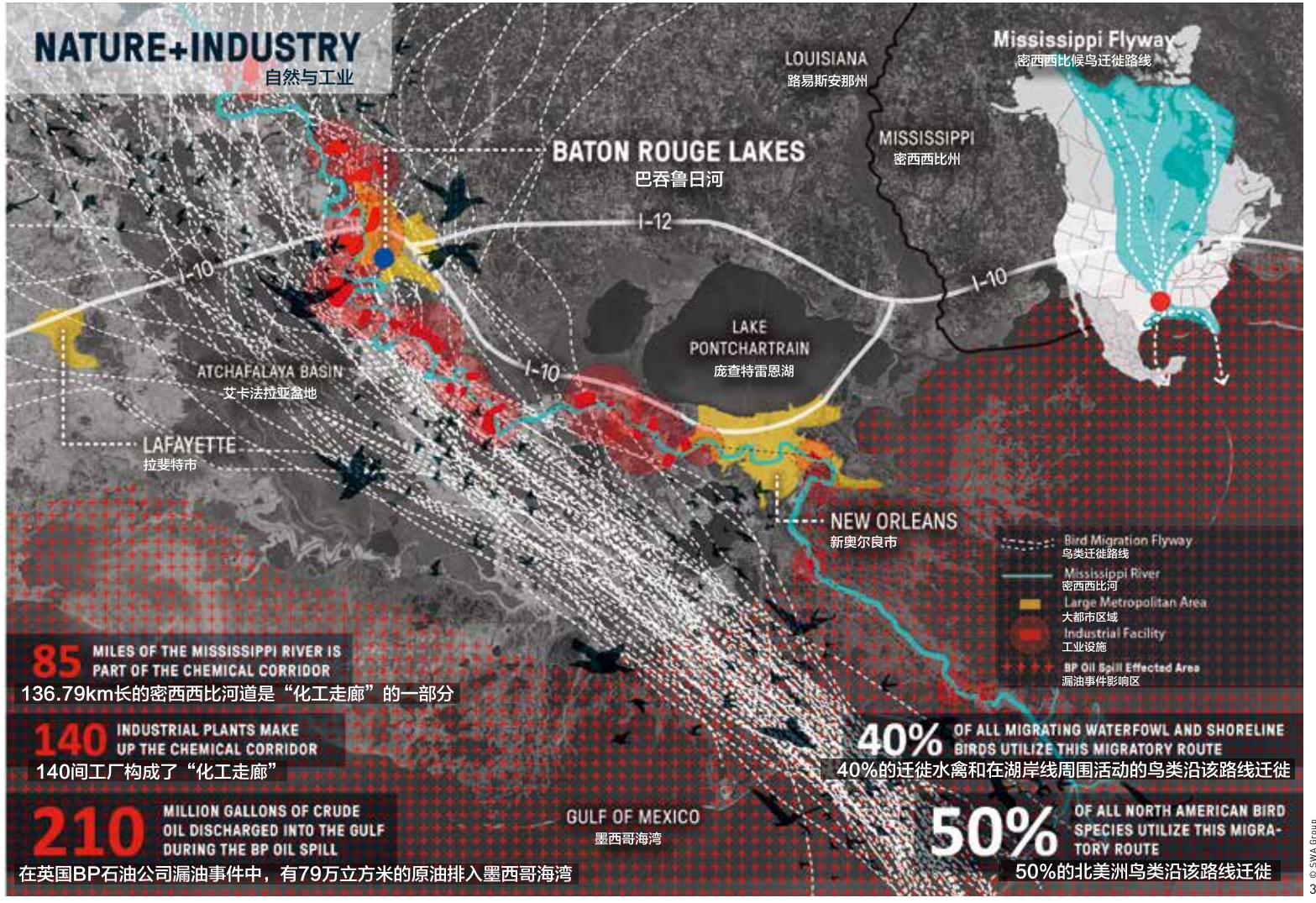
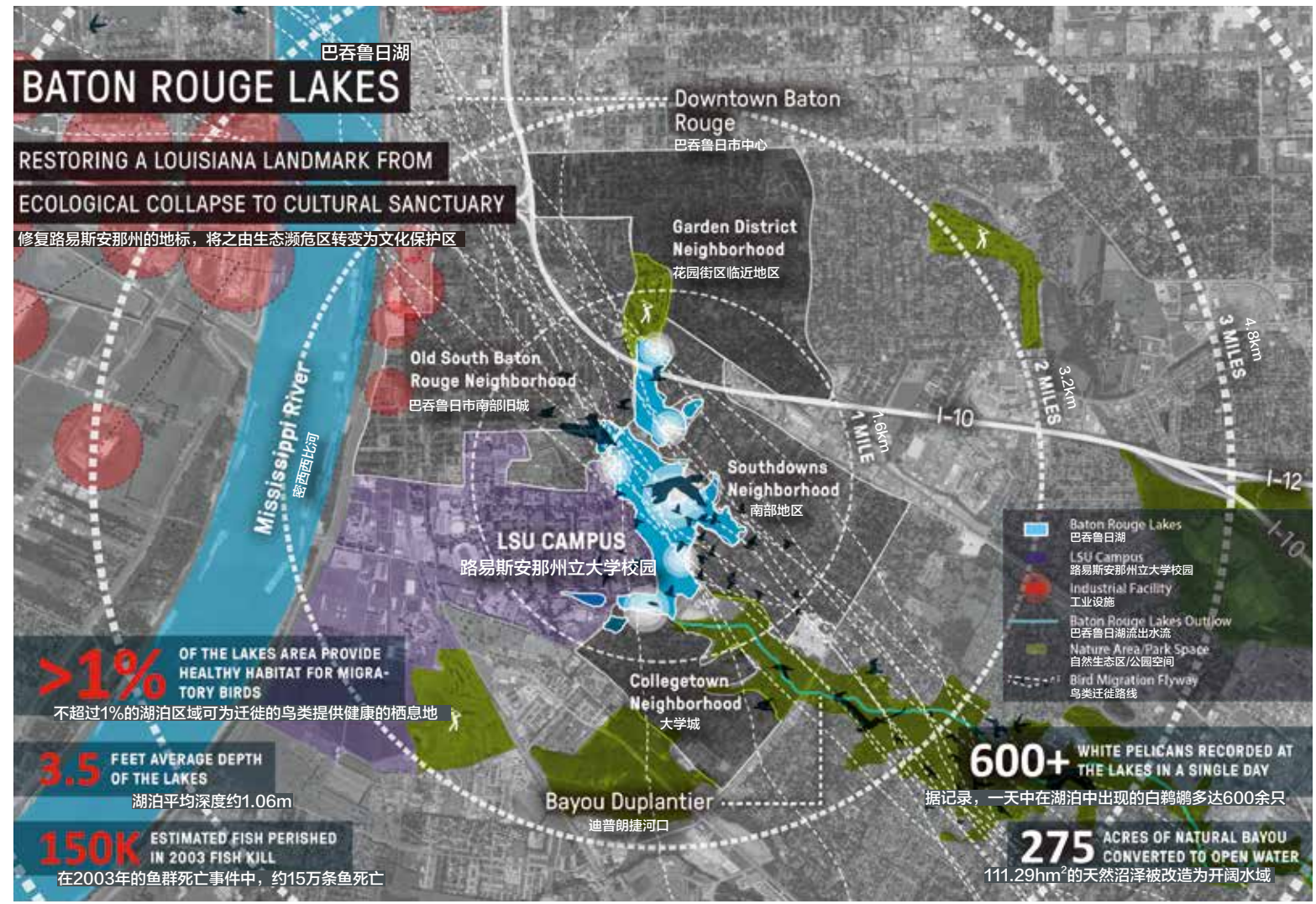
PROJECT TEAM:
SWA-Houston, CARBO Landscape Architecture, GEC, Biohabitats, Inc., Center for Planning Excellence, Pros Consulting, Stantec, Suzanne Turner Associates

DESIGN PERIOD:
2014 - 2015

AWARD:
2016 ASLA Honor Award — Analysis and Planning Category

2. 该湖泊系统位于巴吞鲁日市的中心地带，旨在提供良好的栖息地，促进生态与文化发展。然而，现有湖泊深度过浅、生态系统多样性匮乏，导致整个湖泊系统处于衰落状态。

2. Located in the heart of Baton Rouge, the lake system is in a position to provide a habitat oasis for both ecological and cultural interests. However, existing shallow lake depths, and the lack of diverse ecological systems contribute to the overall decline of the lakes.



3. 路易斯安那州庞大的工业网络与丰富的生态环境共同构成了人们对于巴吞鲁日市的不真实的感知。该总体规划强调通过最佳管理实践，建立新的文化标准来重新定义城市。

3. The juxtaposition of Louisiana's immense industrial networks and ecological riches create distorted perceptions of what it means to be from Baton Rouge. The Master Plan's emphasis on best management practices establishes a cultural benchmark that will redefine the City.

岸建起了多条道路，住宅楼随之拔地而起，且观景视野绝佳，此外一套日常休闲设施系统也已建设完成。但由于缺乏总体规划，场地中的问题接连暴露。

挑战

在场地开发后不久，湖中部分鱼类死亡，疯长的海藻铺满水面，暴露出湖泊生态基础的落后。水深不足、泥沙持续沉积、水温升高、溶氧水平欠佳，以及营养负荷不足等导致水质日趋直下，且一直持续到今天。由于这些情况未能得到及时的解决，湖泊状态越发恶化，湖泊水位的持续降低也使得各

种问题愈加棘手。作为该城市最重要的休闲区，水对人们的吸引力依然强烈，但是其功能却极少经过设计或规划。陡峭的湖泊沿岸使得公路旁或内部的步行环路变得支离破碎、危险重重，且与周边社区连通不足，滨水区域也十分有限。与之邻近的世界著名大学与湖泊甚至没有任何互动，即使他们拥有大部分的湖泊所有权。待修复的场地是所属城市、教区和州的标志性区域，但隐含的产权问题成为了修复工程的一大障碍。虽然严格来讲附近的居民不是场地原本的主人，但湖泊未来的发展、修复过程，以及对日常生活的潜在影响都与

其密切相关。多种休闲及景观愿景交织在一起，冲突也就在所难免。

项目目标

项目团队依据如下指导原则进行设计：

1) 建造和更新繁茂的水生和陆地生态系统，使其能够自我调节，进而提高水质，建立强大的野生动物栖息地，提升其生命周期，并提供合理的公共通道。

2) 在不同的媒介、规模和时间展示场地与邻近社区、城市、区域和州域相关的特色。

3) 建造一种安全的环境，鼓励居民和游客发现并认知周围的世界。

4) 改善巴吞鲁日市内外区域与湖泊之间的实际联系和情感呼应。

调查与分析

在为期12个月的设计中，项目团队通过对场地历史、现状及公众参与三方面进行分析，总结出了相应的设计策略。

对场地文化和历史的调查，帮助设计师了解了原始区域生态状况、湖泊改造规划、施工难点以及湖泊的文化意义。通过与委托方、路易斯安那州立大学和当地历史学家的合作，设计师掌握了清晰的与湖泊相关事件的时间轴，了解了持续存在的生态和社会问题。

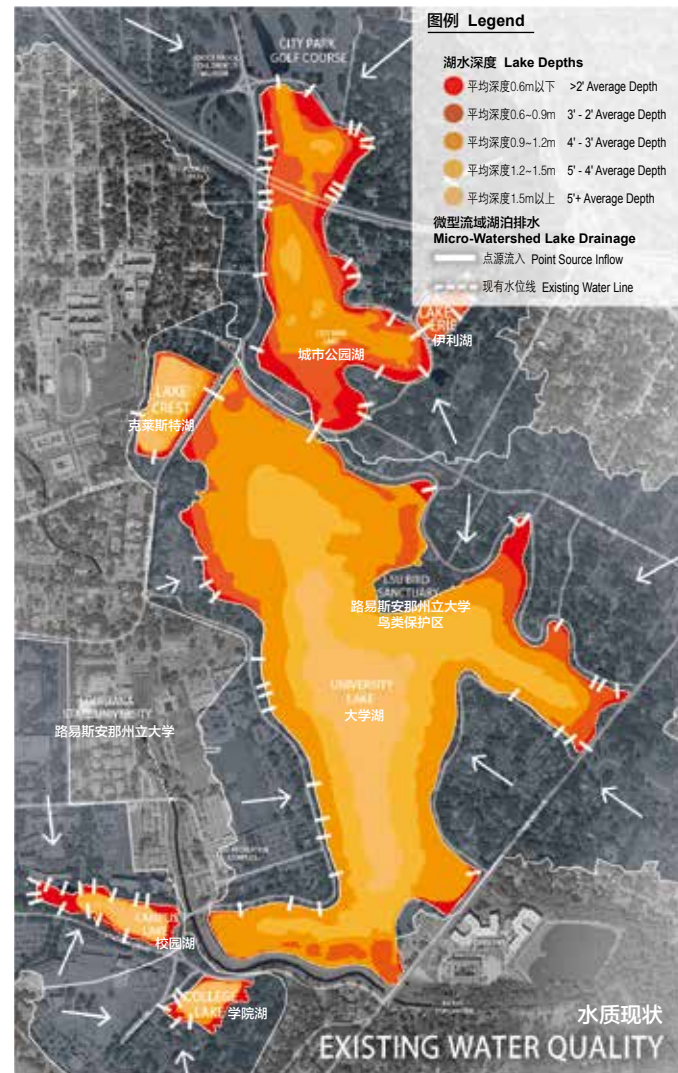
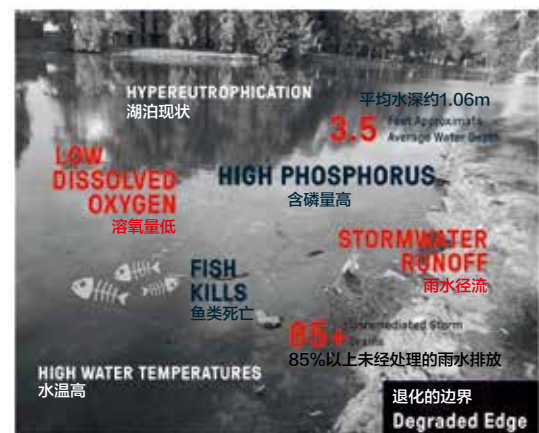
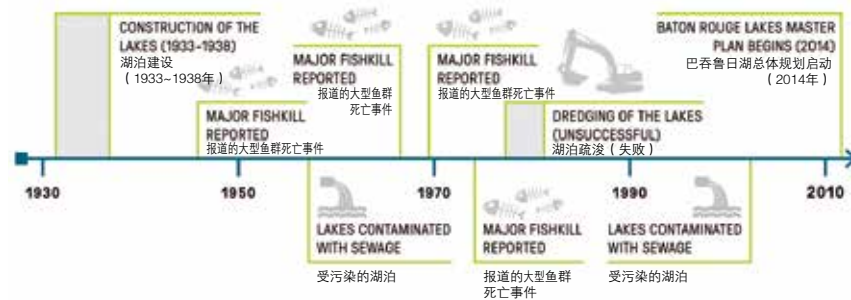
对于场地现状的分析包括水深测量、地

4. 自开凿以来，湖泊已深受破败的生态基础的折磨。在将落羽杉林泽变为人工湖泊的过程中，不少障碍物沉积到水下，以致基础设施遭到破坏、点源污染物增多，湖泊深度不足也使得生态退化愈加剧烈。

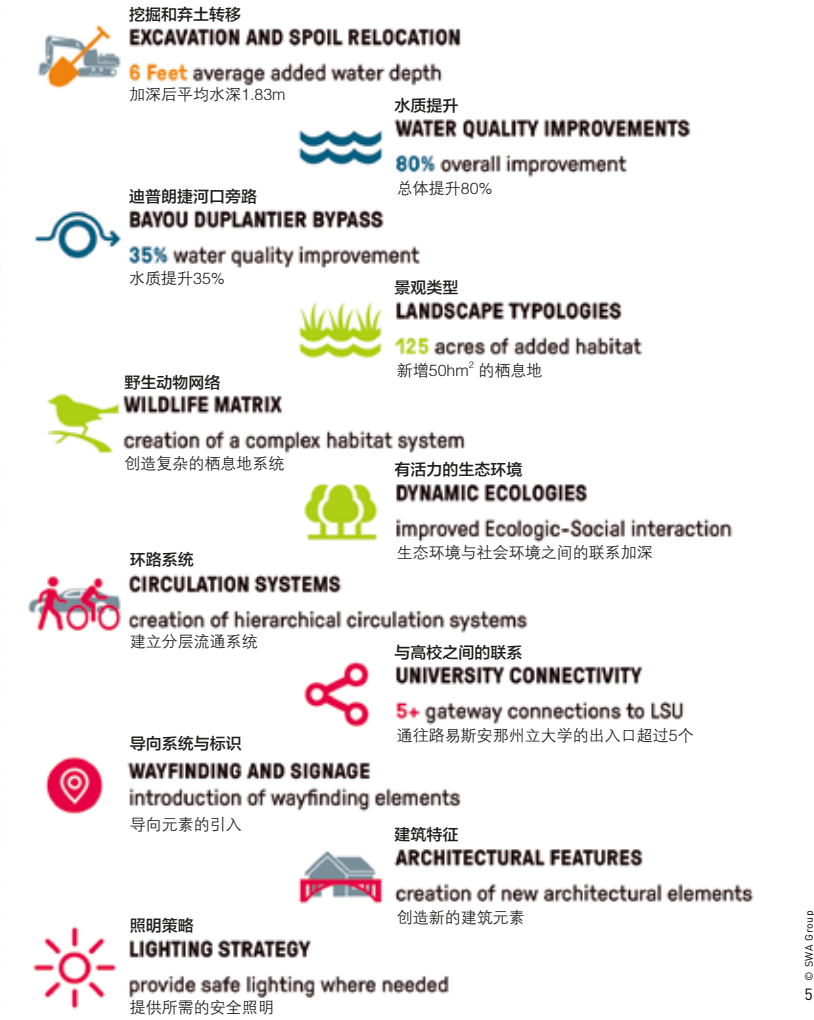
4. From their inception, the Lakes have suffered from flawed ecological underpinnings. Their conversion from Cypress Swamp to amenity lake resulted in remnant underwater obstacles, leaking infrastructure, the introduction of point source pollutants, and insufficient depth leading to exponential ecological decay.

EXISTING LAKE CONDITIONS

湖泊现状



FRAMEWORK STUDIES 框架研究



质技术报告、树木调查和评估、湖岸稳定性分析，以及交通工程等方面。对于历史水质的测定揭示了百余个湖岸排水口的营养水平和点源污染物含量。路易斯安那州立大学的教员也就水质问题、以往生态修复失败的原因和鸟类栖息地和湖泊健康等问题提出了关键性的建议。

由5个部分组成的公众参与过程、利益相关者会议和由咨询委员会做出的评估也为该项目提供了宝贵的意见，推动了项目的发展。公共工作坊包括头脑风暴、小组讨论、框架构建、与湖畔业主一起进行区域考察，以及草图和最终总体规划方案的展示。参与工作坊的居民达400余人。

总体规划

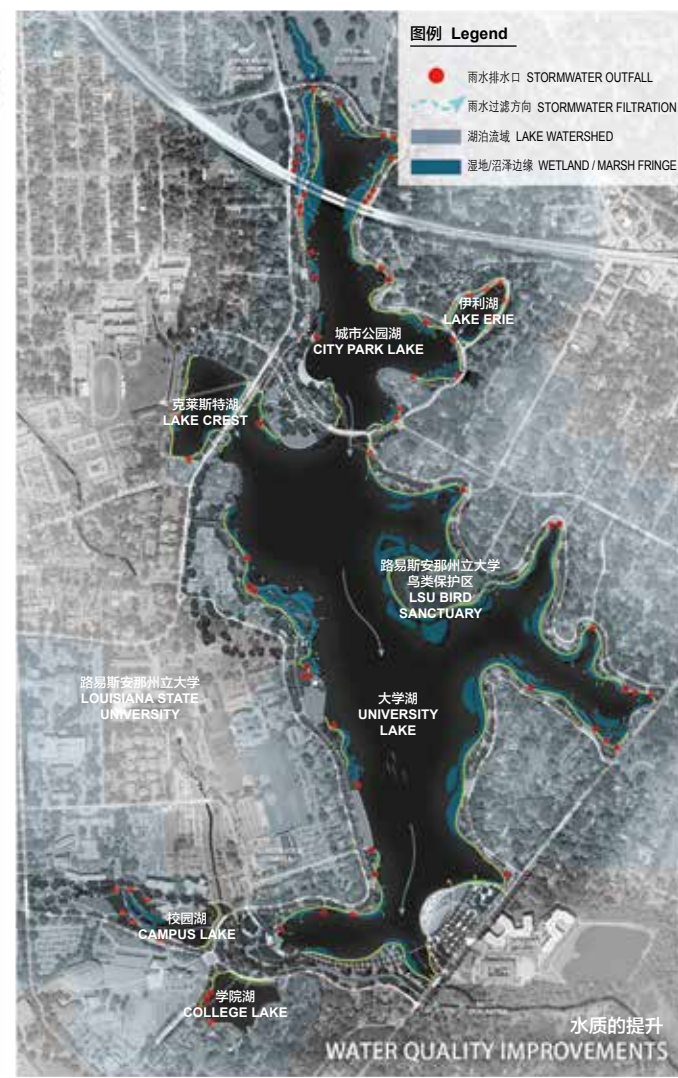
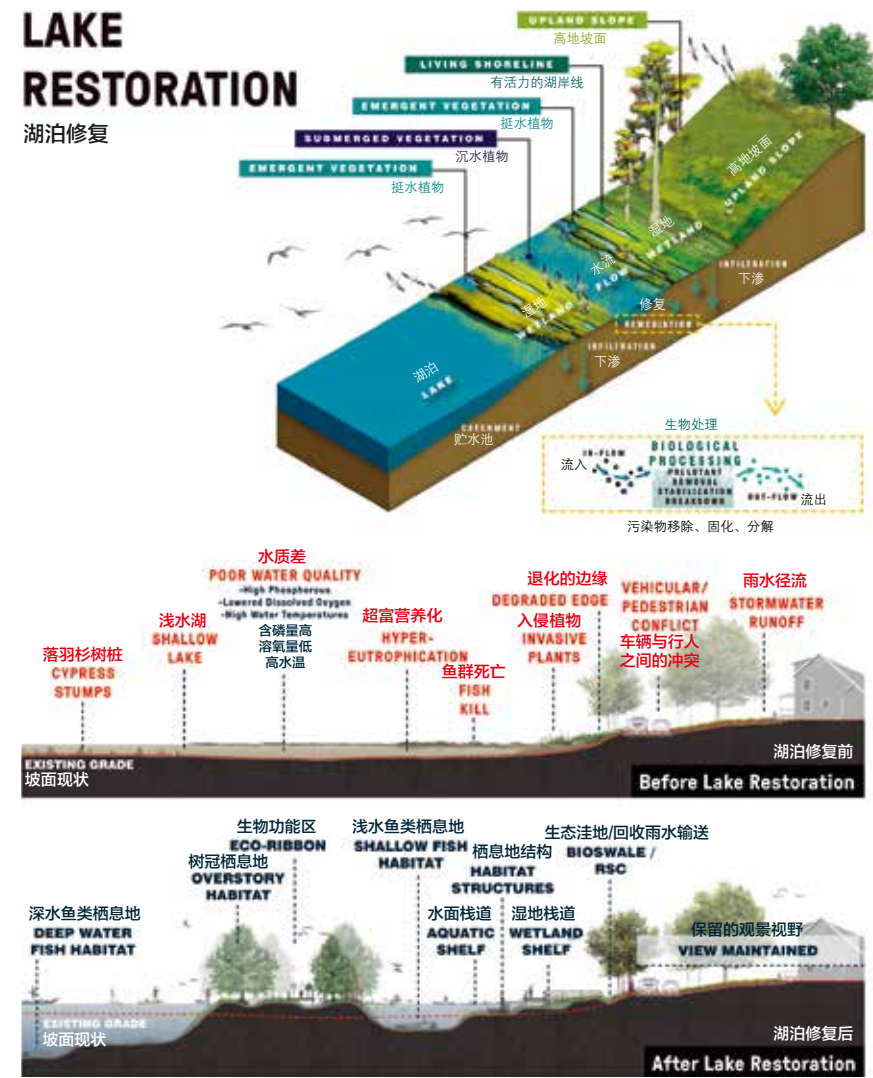
该总体规划方案以几个系统框架为基础，指导场地的具体设计。这些系统框架包括挖掘和弃土转移、水质改善、景观类型、野生动物网络、场地规划、车辆和人行环路、导向系统和建筑特征。方案就这些系统的整体设计提出了如下建议：

保持60万立方米的湖泊土方工程填挖平衡。通过使用一系列分段式的围堰，挖掘后湖泊的纵深将符合典型的水塘深度，达1.8m，其凹陷处最深可达2.4~3m。挖掘出的土方将被用于建造位于湖岸的湿地长椅区、修复损坏的斜坡，以及建造和扩大滨湖

- 总体规划涉及多个层面，其平衡了水质提升及创造充满活力的自然、文化与教育的综合体等基本需求。精心的设计所打造的水基础设施同时提供了栖息地及休闲功能。
- The master plan is a multi-faceted project that leverages the primary need to improve water quality, to create a dynamic composition of nature, culture, and education. Thoughtful design leads to water infrastructure that also provides expanded habitat and recreational amenities.

LAKE RESTORATION

湖泊修复



Baton Rouge and Louisiana are uniquely tied to the relationship between man and water. Water's ability to impact people and the people's ability to influence water are inseparable. Currently this relationship is being tested as one of Baton Rouge's iconic water systems struggles with its identity.

The Baton Rouge Lakes project recognizes opportunity in crisis. As a centerpiece of Louisiana's capital city, sound ecological restoration methods will heal a dying lake system while also reconnecting a city to its ecological and cultural heritage. No longer the epicenter of "cancer alley," the Baton Rouge Lakes

project has the potential to elevate the city's identity to one based on sound best management practices where man and water exist in equilibrium.

Historical Context

The 275-acre Baton Rouges Lakes system is a series of six lakes located in central Baton Rouge. Adjacent to Louisiana State University (LSU), three major city parks, and a demographically diverse mix of neighborhoods, the Lakes historically functioned as a cypress-tupelo swamp and not the vast open water body seen today. In

8. 挖掘所需的费用促使项目选择了挖填平衡的方案。从湖底挖出的土方可用于破败斜坡的修复、将浅水区改造为水流冲刷区，以及校园周边公共公园的建造中。

8. Excavation costs necessitate a plan that balances cut and fill on-site. Lake deepening is offset by the expansion of failing slopes, relocation of shallow areas to water polishing zones, and the creation of public park space along the University.

9. 当前，项目中的两个最大的湖泊被一个小型控水结构分隔。新建的61m长的标志性桥梁可在水路上连接被分隔的湖泊，同时为全年的大学赛艇活动及其他公共活动提供场地。

9. Currently the project's two largest lakes are separated by a small water control structure. A new signature 200-foot long bridge will hydrologically connect these lakes and provide an opportunity for year round collegiate rowing activities and other public uses.

1929, the first lake was constructed when the bayou running through the site was cleared of forest and then dammed. The other lakes followed shortly thereafter. Soon roads appeared along the edges, residential homes were sited for ideal views, and an informal system of recreational amenities were built. A master plan did not exist and problems quickly surfaced.

Challenges

Shortly after its conversion, fish kills and algae frequented the water surface giving evidence to failed ecological underpinnings. Poor water quality

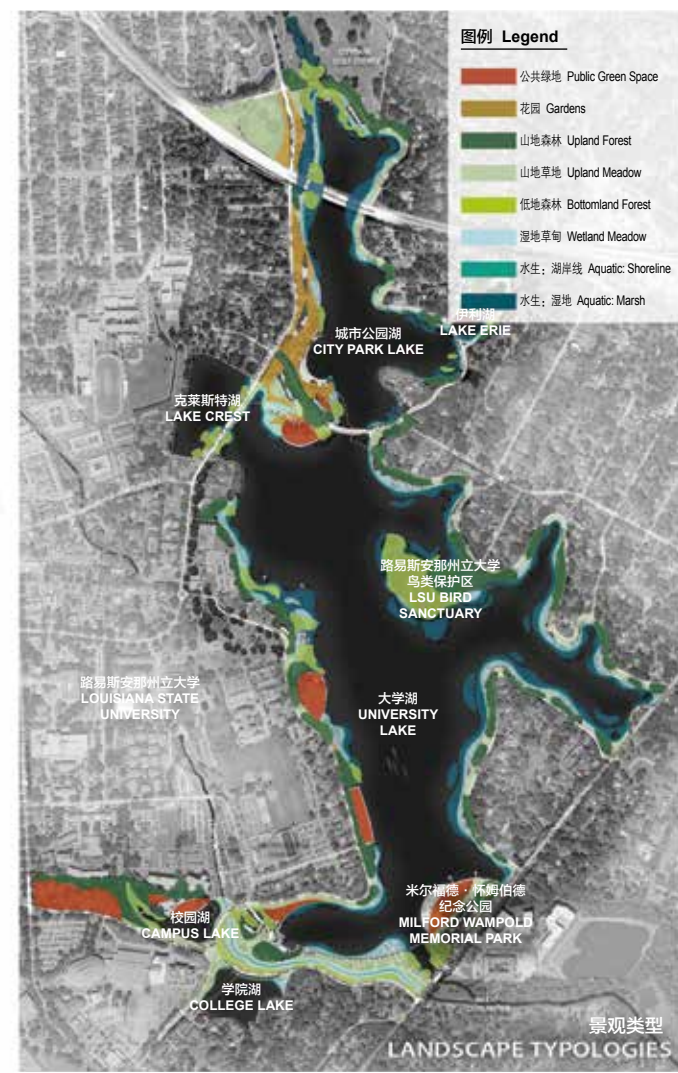
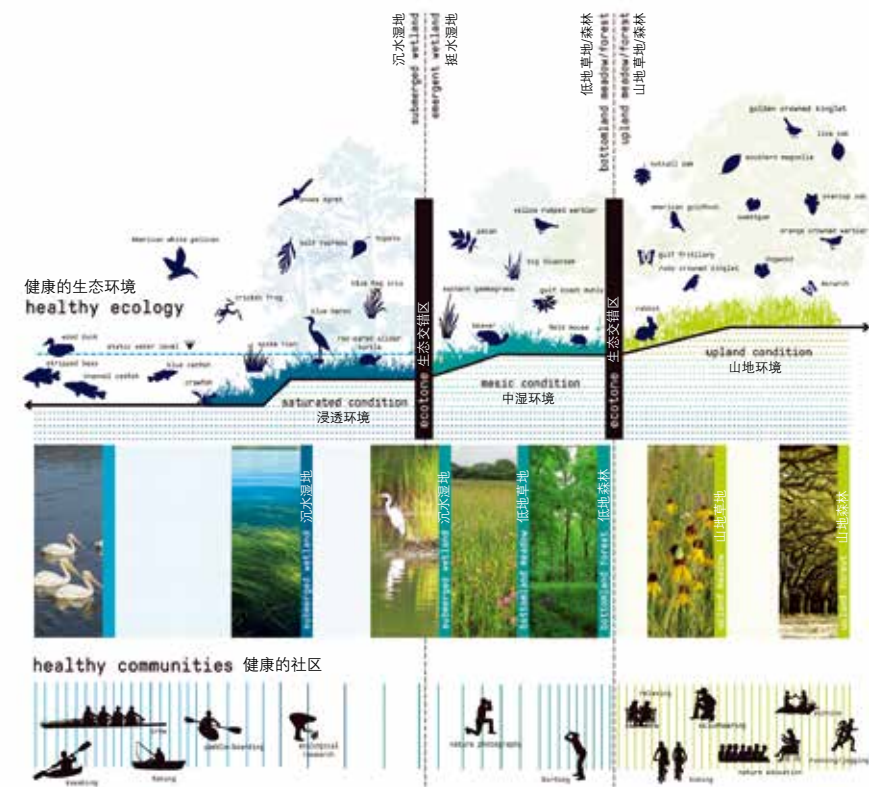
resulting from inadequate water depth, ongoing sedimentation, elevated water temperatures, dissolved oxygen levels, and nutrient loading occurred immediately and remain to this day. A negative feedback loop further exacerbates the situation as the lakes continue to get shallower and the problems exponentially accelerate to critical levels.

Serving as a major recreation site for the city, the draw to the water has been historically strong but very few uses have been designed or are programmed. Steep lake edges force fragmented pedestrian circulation routes next to or within vehicular corridors, connections to neighborhoods



FOSTERING URBAN HABITAT

培育中的城市栖息地



are weak or dangerous, and water access points are limited. The adjacent internationally renowned university also has little to no formalized presence on the Lakes even though they are majority owners.

As an iconic site within the city, parish, and state, implied ownership issues present obstacles to rehabilitation as well. While adjacent residents are not technically primary owners they have a strong interest in the future of the lakes, the restoration process, and the potential impacts on their day to day lives. When differing recreational

and landscape visions are considered, design solutions cannot avoid conflict.

Objectives

The following guiding principles inform the design team's approach:

- 1) Create and regenerate thriving aquatic and terrestrial ecosystem that are self-supporting, result in high water quality, establish strong wildlife habitats / lifecycles and provide reasonable public access.
- 2) Express the unique identity associated with adjacent neighborhoods, city, region,

10. 基于水域和当地生态系统的一系列景观类型营造了丰富多样的动植物群落。通过将大部分场地自然化、低维护化，场地的生态功能得以提升。

10. The inclusion of a series of landscape typologies based on hydric zones and local ecosystems creates a diverse matrix of flora and fauna. Biologic function is prioritized with a majority of the site being naturalized and minimal manicured areas.

and state through varied mediums, scale, and time.

- 3) Create a safe environment where residents and visitors are motivated and encouraged to discover and learn about the world around them.
- 4) Promote meaningful physical and emotional connectivity to the lakes within and beyond the City of Baton Rouge.

Inventory and Analysis

Spanning a 12-month period, design solutions are informed by a three part analysis based on history, existing conditions, and public engagement. A cultural and historic investigation provides insights into original regional ecology, lake conversion planning, construction obstacles, and the cultural meaning of the Lakes. Working with the client, LSU, and local historians, a timeline of events clearly demonstrates ongoing ecological and social challenges at the lakes.

An analysis of existing conditions utilizes the project's bathymetric survey, geotechnical report, tree survey and assessment, lake edge stability analysis, and traffic engineering studies. Historic water quality measurements show nutrient levels and point source pollutant loading from over 100 lakeside outfalls. LSU academic staff members also provided key input on water quality issues, previous ecological restoration failures, and birding habitat and health on the lakes.

A five part public engagement process, stakeholder meetings, and advisory committee assessments also yielded valuable insights and provided momentum for the project. Public workshops included idea brainstorming, group workshopping, framework establishment, site visits with lakeside homeowners, and presentations of the draft and final Master Plans. Workshops typically exceeded 400 engaged citizens.

Master Plan

The Master Plan is based on several system frameworks that inform site specific design. Systems include excavation and spoil relocation, water quality improvements, landscape typologies, wildlife matrix, site programming, vehicular and pedestrian circulation, wayfinding, and architectural features. These systems layer together to create the following design recommendations:

Balance 600,000 cubic yards of lake excavation. Using a series of phased coffer dams, the lakes will be excavated to a typical pool depth of 6 feet with pockets as deep as 8 -10 feet. The excavated material will be used to create wetland benches along the edges, repair failing slopes, and to create and expand lakeside park spaces.

Treat first flush flows from the headwaters of Bayou Duplantier by redirecting them through a wetland

11. 项目中位于北侧的湖泊被一段不美观且噪音过大的10号州际公路一分为二。为满足维护和通达的需求，项目设计了一套隔板系统，以减少噪音，同时为蝙蝠提供栖息地。
11. The project's northern lake is bisected by an unsightly and relatively loud section of Interstate 10. Working with maintenance and access needs, a baffle system is designed to mitigate noise and also serve as bat habitat.





- 令人眼前一亮的植物被精心安置于各处，以使其影响效果最大化。为致敬南部地区的花园传统，项目将这些区域打造为通往湖区和大学的出入口，其也可作为湖畔步道上的游客提供休憩地。
- Striking botanical displays are strategically placed for maximum impact. Honoring the southern garden tradition, these zones serve as strategic project gateways to the Lakes and University while also offering respite for lakeside trail users.

polishing garden. Moreover, design each major lake outfall to have a polishing pool / sedimentation basin to aid in removal of first flush pollutants entering the lake.

Create a diversity of habitats and experiences by restoring six native landscapes typologies that relate to hydric edge conditions. Create a living edge of wetland and meadow around the lake that will act as a biofiltration mechanism while also providing habitat.

Enhance the LSU experience by creating a northern university gateway, student lakeside promenade, and boathouse. The boathouse and the introduction of an iconic bridge will accommodate university sponsored crew events. And expand the existing bird sanctuary site by 40% and add a publicly accessible nature center adjacent to LSU.

Create a hierarchy of circulation. Five miles of multi-use pedestrian trails will be constructed on lakeside fill while designated bike lanes will occur at street level. Converting roads on the east side of the lake to one way provide safe pedestrian buffer distances along the lake edge.

Provide access to all neighborhoods through the use of safe crossings and designated trails. In addition, add designated water access areas, including a public boathouse to the north, boardwalks, overlooks, and designated fishing zones.

Design architectural features that reflect south Louisiana culture and consider the project's commitment to nature.

Next Steps

With an eye toward implementing the master plan, cost estimates, phasing strategies, and governance structures have been explored. The first phase of work identified in the master plan is to correct water quality issues in the lakes. Phase two will implement safe pedestrian, bike and vehicular connectivity facilities. Phase three

- 湖泊是这座城市的象征，因此项目组织了5次公共工作坊，邀请当前及未来的使用者参与讨论。在每次工作坊中，参与者均可与社区进行积极互动，且参加人数远超预期。

- Given the lakes status as a city icon, five public workshops were successfully conducted to uniquely engage current and future users. Each was designed to allow hands-on interaction with the community and each session significantly exceeded projected attendance.

is broken into 10 projects that will provide recreational opportunities for a broad cross section of users.

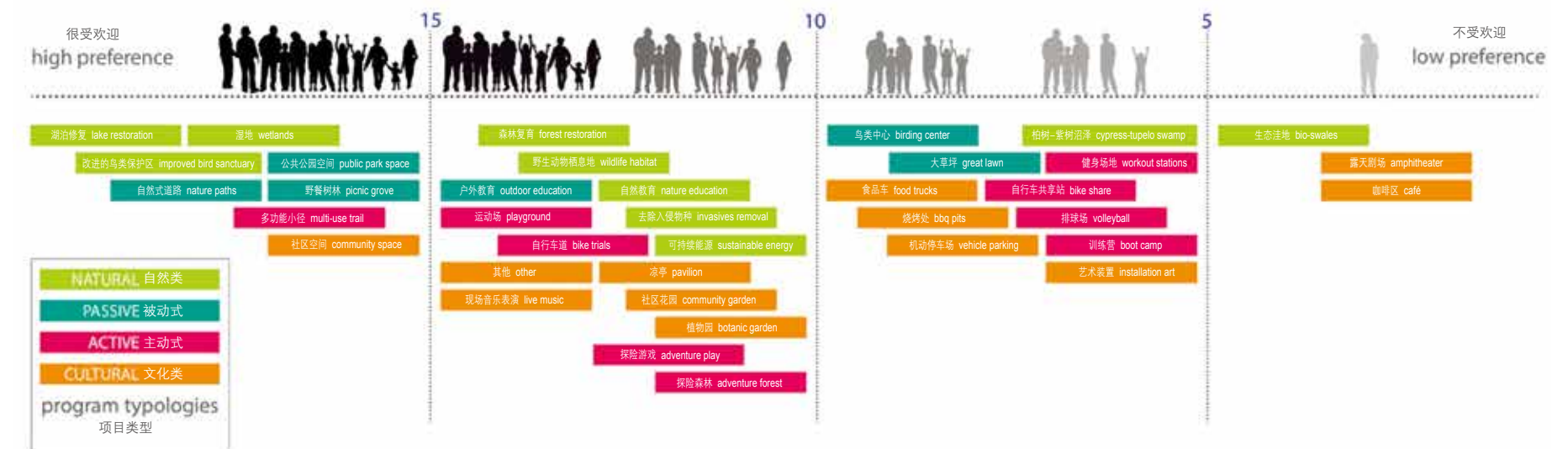
To date, the client has successfully set up a nonprofit Lakes Conservancy to handle the implementation phase of the plan. Some funding has been secured through the state and other funding sources are being explored. Team members are optimistic that currently available funds will significantly contribute to completing the design and construction of the first phase of lake restoration work.

Conclusion

The Baton Rouge Lakes Master Plan seeks to create a robust and scenic natural amenity in the heart of Baton Rouge that uses nature as a catalyst for healthy lifestyles while providing habitat infrastructure for migratory birds and aquatic wildlife. This amenity will serve as a touch point for visitors from across the Parish and throughout the country to experience Louisiana in a new and complimentary way. **LAF**

PUBLIC ENGAGEMENT

公众参与



- Significant pedestrian and vehicular conflicts occur along all edges of the lakes. A lakeside trail located on new shoreline fill will create a hierarchy of circulation to reduce conflicts, engage users with the lakes, and expand nature based recreation.

