Life at the Water’s Edge
Urban Riverfront Revival

Senior Thesis
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The author, Sofia Prokop kayaks underneath the Sundial Bridge. She spent numerous days of her life growing up on the Sacramento River, living, kayaking and swimming in Redding.
To mom, my upstream source

Love,
Sofia
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Remaining pages of illustrations and graphics are by the Author, Sofia Prokop.
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Riverfronts within city centers become neglected for a variety of reasons: economic, environmental, and social. Today, efforts to reclaim the riverfronts that used to provide conveyance for the economic hub of cities, and/or were solely exploited for their resources, are in the works. Riverfront revivals in urban areas are efforts to restore the environment and increase the social and economic potential of urban rivers.

Park Marina Drive along the Sacramento River in Redding, California is one such area that begs for revitalization efforts. This area offers great potential for economic and social success because of its proximity to the Sacramento River and downtown Redding, office buildings, and nearby neighborhoods. This project researches relevant and successful case studies of urban river revivals to determine what would be appropriate for Park Marina Drive. The project includes a design for a paddle craft park, walking/biking trails, and café's/restaurants that create a waterfront hub for residents and visitors to enjoy the Sacramento River.

Figure 1-1 Rivers in Northern California
From a report by Fredrick Law Olmsted, prepared in 1910 for the city of Pittsburgh for improvements to its waterfront. Pittsburgh, at the head of the Ohio River, was an early example of a port city that emerged along an inland waterway.

Wherever in the world, as an incident of the highways and wharves along its riverbanks, a city has provided opportunity for the people to walk and sit under pleasant conditions where they can watch the water and the life upon it, where they can enjoy the breadth of outlook and sight of the open sky and the opposite bank and the reflections in the stream, the result has added to the comeliness of the city itself, and the health and happiness of the people and their loyalty and local pride.

Fredrick Law Olmsted
Types of Waterfronts

Revitalizations should be tailored to the specific site, based on what type of waterfront it is: seaside, riverside, lakeside, inland, and coastal.

Figure 1-3 Pier 39 in San Francisco offers views of the marina, as well as many tourist attractions.
Urban Waterfronts

The establishment and growth of our major cities was based on where economic goods and commerce could reach. This meant that most of the major cities were founded along coastlines or major rivers. The railroad was introduced in the 19th century and this triggered a shift in the way goods and services were transported. The railroad allowed cities to shift their attention from the riverfronts to the railway stations.

Eastern cities in which the rivers were the transportation networks and late 19th century industrial centers found their rivers polluted and lined with abandoned warehouses at the close of the 20th century. Urban areas along riverfronts declined. Another recent factor that contributes to the decline of riverfronts is the hollowing out of urban centers due to suburban sprawl.
The next step in the development of cities was to venture further inland from coastal ports, up rivers to establish cities. Before the development of the railroad, inland ports were the basis for all major mid-west American cities. This was perpetuated by the development of the steamboat. Steamboats made the crucial connection for strategic points of transfer from overland routes to the western rivers (1983, ULI).

Pittsburgh (below) was a city that strategically opened up a steam engine shop.

By contrast, western cities have often had an uneasy association with their less benign rivers as they were often un-navigable and sources of unpredictable flooding. As such, the rivers were often seen as problematic and something to be tamed and/or exploited.
The American Port City

Initially, port cities in North America developed identically to European ones. They were the central hub for economic and social activities. As commerce increased, the requirements for storage and movement grew, and port cities actually cut off their inhabitants from access to the water’s edge with vast warehouses, rail spurs, wharves, and arterials that provided for the distribution of goods (1989, Torre).

“It is unfortunate that the dream for growth and prosperity caused so many icons of the United States maritime legacy to become lost before American society reached a high level of maturity and sophistication to demand access to their greatest asset, the water’s edge (1989, Torre).”

Figure 1-6 Crescent Park, Hargreaves Associates concept of a continuous pedestrian route along the Mississippi River in New Orleans to reclaim the waterfront from the industrial decay adjacent.
Riverfronts as prime real estate are recently being rediscovered, and urban renewals focus on riverfronts as a way to positively impact the downtown core. Returning access and life back to a riverfront comes in many forms, and has been growing in popularity and public demand in the United States. These abandoned and under-utilized sites have now found new life as commercial and residential centers of vitality in which the river is the main attraction. Cities that undergo this revitalization experience new economic booms. Riverfronts provide a plethora of opportunities that, once developed, allow for public enjoyment and improve the overall appeal of the city. Redevelopments provide the basis for positive economic impact on the community.

Figure 1-7 Jack London Square, Oakland, Ca.
July 4th celebration on the waterfront.
The redevelopment process is not without its challenges and doubters. Fortunately, the public’s values have shifted to understanding the importance of waterfront redevelopment and make it a priority. However, riverfront reclamation efforts are not without their challenges. Property owners and political leaders have to be informed and on board throughout the entire project. “If the waterfront has been lucky enough to have avoided the construction of an expressway along its edge, separating it from the rest of the city, then it is probably perceived as the adjacent landowners’ personal property for their private use (1989, Torre).” Zoning, safety, and security issues also make waterfront redevelopment difficult.

Consensus is the key to all successful waterfront development projects. Consensus can be reached if all parties are included in all planning stages from broad to detailed.
## Purpose of Riverfront Revivals

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<td>• Provide view points for recreaters on bike path and along roadway • Opportunity for cafe’s and restaurants to have river view and riverfront seating • Allow paddle craft and recreational boat access</td>
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Elements of a successful project

Elements that hold true across multiple types of riverfront revitalization projects are evaluated.

Figure 2-1 Jack London Square, Oakland
Plethora of food truck options available at the square attract large crowd
Crucial Elements

The waterfront is a melting pot of issues, interests, and players. The most important element of any project is compromise. It is almost guaranteed that each party involved will have a different expectation and idea to contribute. A diverse amount of elements are required in a riverfront revival. However, not all spaces can be festival areas/people places. There has to be a mix of unprogrammed space and programmed space. The diverse elements will ensure that a variety of people will be drawn to the riverfront, therefore ensuring the revival won’t die.

Food ends up being one of the most crucial elements. The opportunity to dine along the water’s edge creates an exciting backdrop, sure to entice users. The riverfront development theme is also extremely important, whether it be authenticity of a real, working riverfront, or space programmed in accordance with a theme. Grouping amenities together will allow for united waterfront designs.
Establishing a successful theme is one of the most crucial accomplishments a riverfront development project can make. It controls future design decisions and establishes a unique feel that will draw visitors.

Figure 2-2 Jack London Square
Food is the theme
Historic Riverfronts

Historic riverfront and waterfront examples can serve as models for current designs.

Figure 3-1 Seine, Paris Pont Neuf
Venice, Italy

In Venice, Italy, The Grand Canal is the major water-traffic corridor in the city. Most of the palaces along it can only be toured by boat so there is a high demand for gondola service along it. The water is not considered the edge of the city, but rather the main artery.

Figure 2-2 (left) View of gondole moored on Grand Canal
Figure 2-3 (above) View of Grand Canal during historic regatta
Figure 2-4 (below) Gritti Palace Hotel on Grand Canal
Seine, Paris is another major navigable waterway. The river is providing service for commerce and industry, as well as recreation and residential uses. In 1975, Christo and Jeanne-Claude’s ‘wrapping’ of the Pont Neuf drew international fame and therefore international visitors. It created an alternative view of the historic bridge.
Success Stories

Varying types of success stories that include inland ports, sea-side ports, and western riverfronts.
New Orleans, Louisiana

The recent Crescent Park redesign focuses on connection of the city and communities to the riverfront. The 6 mile park grants physical and visual access to the river. This creates an environment for the locals to interact with nature and enjoy the river, an extremely crucial part of New Orleans' image.

The design area consists of 6 miles of unused industrial and commercial space along the Mississippi River. It aims to increase tourism, create jobs and revenue for New Orleans, and increase the quality of life in the local communities. Hargreaves Associates was the lead designer of the park, as well as other collaborators.

“The long awaited Crescent Park that hugs the waterfront in the Bywater neighborhood is a landscape design masterpiece...The shadows and architectural severity lend the park a certain existential quality. The monumental burned skeleton of an adjacent wharf remains picturesquely in place at the waterline. Some of the running paths enigmatically dead end into the river.”

-Doug MacCash
Oakland, California

Jack London Square, named after the author, has undergone recent changes such as more businesses, restaurants, and entertainment. The project, by Ellis Partners, combines culture, cuisine and commerce along the waterfront. The open spaces were designed by SWA and support a variety of public events such as the farmers markets and organic food fests. Hotels, restaurants and office space share panoramic views of the waterfront. The site also has ample public gathering space, allowing for the largest daily fresh market on the west coast. Oakland celebrates ‘First Fridays’ along the waterfront with a night market in the summer. Amenities include Oakland crafts, artisan and designers, local produce, shopping bazaar, and quirky performers.
Cincinnati, Ohio

The John G. and W. Smale Riverfront Park is a 32-acre park along the banks of the Ohio River in downtown Cincinnati. A trail follows the high banks of the river. The park highlights the city’s landmarks, including: the Roebling Bridge, the National Underground Freedom Railroad Center, the Paul Brown Stadium, and the Great American Ballpark. The park links open spaces to the river, and connects a statewide recreation trail and bike systems.
American River Parkway

Located in Sacramento, California, the American River Parkway is a success story involving citizen mobilization. Responding to the threat of rapid urbanization in the floodplain, Save the American River Association (SARA) heightened awareness and built support. They raised the public consciousness, raised funds, and gave monetary incentive to public agencies for acquiring land.

The result was a waterfront preservation totaling 23 miles long and 5,200 acres of greenway. It provides access to the river for boating, fishing, swimming, rafting, tubing on the river; with hiking, camping, cycling, golfing nearby. Unlike most urban waterways, water quality in the American River is good, supporting runs of salmon, steelhead, shad, and striped bass. Consequently, fishing and swimming are excellent. The American River serves as a water supply for Sacramento and the floodway is used for agricultural purposes and as a source of aggregate. Its natural habitat supports wildlife.

Figure 4-8 The bike path offers almost continuous views of the American River
The Truckee River is another example of a western river that had largely been seen as ‘wild’ and something to be exploited, ignored, or tamed, but now is seen as a tremendous asset. Reno’s Riverwalk is located along the Truckee River, with a historic district in the heart of downtown Reno. Reno’s Riverwalk hosts many restaurants, bars, lounges, shops, boutiques, galleries, and specialty retailers. Events include: monthly Wine and Beer Walks, live music, and food tasting. Wingfield Park is in island in the Truckee River located in central downtown. This park is host to a multitude of recreational opportunities. Whitewater rafting, kayaking, swimming, and river tubing are among the highlights. The riverbed is specially engineered for standing waves and other features that draw white water enthusiasts. Wingfield Park is the site of the Reno River Festival, which is

Figure 4-9 Swimmers at Wingfield Park

Figure 4-10 Competitor in Reno River Festival
Figure 4-11 (left) Onlookers at Reno River Festival

Figure 4-12 (below) Children kayaking in the Truckee River

a kayaking competition that hosts events from freestyle to slalom on its course. The event draws kayakers and onlookers from around the world.

The whitewater park includes 11 drop-pools for kayak play, a kayak racing course, 7,000 tons of smooth flat-top rocks and boulders. Kayakers of all skill levels can find a part of the park that is safe for them. The park is within walking distance from 24-hour hotel/casinos and has easy public and spectator access, surrounding grassy park with amphitheater and facilities for concerts, festivals, picnics, outdoor recreation, etc.
Design

Figure 5-1 World Map
Figure 5-2 Map of United States Rivers, project site circled
Sacramento River

The Sacramento River is the most significant river in the north west, flowing over 445 miles before reaching the San Francisco Bay. The river historically was home to the densest American Indian population in California, who used the river as a food source (fish) and transportation route. The discovery of gold in the Sierra Nevada’s led to an enormous influx of American settlers, which caused booming communities along the Sacramento River.

Since the 1950s the watershed has been intensely developed for water supply and hydroelectric power. Today, large dams impound the river and almost all of it’s major tributaries. The dams allow for more designed and built up spaces along the banks of the river because there is less chance of flooding. This has caused significant changes to the river’s hydrology and environment.

One section of the Sacramento River that has had significant changes to its hydrology, topography, and environment is in Redding. It is located in Shasta County, along a stretch of the river that contains Shasta Dam and Keswick Dam.
Figure 5-4 Historic map of Shasta County from 1939, showing rivers and mineral deposits
Redding, California

Redding is the fourth largest city in the Sacramento Valley, and is fortunate enough to have the Sacramento River surging directly through its city limits. Redding is a western city that has in the past taken large amounts of resources from the river, but did not view the river for the asset that it was and hence take full advantage of its waterfront. The city promotes the iconic river through advertisements and logos, and yet it has only recently begun to offer improved access points to the river.

Twenty miles of the Sacramento River are within the Redding city limits. The Sacramento River Trail (SRT) spans five of these miles on either bank. This trail is a draw for walkers, joggers, and bikers. Unfortunately, the SRT only offers 2 points of river access for launching watercrafts, allowing for actual interaction with the river. The rest of the river trail is separated from the river by steep banks and overgrown vegetation. While Redding has made great strides in eliminating invasive non-native vegetation such as arundo grasses along its waterways it still has a significant amount of Himalayan blackberry lining its riverbanks.

The remaining miles of the Sacramento River that aren’t bordered by the SRT have minimal access as well, due to private ownership or steep cliffs. These stretches of the river benefit only the private landowner, and most are lined with riprap to stabilize the bank so there is no property loss. Neglected public spaces along the river have become home to transient populations. All of these factors combine to make the Sacramento River in Redding an ideal spot for a waterfront redesign.
Typical boat ramp access point: concrete ramp with public restroom

- Trails and parks
- Location of public boat ramps and corresponding river mile

Sacramento River Trail: dense brush and steep hillsides prevent access to river

5% of river miles in Redding are accessible for watercrafts

35% of river’s edge lined with public parks and trails
Park Marina

Park Marina Drive offers the best opportunities for a redesign that would result in significant economic, recreational, and scenic improvements. Park Marina Drive is west of and runs parallel to the Sacramento River between the recently rebuilt Highway 44 and Cypress Ave. bridge crossings. The mile long road follows a curve in the river closely, offering many potential access points. Vacant office buildings and surface parking lots obstruct views and access along the river. The site also has uniquely shaped topography that forms lakes along the west side of the river. These ponds are the side effect of the massive excavation project to build Shasta Dam in 1945.

More than 50 years ago the project area was home to several amusement park features including a mini golf course, Ferris wheel, and train ride along the cape created by the largest of the lakes: Kutras Lake. The mile long stretch has been in various states of disrepair for the last 30 years. No new developments have been attempted, and the few new businesses that have opened have found the area not profitable.

Rejuvenating the waterfront along Park Marina Drive will connect east to west and north to south. The project site sits between the Mount Shasta Mall to the East and downtown Redding to the west. North of the site is the Turtle Bay Museum and Exploration Park and the Highway 44 bridge. South of the site is Cypress Bridge, a main corridor from the westside to the eastside of the city. The project site has a planned bike route along the entire stretch of Park Marina. This will provide the necessary link between a gap in the City of Redding Bike Plan: in between the bike lane at Cypress Bridge and the bike lane at Highway 44 Bridge that continues up to Turtle Bay and ultimately to the Sacramento River Trail. This corridor connection will provide safe access and encourage more bikers in the area.
Sawmills operated in the area from 1896-1935. The river was used to float logs down it. The Kutras family owned a sawmill just North of Park Marina until it burned down in 1935.

Lake Redding Swimming Hole, once located less than a mile from Park Marina, was built to maximize profit from the ferry service across the river. All that remains are the concrete steps along the river bank.

Dredger harvesting the Park Marina area for aggregate, sand, and gravel to make the cement to build Shasta Dam. The curve of the river slows the flow of water, allowing the deposit of rocks.

The longest conveyor belt in the world built for the Shasta Dam project. It spanned over 9 miles and carried 12,200,000 total tons of aggregate.

This structure - The Monolith - was the anchor building for the conveyor belt carrying aggregate from the Park Marina Area to Shasta Dam. The Monolith still stands today in Turtle Bay Exploration Park.

The construction of Shasta Dam was prompted by the frequent floods and droughts in the Central Valley. At the same time, the railroad that ran along the west side of the river was rerouted.
Existing Conditions

Surface lots cover the area, remnants from when there used to be more stores in the vacant buildings that would require more parking. Now they sit empty and are an eye sore. There is a large round building (3) that sits empty in a central location of the vacant area. This will become the main entrance to the watercraft center. Most of the parking spaces will remain, except for those closest to the river.
Dense shrubs and trees block the river from physical access and views of it. The banks are also steep on some stretches (5, 8). There is a large stretch, however, that has a very gradual bank into the water (7). This area will serve as the main swimming and boat launch area.
Aerial of entire site: showing prime location in between downtown Redding and the Mount Shasta Mall. The design is bounded by Cypress Bridge and Highway 44 Bridge. The spiral is highlighting the central activities area of the redesign. From this aerial view the ponds along the side of the main channel are visible.
**Design Goals**

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<td>• Improve tourism, commerce, and recreation within Redding</td>
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Keswick Dam sits several miles north of Park Marina, marking the end of the free-flowing reach of the Sacramento River. This point is the highest upstream that salmon and steelhead can access to spawn, making the Park Marina river stretch very crucial.
Site Plan

- Increased river flow to pond to improve water quality
- Bike path along entire planning area
- Sailboat marina
- Habitat islands
- Swimming area
- Kutrás Dog Park
- Riverside coffee shops
- Paddlecraft park entrance
- Kayak launch and viewing area
- Bridge to cape walking trail
- Marina for powerboats
- Cypress Bridge bike lane connection
Site plan of central activities area of the design: water craft launch and rental area, restaurants and café's, and marina.
KAYAK LAUNCH
Boat unloading with signage and spectator area

HABITAT ISLANDS
Create habitat for native species and destination points for watercraft recreators

INTERPRETIVE TRAIL
Along previously inaccessible cape around Lake Kutras

PLAYWAVES
For advanced kayakers: vertical drops and holes for maneuvers such as ‘booting’ and surfing

THE BLUFFS
30 foot cliffs to east side of the river, making access impossible
Kutras Lake, along Park Marina Drive, is to be the main activities area. The project’s focus is on the watercraft park with a planned boat launch along its shore. Planned also is a marina for non-motorized watercraft within Kutras Lake, and a separate marina for power boats further south. Destinations for paddlers will be created in the form of small islands within Kutras Lake. These islands will feature native planting to create habitat for several species in the area, and also serve as lunch spots for paddle craft retreaters. All paddle crafts will be available for rent at this site. For more advanced kayakers, at the south end of Kutras Lake where there is a gap in the cape that forms it’s boundary, a play wave (standing wave caused by underground river feature) is planned. This feature, at the right high-water river flows, can allow for endless entertainment and kayak competitions.

The cape of Kutras Lake extends from the main activities area and stretches for ¾ of a mile into the river. The project will include a trail with interpretive signs along the way educating people about river dynamics and ecosystems. A bridge over the gap in the cape of Kutras Lake will provide a viewing area to observe the kayakers on the play wave.

Cafés and restaurants will increase the draw of the project site for those who aren’t involved in paddle craft sports. Turtle Bay Museum is the only other available option for libations along the river. These cafés would provide people in the neighborhoods nearby a closer option than driving to the mall across Interstate 5.

The Park Marina Riverfront Revival will create access to the river as well as a draw for people to make use of this new access point. The project will educate residents and visitors about the unique history of the site. Park Marina’s location within the city of Redding is ideal for this type of riverfront activities center and will improve the river recreation options, as well as the vitality of Redding.
Perspective of water craft rental area and launch
Perspective of habitat island with adventurous visitors
Watercraft Park

Redding has a growing kayaker population, with organizations such as Shasta Paddlers, Penguin Paddlers, etc. Kayak and Stand-up Paddleboard lessons are taught along other stretches of the river. The Paddlecraft Park would provide a central location and mecca for paddlers from the surrounding areas. All types of paddle crafts will be for rent on site. The site will also have kayaking features that will allow for competition to take place, with spectator viewing areas.

Empty lots adjacent to the river and obstructions that limit access and appeal will be removed.

A precedent study of the American River Lake Natoma: Sacramento State Aquatic Center
Velocity

Increased river flow to pond to improve water quality

Create inlet for water flow to swimming area

Velocity
- high flow, maximum movement
- low flow, stagnant water
Bibliography


