

The Taming of the Hillsborough River: How Tampa Gained a Moat, Destroyed a Creek, and Forgot a River

*“Wilderness?... What is land? A patch of dirt? Trees?
Who cares? ... This was the end of the earth. Almost
overnight, out of the muck and the mangroves, we
created ... this! ... Nature on a leash.”*

From John Sayles’ film “Sunshine State.”

Once upon a time the rhythms of Florida’s Hillsborough River were tolerated and endured by those living within range of the waterway’s expansive flood plain. For most of the twentieth century the residents of Tampa, Temple Terrace, and surrounding communities, were subjected to the regular flooding of the Hillsborough River. Draining an immense river valley, the Hillsborough funneled accumulated waters through the midst of an ever-growing metropolis. Once, rainy spells and hurricane seasons resulted in frequent urban flooding. Wet years produced worse floods, but even in dry times a significant tropical blow or hurricane pushed the river up over its banks, sending tannin-hued water streaming through the streets of Seminole Heights, Sulphur Springs, and the environs of Tampa. Today the routine disruptive flooding of the Hillsborough River has become a near-forgotten part of the past. The modern era of flood control systems and regional water management, initiated in the aftermath of Hurricane Donna in 1960, has rendered an historical memory of the seasonal swells of the natural river. A sketch of the successful taming of the Hillsborough River – and how Tampa became a city on a moat – explains how area residents have achieved the luxury of ignoring the river that once dominated the city, and how at the same time another watercourse was transformed into an ecological nightmare, a regional version of the Kissimmee River syndrome writ small.

The Hillsborough River forms of rain and seepage and gravity-fed rivulets in the Green Swamp, the 870-square mile water-warehouse that straddles west central Florida between

Orlando and Tampa. The marshes, uplands, low-lying flatlands, and hard-wood hammocks of the Green Swamp are also the birthplace of three other major river systems in addition to the Hillsborough, each radiating toward opposing compass points; the Withlacoochee to the north, the Oklawaha to the northeast, and the long Peace River flowing southward, stretching to the Gulf at Charlotte Harbor. The Hillsborough percolates southwest out of this river-generating swamp, winding some 54-miles to Tampa, then turning south to pour through the heart of the city into Hillsborough Bay and eventually Tampa Bay and the Gulf of Mexico. Along its course, the rural portion of the river weaves through the woodlands of Polk, Pasco, and Hillsborough counties, where many small streams and five major tributaries join its steady flow. Crystal Springs adds about 40-million gallons a day to the growing waterway, before sending it rolling west past Hillsborough River State Park, near Thonotosassa, toward the long sweeping curve that allows the river to descend into Tampa.

After arching east around the neighborhoods of Temple Terrace, the Hillsborough widens into the U-shaped Tampa City Reservoir, formed by a dam at Rowlett Park, some five river-miles ahead. The approximate 1,300 acres of the reservoir can hold up to 1.6 million gallons and has served as Tampa's primary source of drinking water since it was constructed in the mid-1920s. Below the reservoir, the Hillsborough broadens into an urban river, influenced by the tides of distant Tampa Bay. The Hillsborough concludes its run from swamp to bay past some of Tampa's oldest residential and industrial areas, below new and historic bridges, growing wider and deeper as it moves south. Root-stabilized riverbanks modulate slowly into erosion mitigating piles of rocks and masonry blocks, and finally into the cement seawalls that contain the river as it passes through what a journalist once described as the "densely packed canyons of commerce" of downtown Tampa.¹

Southwest Florida Water Management District (AKA: Swiftmud) records indicate that particularly intense flooding of the Hillsborough occurred in the years 1921, 1933, 1934, 1935, 1945, 1947, 1959, and 1960. Most were associated with tropical storms or hurricanes, and sometimes resulted in loss of life and damage to structures, property, and roads. The Hillsborough river basin, including its major tributaries – Blackwater Creek, Cypress Creek, New River, Trout Creek, and Flint Creek – channel the water of some 675 square miles of forested Florida toward and through the city of Tampa.²

The Hillsborough River's varied names, flowing backward through time, speak to the long history of human interaction with the waterway. The contemporary designation of the river – and county – honors Lord Hillsborough, Britain's colonial secretary in the late 1760s, bestowed during that nation's brief reign over East and West Florida. To the Seminoles this dark persistent stream was dubbed *Lockcha-Popka-Chiska* – river one crosses to eat acorns. To don Francisco Maria Celi, a pilot of the Spanish Royal Fleet who sailed into Tampa Bay to chart its waters in 1757, the heavily forested river was the *Rio de San Julian y Arriaga*. To Hernando de Soto and other Spanish explorers in the sixteenth century the stream may have been *Mocoso*. History does not record what the Tocobagan or Timucuan peoples – nor their aboriginal ancestors – called this dynamic river system, but evidence of human use dates to late Paleo-Indian times, some 10,000 years ago, when the ecosystem of the region was that of a vast, wet prairie.³

Within a half-dozen years after the 1824 establishment of Ft. Brooke on the eastern bank of the mouth of the Hillsborough River, settlers had found their way to Six-Mile Creek. The accurately-named stream lay six miles northeast of the nascent military fort, on the direct path that would take one to what is now Plant City and points inland. The creek drained from a forest

of oak, pine, and palm, past the properties of the Collar and Dixon families, who in 1828 had transferred their homesteads from the Hillsborough River's western bank to the relative seclusion of Six Mile Creek. The stream meandered gently south into what would one day be called Palm River, then flowed west into the waters of today's McKay Bay. Seven years later, in December, 1835, as tensions between settlers and Seminoles escalated rapidly toward war, the early settlers along Six-Mile Creek barely escaped an avenging war party of Seminoles – by poling their boats down the creek. The hapless Dixon and Collar families survived to watch from a distance as the Indians set fire to their homes.⁴

Julia Daniels Moseley, an Illinois “transplant” to Florida in 1882 – the same year that Fort Brooke was deactivated – visited Six Mile Creek in May of that year and described her impressions of the place in one of the many letters she wrote to a lifelong friend back in Illinois. “There were tall palms with some trunks bare and smooth, others full of the broken stems and they, in their decay, are such a medley of soft tints – delicate pinks, deep reds and soft browns, often covered with moss and tall ferns and air plants growing among them.” Moseley rhapsodized over the Six Mile Creek hammock, with its “Old cedars, bushes of lantana in bloom, scarlet honeysuckle, and thousands of yards of trumpet vines trailing in wild abundance down the moss grown paths.”⁵

Within three decades descriptions of the area included the trappings of increased settlement. Tampa resident Neva Scruggs Ennis published an article in the *Tampa Tribune*, in 1992, recounting her childhood memories of Six Mile Creek in the years 1915-1917.

Traveling six miles east from Tampa by Seventh Avenue (Broadway) through Ybor City, through Gary, passing Bryan's and Litsey's Corner, then passing farms, pastures, and dairies, you would arrive at Six Mile Creek. You would cross the creek on a narrow wooden bridge with iron framework; if you stayed on this road for 14 more miles you would be in

Plant City. My grandparents, Gus and Molly Scruggs, lived in a large, two-story house with several acres north of the road and west of the creek. A picket fence enclosed the sandy yard, shaded by large oaks.⁶

Ennis's description of the location of her grandparent's property on Six Mile Creek – considering that it was a nearly eighty-year old reminiscence – was remarkably precise. Hillsborough County Platt records from 1916 document the location of the Scruggs property exactly as she recounted, “north of the road” (Seventh Avenue today becomes Broadway and later Columbus Drive) and “west of the creek” which on contemporary maps is in the vicinity of U.S. 301. That section of Six Mile Creek no longer flows past the former Scruggs property.⁷

The bucolic Six Mile Creek images of Julia Daniels Moseley and Neva Scruggs Ennis would fade, of course, as developing Tampa impressed itself upon the landscape. The wilderness hammock of Moseley and the pastures and farms of Ennis would be absorbed by twentieth-century urban growth. The grid, development, roads and highways, sewers, electricity and telephones, neighborhoods, industrial plants, strip-stores, malls, and other accretions of urbanity would eventually erase the natural setting these women described. But the water of Six Mile Creek – for the first six decades of the century – continued to meander east of Tampa, flowing south into Palm River, then west into the Bay. The winds of change that would seal the fate of this watercourse would not blow across Florida until 1960.

Hurricane Donna, spinning a trail of ruin and wreckage across the state late in the summer of 1960, has often been cited as the pivotal event that launched the modern era of water management in Florida. The *timing* of Donna – as well as weather patterns that preceded the tempest – likely played as much a role as did the storm itself. When Donna crossed Florida in early September 1960, the hurricane arrived at the end of a six-year pendulum-like swing of weather extremes for the sunshine state. For three years, 1954-1956, Florida baked in a severe

and extended drought. Then from one extreme to the other, the three years preceding Donna, 1957-1960, were among the wettest ever recorded. Total rainfall for 1959, for instance, increased substantially from a yearly average of 54 inches to a record-setting 88 inches in the Tampa Bay area. Only two months of that sopping wet year offered lower than normal rainfall figures, February and November, and for six months, January, March, April, May, June, and October, more than double the usual amount of rain drenched Florida's west-central coast. May was particularly wet, with eleven rain days during the second half of the month. June witnessed the heaviest one-day rainfall of the year on the 18th, when nearly five and a half inches fell on the city, and July offered 27 days of thunderstorms. On August 19, National Guard troops were ordered to assist flood relief in north Tampa's Forest Hills area, where some fifty families were evacuated. The neighboring *St. Petersburg Times*, in an early 1960 analysis of the previous year's weather, reported that Weather Bureau records dating to 1890 indicated the period July 6 – August 25, was the longest on record in terms of continuous days of rain.⁸

In mid-March, 1960, some six months before Hurricane Donna, a four-day deluge hammered Central Florida from Tampa Bay to the Atlantic. The press reported twenty five inches of rain falling on one area of Pasco County, north of Tampa. Other sections of the Tampa Bay area received fifteen to twenty inches of rain during the four day inundation. Dozens of roads in Hillsborough, Pinellas, Polk, and Pasco counties were washed-out by the downpour. U.S. 301 was underwater south of Zephyrhills. The Hillsborough River, already near capacity, burst its banks and a thirty-foot breach in a flood control levee at Lake Magdalene, less than three miles northwest of Temple Terrace, released floodwaters which spread over eight square miles. Initial overflow was kept to a minimum by the suction of an outgoing tide, but when floodwaters later met an incoming tide, 1,500 people were forced to abandon their homes. In the

Forest Hills region near Lake Magdalene, some 800 persons were evacuated. It would be three more days before the swollen Hillsborough reached its crest. By then another break in the Lake Magdalene levee flooded another section of the sodden city, sending river water along streets to depths of four feet. Before it was over, the March 1960 flood, called the worst since 1933, saw nearly 8,000 Hillsborough County residents evacuated from their homes.⁹

Six months later, in early August – a month before Hurricane Donna – rains from tropical storm Brenda again filled the Hillsborough River, which spilled into some sixty homes along the watercourse. The next day, when flashboards reinforcing a dam north of the business district collapsed, about one-hundred families had to be evacuated from their riverfront homes.¹⁰ By the time Hurricane Donna began swirling into shape off the Atlantic coast of Africa, Hillsborough County and its extensive drainage basin were saturated.

On Monday September 5, a month after tropical storm Brenda passed across Florida, Gordon Dunn of the Miami Weather Bureau issued a warning that a powerful storm headed for Puerto Rico – with winds upwards of 140 miles per hour – was following the same path as two of the most destructive hurricanes that had ever struck Florida, the hurricanes of 1926 and 1928. Red Cross officials were dispatched to Puerto Rico, Miami, and Wilmington, North Carolina. On Tuesday, the hurricane – now named Donna – struck Puerto Rico, leaving a reported 102 dead in its path. *The New York Times* reported that forecasters hoped the storm would shift northward and spin into the Atlantic. Despite forecasters' hopes, in the early hours of Saturday, September 10, Donna clobbered the Florida Keys city of Marathon. A Navy convoy, battling intense winds and rain, found utter destruction at Marathon at 9 A.M. that morning. The city of Key West, less than fifty miles to the southwest of Marathon, escaped with minor wind damage.¹¹

Donna careened through Florida. After colliding with the Keys, the storm swung north west to unleash a tempest upon Everglades City, Naples and Fort Myers, then turned northward, inland, brushing past Sarasota and St. Petersburg. The gale turned again, hard to the northeast, whipping across the spine of Florida to the east coast, near Daytona, where it moved over the open water of the Atlantic. Donna left a brutal trail of damage in her wake. Ft. Myers was without electricity, “cut off” from the world after midnight Saturday. The roof blew off the National Guard Armory in Dade City, where more than 150 evacuees were sheltered. Among the cities hardest hit were Venice, Punta Gorda, Sarasota, Bradenton, St. Petersburg, Clearwater, Bartow, Winter Haven, Dade City, and Lakeland, where winds of 100 miles per hour were reported. Some 40,000 people were evacuated from low areas along the Gulf before Donna hit land. Damage to Florida’s multi-million-dollar citrus crop, which was reported in the *New York Times* ahead of the death toll and other damage, was expected to be significant since the orange and grapefruit crops were almost ripe.¹²

On Sunday, waters driven into the Gulf by the power of the storm were expected to flood back to land. The counter clock-wise motion of the advancing gale had sent coastal waters far into the Gulf. The edge of the water was reported 100 feet farther out than normal along the west coast at Venice, Sarasota, and St. Petersburg. Roland Johnson, Pinellas County’s Civil Defense director, reported that water had been sucked nearly completely out of some bays in the St. Petersburg Beach area. As the storm passed, the point where winds began coming from the west turned those waters back toward land. Flooding along the west coast, well into Tampa Bay, was severe. An estimated 15,000 people were forced to evacuate from the Gulf Beaches along Pinellas County. A day later President Eisenhower designated sections of Florida affected by

Hurricane Donna as major disaster areas. Military units were dispatched to restore five smashed bridges on the overseas highway connecting the Florida Keys with the mainland.¹³

Donna provided the last drop in the region's long deluge. Water-logged residents demanded change. Hillsborough County in 1960 was midway through a twenty-year growth explosion that witnessed the population doubling from 250,000 in 1950 to nearly 500,000 in 1970. The newly-launched University of South Florida, with property along the river, anxiously opened its doors in the fall of 1960. During the decade before Donna, the population of the county had swollen by 150,000 persons. Pressures on housing, water supply, sewage, drainage, and other infrastructure elements for the mushrooming population made the disruptive behavior of the river intolerable. Efforts of the eleven-year old Central and Southern Florida Flood Control District, created by the Florida Legislature in 1949, had failed to control the untamed Hillsborough River. Within a year of Hurricane Donna, elected officials responded.¹⁴

Under a "fast-tracked" Special Act of the Legislature, in 1961, the State of Florida created the Southwest Florida Water Management District (SWFWMD), an independent special district of the state of Florida. District boundaries were developed on the basis of surface water drainage and hydrologic divides, not political borders. The new agency – which would come to serve as a model for four additional special water districts statewide – was charged with the management, regulation, and protection of regional water resources for a broad sixteen-county region. The fledgling water district was directed to "collect and analyze water-related data, design and operate flood control facilities, manage the consumptive use of water, supervise water well construction, regulate surface water systems, and evaluate water supplies within its jurisdiction." Dale Twachtman was appointed executive director, a post he held for the first ten years of the agency's existence. Twachtman spearheaded the local drive to build the Tampa

Bypass Canal, which constituted one part of a far-reaching plan proposed by the U.S. Army Corps of Engineers, which since 1899 had been the federal agency overseeing the nation's navigable rivers and harbors.¹⁵

The Army Corps of Engineers, whose bulldozers at the time were just about to begin converting Florida's 103-mile long Kissimmee River into a 56-mile long sewer called the C-38 canal, proposed the "Four River Basins Project," an elaborate system of canals, reservoirs, and flood control structures designed to deal with managing the waters of the four major rivers of the Green Swamp: the Hillsborough, Ocklawaha, Withlacoochee, and Peace Rivers, as well as their extended river basin areas. All told, some 6,000 square-miles of central and southwest Florida, from Yankeetown to Port Charlotte, were targeted by the plan. The Tampa Bypass Canal – the only portion of the Four Rivers project to be completed – was a multi-million dollar strategy for diverting flood waters from the Hillsborough River at a point upstream from the cities of Tampa and Temple Terrace, then re-routing the excess water through an area east of Tampa into nearby McKay Bay. Two of the three original components of the Tampa Bypass Canal System were the 14-mile canal itself, cut from a lowland natural reservoir along the Hillsborough River, near its confluence with Trout Creek, to a point some eight miles due south to the headwaters of Six Mile Creek, which grows into Palm River, then deeper and wider for the canal's brief run into McKay Bay. Plans called for the shallow stream, meandering from eastern Tampa into McKay Bay, to be dredged to a depth of 20 feet, and widened to 400-600 feet. The second component of the plan – the Harney Canal – involved a nearly two-mile long canal connecting the proposed bypass with the Hillsborough River below Temple Terrace, but upstream from the reservoir. A third component, the Thonotosassa Canal, was planned to run from Eureka Springs, a dozen miles into

Lake Thonotosassa and along Flint Creek to the Hillsborough River. The Thonotosassa Canal, like the Four River's Basin project in general, was never completed.¹⁶

The Four River Basins project generated controversy and opposition nearly from its inception. The Polk County Property Owners League, early in 1962, challenged the Corps's cost estimate of \$104-million to pay for the plan. The League's own engineering study estimated that the initial cost of the project would near \$210-million, more than twice the estimate of the Army engineers. Raymond Stuck, a former Civil Works Division head for the Corps, conducted the study for the property owners. Stuck concluded that Corps' Four River Basins Project was prepared "too hurriedly," and that it was inadequate due to "serious omissions," including a failure to deal with seepage under dams, ground clearing and preparation, and for the costs of hauling dirt from borrow pits to final placement on dams. Stuck charged that the Corps report also neglected to consider grassing and seeding of levee slopes to prevent erosion. The Tampa Bypass Canal portion of the Four River Basins project was expected to cost nearly \$30-million.¹⁷

Contention surrounding plans to tame the Hillsborough River were not the only forces flooding Tampa during the early 1960s. During the same period, the rising tide of the civil rights movement washed through Tampa as activists demanded and demonstrated for integration and desegregation of public accommodations. A series of lunch counter sit-ins in 1960, organized by members of the local NAACP Youth Council, brought the national movement's challenge to vestigial Jim Crow laws to the streets, bus stations, motels, and restaurants of Tampa. The black vote impacted local elections. The 1963 Tampa mayoral election, when former mayor Nick Nuccio defeated the incumbent Julian Lane, was in part decided by the shifting allegiances of several blocks of voters reacting to the twin tides of civil rights and the government's failure to provide adequate flood control measures. The African American community had joined with

residents of Ybor City and West Tampa to help elect Nuccio as the city's first Latin mayor, then deserted him for Lane, in 1959, because of Lane's willingness to work with civil rights activists. Lane attributed his 1963 city-wide defeat to his support for integration, but he also lost support in his home district of Seminole Heights, as well as the water-logged communities of Sulphur Springs and Forest Hills. An active citizen's group in Forest Hills that had backed Lane in his first campaign because previous administrations had not dealt with the flooding issue, realigned with Nuccio in his successful bid to regain the mayor's office. The same mindset that accepted segregation as "natural," likewise saw nothing unnatural about building homes and business within the flood plain of a major river system.¹⁸

Design work and right-of-way acquisition for the Bypass Canal project was time consuming. The million-dollar effort was beleaguered from the start with expense overruns and other problems. The most significant problems would eventually be viewed as a lack of environmental safeguards and an insufficient engineering design. The plan called for private contractors to construct the Corps-designed canal. In April 1966, Southwest Florida Water Management officials approved a proposal to extend the projected Bypass Canal a quarter-mile into McKay Bay. They noted that the shallow bay – two to three feet deep – would otherwise act as a dam to the 20-foot deep canal. At the same time water officials also granted authority for the filing of condemnation proceedings for parcels within the 15,000-acres between Hillsborough River State Park and Fowler Avenue, land required for a basin reservoir. A month later the Corps of Engineers awarded Trans-State Dredging Company of Ft. Pierce, the \$999,250 contract for construction of the down-stream end of the Bypass Canal. The contract covered dredging from the 22nd Street Causeway, northwest across McKay Bay and up Palm River to the U.S. 41 bridge. Two years later, in April 1968, the Corps awarded a nearly \$2-million contract for dredging

between U.S. 41 and State Road 60, to Potashnick Construction Inc., who had submitted the lowest of eight bids for the work.¹⁹

The first section of the canal was completed in 1968. The essential “moat” around Tampa was finished in the early 1970s, and the final section, where the river crosses north of the canal near Fletcher Avenue was completed in 1983. During periods of high-water, canal flood-control gates are closed to reroute potential floodwaters from the river, around Tampa and Temple Terrace, south past Harney Flats, Orient Park, Palm, and into McKay Bay. Since completion the canal has become more than merely a flood-control measure. With the population of Hillsborough County doubling again between 1970 and the turn of the century, from just under 500,000 to one-million, the demand for potable water – and waterfront property – increased proportionately. Water from the Bypass Canal has been used to augment the city’s reservoir during dry seasons. During a prolonged drought in the early 1990s, for instance, when the normal flow of the Hillsborough River was cut in half, officials began pumping about 40 million gallons a day from the canal to supply the city with drinking water. The water in the bypass canal has become one of many additional water sources for the burgeoning population of Hillsborough County.²⁰

The Tampa Bypass Canal System tamed the Hillsborough River. Dale Twachtmann, the Southwest Florida Water Management District Executive Director who spearheaded the canal project in the early 1970s, expressed pride in the canal in an interview with the *Tampa Tribune* in 1994. “It’s one of those projects where people can’t realize its importance because it caused something not to happen,” said Twachtmann. “Tampa never has flooded since [1960] and won’t. The canal was the total solution.”²¹

The drive-to-tame the Hillsborough River had a devastating effect on Six-Mile Creek-Palm River. Critical design flaws, coupled with an augmented impact from industrial pollution, combined to poison and suffocate life from the once lively stream. The Bypass Canal did not cause polluters to congregate along its southern flank, but a design flaw at the U.S. 41 bridge exasperated pollution problems. A mid-1970s study prepared by the U.S. Department of the Interior, examining the hydrologic effects of the canal, acknowledged that “The canal system will breach the underlying artesian Floridan aquifer in several places. Thus, it will cause drainage from the aquifer into the canal system and will affect ground-water levels over a large area.”²²

In 2005, Tampa Bay Watch Executive Director Peter Clark called the dredging and straightening of Palm River a “west coast version of the Kissimmee River.” Polluted runoff from the industrial sites on both sides of the waterway became concentrated and swiftly moved into McKay Bay, where circulation problems had existed since the 1920s, when the 22nd Street Causeway was constructed between Hooker’s Point and the east shore of the bay. During World War II and the post-war decades, Hooker’s Point became a ship building center and entrepot. Oil storage facilities dot its landscape. Circulation problems were exacerbated when Palm River was channelized for the Bypass Canal project. The *Tampa Tribune* reported in 2005 that the Bypass Canal contains sediment laced with carcinogenic materials such as polychlorinated biphenyls (PCBs) and two pesticides considered toxic to bottom-dwelling creatures.²³

Clark was quoted in the press as characterizing McKay Bay, post-canal, as a “contaminated mix of toxins, fertilizers, oils, and other pollutants incapable of supporting much of the marine life that historically inhabited its waters.”²⁴

The presence of PCBs in the canal had been noted for more than thirty years. The U.S. Geological Survey, while gathering data for the Corps’s Bypass Canal project, had noticed PCBs

in soil samples taken in 1975. Over the next six years, all but one of twenty additional samples contained some amount of PCB, which had been banned around the same time – in the mid-1970s – after researchers discovered the chemical’s carcinogenic properties. PCB is a manufactured compound once used in a variety of industrial products, including electric transformers, plastics, lubricants, ink, paper and adhesives. A 1981 *St. Petersburg Times* account that officials with the Geological Survey had written to the Department of Environmental Regulation (DER) about their discovery and concerns, sparked a flurry of press reports and editorials, as well as calls for further study.²⁵

In 1980, the U.S. Congress created a trust fund that became known as “Superfund,” to pay for cleaning toxic sites when the responsible polluter cannot be identified or is unable or unwilling to pay. A tax levied on companies prone to polluting, mostly oil and chemical concerns, financed the Superfund. The idea was that chemical plants, oil refineries, and other industries that created toxic materials would be held accountable, and when they weren’t, cleanups would be funded by the tax. In 1995, a GOP controlled Congress allowed the Superfund tax to expire and the administration of George W. Bush indicated that it was not in favor of reauthorization. The amount in the trust – which peaked in 1996 at \$3.8-billion, plummeted to \$28-million by 2003. At a time when the Public Interest Research Group estimated that one in four Americans lived within four miles of a Superfund site, the responsibility of funding toxic cleanups shifted, under President Bush, to the American taxpayer.²⁶

In addition to Superfund toxic waste cleanup sites, the category of “brownfield” sites developed as a means of dealing with less contaminated locations – former sites of activities associated with pollutants, such as paints, solvents, battery acid, and cleaning fluids – which had rendered the properties undesirable to investors. The concept of official “brownfields” held that

with the targeted property inventoried and the likely contaminants identified, potential buyers could be offered tax credits and other incentives to spur privately funded redevelopment. Seeking a federal grant of \$200,000 to compile a list of such properties, Hillsborough County designated a 16-square mile area between Tampa city limits on the west and Interstate 75 on the east, and between Harney Road to the north, and Palm River Road on the south. The Tampa Bypass Canal flows directly through the center of this 16-square mile “brownfield” region.²⁷

Pollution had long been synonymous with the community of Orient Park, situated along the west bank of the former Palm River, now the channelized Bypass Canal. Orient Park was originally developed in the 1920s as a site where “Tin Can Tourists” who traveled to Florida after the First World War could set up their tents. With both rail and port access, the area evolved into an industrial zone, and came to be considered home to one of the largest clusters of toxic waste sites in the state. As of 2004, no less than five Superfund sites were located within a mile of Orient Park. Today some 300 families live in the community, most in small houses, apartments, and mobile homes. In response to concerns that polluted groundwater was infiltrating residential well fields, the Hillsborough County water department began providing water services to residents in the 1990s.²⁸

Three of these particularly egregious Superfund sites are concentrated together along the Tampa Bypass Canal. The Alaric, Helena Chemical, and Stauffer Chemical sites represent past and future environmental threats to the region. The Superfund site at 2110 N. 71st Street, today the location of an aluminum contractor, is named for Alaric Inc., a plastics recycling firm that occupied the property between 1981 and 1986. Alaric shared the two-acre site with Dana Marine Labs, which handled marine varnishes. Before Dana Marine, a concrete equipment repair company operated at the location. The EPA declared Alaric a potential health threat to the

estimated 9,000 people living within a four-mile radius who relied on well water. State public health officials disagreed, maintaining that even though the groundwater is indeed contaminated by cleaning solvents, it is not a health hazard because nearby residents have been allowed to obtain their water from the city of Tampa. Davis Daiker, of the Health Department's Bureau of Environmental Epidemiology, offered that the nearest municipal wells are more than a half-mile from the site, and that the groundwater contamination plume from Alaric is moving south, toward an industrial region. Residential areas are generally to the north of the Alaric site. In 2000, the EPA reported that groundwater sampling turned up evidence of tetrachloroethylene, trichloroethylene, a dry-cleaning chemical called PCE, and traces of vinyl chloride, a liver toxin and carcinogen. A year later, EPA project manager Brad Jackson reported at a public meeting that groundwater contamination at the Alaric site "seemed to have doubled in size the last two years."²⁹

The Alaric site is located just west of another pair of Superfund sites, the Helena Chemical Co. and its immediate downstream neighbor, Stauffer Chemical Company. In 2000, the *Tampa Tribune* reported that regulators were worried about pumping contaminated groundwater at the Helena site because of fear of altering the drift of the Alaric plume. The Helena site was built for the production of sulphur in 1929. Helena Chemical Company purchased the property from Flax Sulphur in 1967 and converted the facility to the production of agricultural chemicals, including pesticides. Drains in the pesticide manufacturing areas emptied into a series of three pollution control tanks, where hazardous chemicals were mixed with caustic soda, then stored onsite. Pesticide production transferred to the company's facilities in Georgia in 1981, but repacking, warehousing, and distribution of agricultural chemicals and liquid fertilizers continued at the Tampa location. One of the control tanks was filled with concrete and

the above-ground portions of the other two were knocked down and the remaining structures were capped with concrete after being filled with sand and gravel. Arsenic, zinc, and chlorinated hydrocarbon pesticides such as aldrin, heptachlor, endrin, and DDT, were found in soil, sediment, and groundwater associated with the Helena site. Drainage on the property was directed to a concrete culvert that channeled into a pond. When the pond overflowed – which it did at least once a year between 1979 and 1990 – a concrete spillway allowed outflow to pass under Orient Road, east to the Tampa Bypass Canal.³⁰

Other forms of toxic pollution have assailed Palm River since it and its Six Mile Creek headwaters were terraformed into the Tampa Bypass Canal. A notable example occurred when high levels of the pesticide malathion made it into the canal when the city waged a scorched-earth campaign against the medfly in 1997.

When the Mediterranean fruit fly was discovered in a Tampa residential area in May 1997, the finding initiated an aggressive campaign to protect Florida's \$3.6-billion citrus industry, as well as other commodities favored by this insect-scurge of agriculture. An initial component of the campaign involved aerial spraying with the organophosphate insecticide malathion, conducted by Lee County Mosquito Control and a company called K & K, who used refitted DC-3 bomber planes to apply the toxicant. Within a month the targeted area had expanded from the city of Tampa to all of Hillsborough County and the Counties of Polk and Manatee. The EPA granted Florida's request for an emergency exemption from the Federal Insecticide, Fungicide, and Rodenticide Act – the defining regulation for those engaged in chemical pest-control. The exemption allowed usage of the pesticide malathion in volumes that exceeded the chemical's limited labeling mandates. Despite strict bans against spraying malathion near or over water, sampling tests found “unacceptably high levels in the Hillsborough

River and Tampa Bypass Canal.” An editorial in the *Sarasota Herald Tribune* thundered about water pollution when a pilot for the private contractor hired to spray the chemical flushed residues from his airplane spray tanks over the Gulf of Mexico. Witnesses also reported a DC-3 plane spraying malathion over the Tampa Bypass Canal at a time when up to 40-million gallons of water a day was being diverted from the canal to augment Tampa’s drinking supply. “The river and canal were never identified as potable supplies to program directors,” the Sarasota newspaper reported, adding that “the pollution of the water supplies shouldn’t have happened.” The instruction label for malathion states “Keep out of lakes, streams, ponds, tidal marshes, and estuaries. Do not apply where runoff is likely to occur.” A mixed-message about the program came from the EPA, which assured the public that the aerial campaign was safe, that “despite extensive studies, malathion, as used in the eradication program, has not been linked to long-term human health problems.” Nevertheless, the EPA went on to advise “As a precaution, residents are warned to remain indoors, avoid contact with the spray, rinse homegrown fruits and vegetables, cover outdoor surfaces, and bring laundry, children’s toys, and pets indoors.” The release of sterile medflies by the Florida Department of Agriculture, in late July, put an end to the aerial bombardment and the malathion controversy.³¹

Equally problematic to the issue of chemical additives and toxic sediments in the former Six-Mile Creek/Palm River is the matter of a pair of design flaws that date back to the construction of the Bypass Canal. The U.S. 41 overpass was already in place when contracts were awarded for the dredging of the canal. One company cut the canal from McKay Bay to the U.S. 41 overpass, and another dredged north from U.S. 41. As journalist Susan Green reported in the late 1990s, rather than rebuild the bridge and replace the pilings, the corps simply left the shorter pilings in place, creating an underwater dam. Depth readings in 1997 ranged from 15 feet

on the west side of the bridge to 8 feet under the bridge, then down to 20 feet on the east side. The natural underwater flushing of the waterway has been prevented since the canal was created. The trapped water “stubbornly clings to its measure of zero oxygen levels on the east side of the U.S. 41 overpass,” Green wrote. Stagnant water and perpetual algae blooms are the result. Stephen Grabe, an environmental supervisor with the Hillsborough Environmental Protection Commission in 2003, reported that about a third of samples taken from the bottom of the river show no signs of life. However, Grabe said, it is hard to know whether the primary cause is the pollutants or the lack of dissolved oxygen. The main contaminants in the sediment are PCBs, Chlordane, and DDT, because the river is not flushed. An official with the EPC pointed out that the northern part of McKay Bay, at the mouth of Palm River, also has sediment containing moderately high levels of hydrocarbons such as oils and grease, but it is shallower and flushes out more, which helps wash out pollutants.³²

Multi-million dollar restoration plans for the traumatized river way have been discussed for years, and some small steps have been taken. An organization – the Palm River Management Committee – formed to address efforts to restore Palm River. The committee was founded in 1988 by river resident Sandy Odor, in response to fish kills. The committee included representatives of the County Environmental Protection Commission, the water department, Swiftmud, the Florida Department of Environmental Protection, and Tampa Bay Watch. In 1997, Peter Clark, director of Tampa Bay Watch and a member of the Palm River Management Committee, declared that “Palm River has the worst quality of any system in Tampa Bay. It has algae blooms all year round.” Clark labeled the river a “killing field,” and proposed a major project to replace dredged material back into the river, raising it from 20 feet deep to its historic depths of 10-12 feet. The committee plan called for shoreline improvements and the creation of

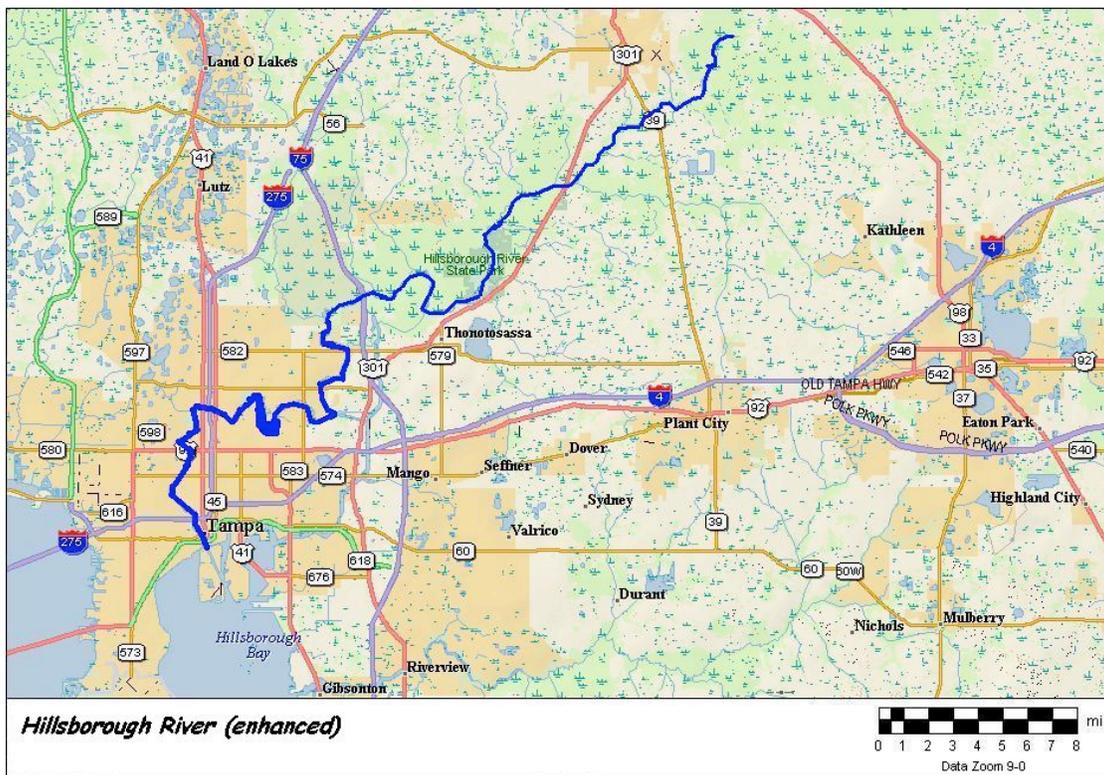
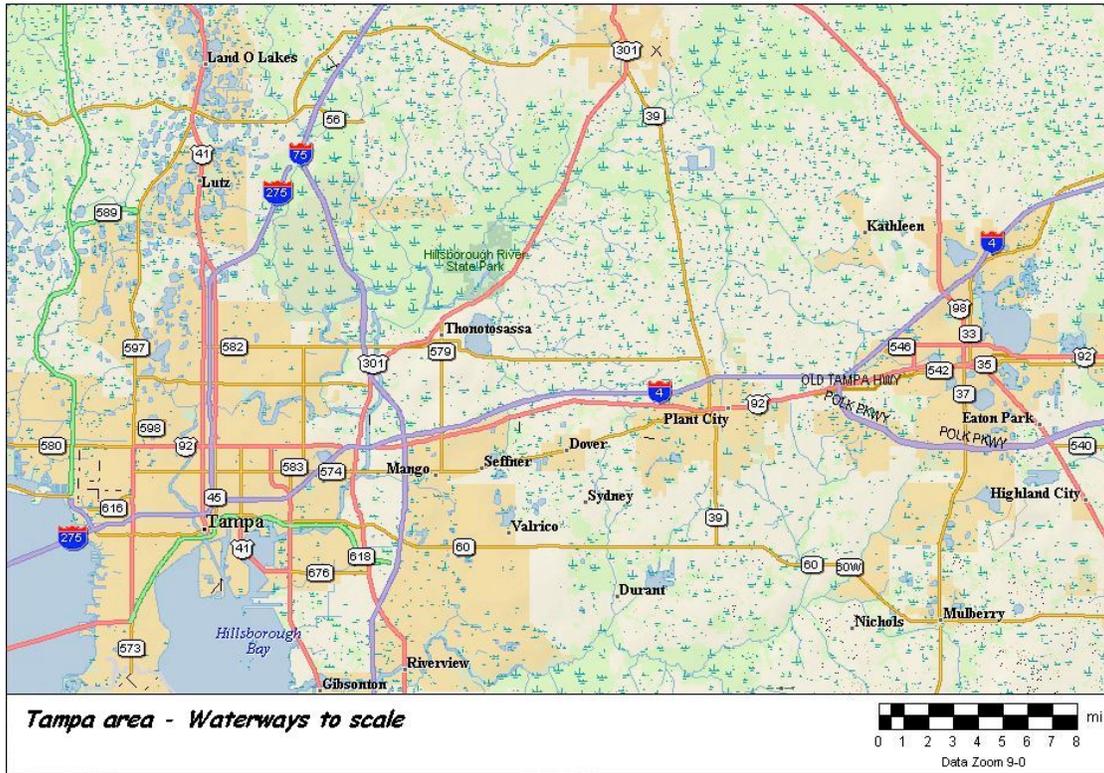
marshes and small tributaries destroyed by the dredging of the canal. Clark characterized the restoration plan as a small-scale version of the 56-mile Kissimmee River restoration project. Clark focused on the problems caused by the “box-cut” procedure used to dredge the canal, which made steep cuts along the shore line and left a flat bottom. The former gentle slope allowed plants to grow, Clark pointed out. The Palm River Committee also believed the restored river would not hinder flood control. A year later the restoration plan – reduced from 3.3 miles of the canal to partial restoration of about 2.5 miles, remained in the discussion stage. Backers of the plan pointed out that since the original Four River Basins Project was never completed, the Tampa Bypass canal is woefully over-engineered. It is designed to handle additional waters from Lake Thonotosassa, and Flint Creek, portions of the original plan never realized. Clark told a reporter for the *Tampa Tribune*, in 1997, “This is the most highly disturbed tributary in the Tampa Bay system. Let us not forget the river that’s been destroyed.”³³

Two years later the plan was still being discussed. Tom Cardinale, an assistant water management director of the Hillsborough County Environmental Protection Commission, in 1999, agreed that the Bypass Canal need not be so wide or so deep. “The thing I’m really wishing for,” Cardinale told a *Tampa Tribune* reporter, is that the Corps of Engineers “will admit that they over-designed the system and over-dug it and come back in and refill it to a more natural depth.” Two years later, in April 2001, the restoration plan was described as “in the state and federal funding pipeline,” but that “work is probably two or three years away.” The following year, with Corps backing and a price-tag raised to an estimated \$4.4-million, the plan received a lukewarm endorsement at a 2002 meeting of environmental scientists in St. Petersburg. Experts noted that the canal bottom is virtually devoid of life, and the corps plan to remove the underwater berm below the U.S. 41 bridge probably won’t change that. The

assembly concluded that despite the fact that the original plan that created the canal system had been approved on a “fast track” between 1960 and 1962, altering the design could be expected to take at least five years and cost far more than the estimated \$4.4-million.³⁴ Meanwhile the former Six Mile Creek and Palm River are no more. Collectively and then some, they are Canal 135 of the Tampa Bypass Canal System.

Once upon a time the Hillsborough River was tamed. Today, the still ever-growing population of Tampa and its surrounding sprawl are not forced to suffer the routine flooding of a natural river, nor, unless individually inclined to do so, consider the existence of the Hillsborough River at all. The city is well protected by its moat. But from the pastoral memories of Neva Scruggs Ennis to the Superfund Waste sites of Orient Park, some of the cost of that historical amnesia and relative safety are buried below the paved-over regions of the former creek bed, and hidden in the sediments in the murky depths of Canal 135.

Appendix 1



Endnotes

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- ¹⁴ *Exploring Florida* website, at <<http://fcit.usf.edu/FLORIDA/docs/c/census/Hillsborough.htm>> (March 17, 2007); Southwest Florida Water Management District website, at <<http://www.swfwmd.state.fl.us/about/isspapers/responsibilities.html>> (April 18, 2007); Florida Bar Association Website, "The Environmental and Land Use Law Section," at <<http://www.eluls.org>> (April 18, 2007).
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