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Broward County/ 21st Manor Dump

Fort Lauderdale, Florida

Cerclis # FLD9819300506

Site Exposure Potential

The Broward County/21st Manor Dump is on 21st Manor Street between SW 46th Avenue and SW 43rd Way in Fort Lauderdale, Florida (Figure 1). The North and South New River canals converge approximately 3 km downstream of the site to form the South Fork of the New River. This river discharges into the Intracoastal Waterway and later joins the Atlantic Ocean approximately 16 km downstream of the site.

The site, approximately 340 m long by 76 m wide, is on the southern end of Meadowbrook Elementary School property. The dump was originally either a natural depression or a borrow pit. Its depth is unknown, as is the depth at which wastes were disposed. The dump was used

from the 1950s to the late 1960s. Upon closure, the depression was filled and brought up to grade with the surrounding area. In 1971, 21st Manor Street was moved southward and now passes over the middle of the site. There is no record of the materials disposed of in the dump (NUS, 1990).

Groundwater discharge to surface water is a potential pathway of contaminant transport from the site to NOAA trust resources and associated habitats. The unconfined Biscayne aquifer is the sole aquifer in the county. The upper sediments of this shallow, surficial aquifer are exposed at land surface. The aquifer thins westward, extending 65 km inland, and is up to 60 m thick in eastern Broward County. Groundwater generally

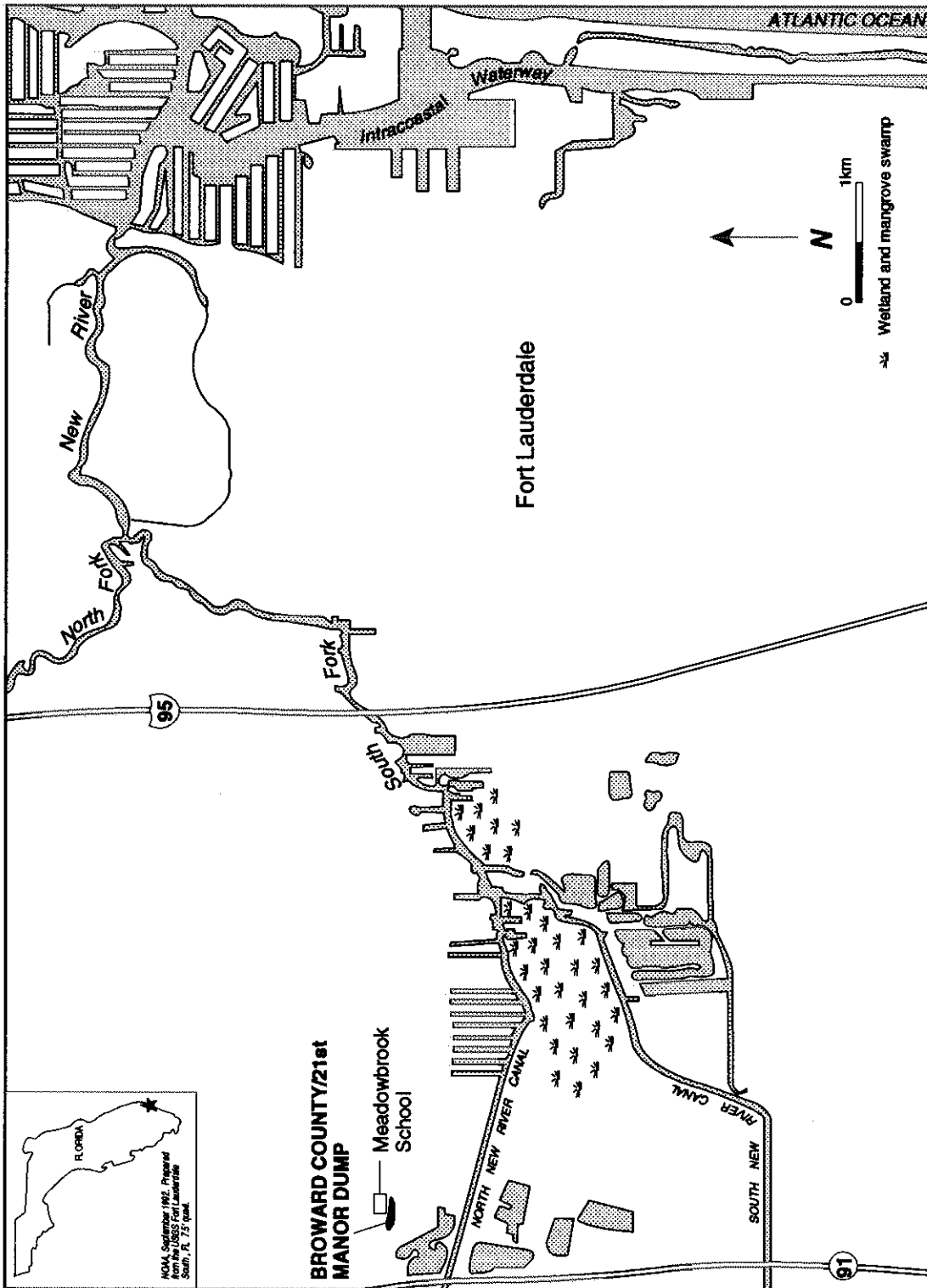


Figure 1. The Broward County/21st Manor Dump site.

flows toward the south and southeast. Though discharge points of the aquifer are unknown, the water level in the region is between 0.25 and 1 m above mean sea level (msl). No information was presented on potential tidal influences on groundwater (NUS, 1990).

Surface water runoff was not considered to be a viable contaminant pathway due to the lack of an overland runoff migration route. Discharge points and flow patterns of surface water were not well-defined in the data presented (NUS, 1990).

NOAA Trust Habitats and Species

Trust habitats potentially at risk include surface water and associated bottom substrates of the North New River Canal and the South Fork of the New River. A salinity control structure is situated approximately 1 km upstream from the site (Stone, personal communication 1992). Average salinities below the control structure generally range from 1.7-3.0 ppt, but may decrease dramatically during heavy rains. Salinity increases considerably (up to 10 ppt) at the confluence of the North and South New River canals. Waterway floodplains have been modified significantly to accommodate flood control, recreational navigation, and urban development (Somerville, personal communication 1992).

The South Fork of the New River provides habitat to numerous trust resources, including several estuarine fish and invertebrate species (Table 1; Beccasio et al, 1980; King, personal communication 1992). At the confluence of the North and South New River canals, patches of mangrove swamp remain and offer spawning and nursery areas for several fish and invertebrate species, including snook, a State-protected estuarine game fish. Catadromous American eel are considered likely to occur in the area (King, personal communication 1992). In addition, the federally endangered West Indian manatee (*Trichechus manatus*) uses these waterways. Manatees commonly migrate as far upstream as the salinity control structure on the North New River Canal (Stone, personal communication, 1992). The North New River Canal contains sea grass beds consisting largely of turtle grass (*Thalassia testudinum*) and manatee grass (*Syringodium filiforme*), which are important forage vegetation for manatees. The New River is designated as a manatee protection zone (Florida Power and Light Company, 1989; King, personal communication 1992).

There are no commercial finfish fisheries in the North New River Canal. Although there may be recreational crabbing, the intensity and location of this fishery is unknown (U.S. Fish and Wildlife Service, 1980; King, personal communication 1992). Recreational boating and fishing are major activities in the region. Rivers and canals are fished year-round, although the intensity of fishing near the site is unknown. The recreational snook fishery is the most popular and is aggressively managed by the State. Generally, all species

in the area are fished for by sport anglers. Species typically sought are tarpon, drum, bluefish, and snapper. There are no restrictions on these fisheries other than general regulations regarding catch limit and minimum size. A health advisory

regarding the limited consumption of fish from the Fort Lauderdale area has been imposed due to excessive levels of mercury contamination originating from upstream locations (King, personal communication 1992).

Table 1. NOAA trust fish and invertebrate species which utilize the North New River Canal and the South Fork of the New River in Fort Lauderdale, Florida.

Species		Habitat			Fisheries	
Common	Scientific Name	Spawning Ground	Nursery Ground	Adult Forage	Comm.	Recr.
CATADROMOUS SPECIES						
American eel	<i>Anguilla rostrata</i>			♦		
MARINE/ESTUARINE SPECIES						
bay anchovy	<i>Anchoa mitchilli</i>		♦	♦	♦	
sheepshead	<i>Archosargus probatocephalus</i>		♦			♦
sea catfish	<i>Arius felis</i>		♦			♦
yellowfin menhaden	<i>Brevoortia smithi</i>		♦		♦	♦
jack	<i>Carangidae</i>		♦			♦
snook ¹	<i>Centropomus undecimalis</i>	♦	♦	♦		♦
spotted sea trout	<i>Cynoscion nebulosus</i>		♦	♦		♦
weakfish	<i>Cynoscion regalis</i>		♦	♦	♦	♦
gizzard shad	<i>Dorosoma cepedianum</i>		♦	♦		
threadfin shad	<i>Dorosoma petenense</i>		♦	♦		
ladyfish	<i>Elops saurus</i>		♦			♦
pinfish	<i>Langodon rhomboides</i>		♦		♦	♦
lane snapper	<i>Lutjanus synagris</i>		♦			♦
gray snapper	<i>Lutjanus griseus</i>		♦			♦
tarpon	<i>Megalops atlanticus</i>	♦	♦			♦
mullet	<i>Mugilidae spp</i>	♦	♦	♦	♦	♦
Atlantic croaker	<i>Micropongonias undulatus</i>		♦	♦	♦	♦
pigfish	<i>Orthopristis chrysoptera</i>		♦			♦
bluefish	<i>Pomatomus saltatrix</i>		♦	♦	♦	♦
red drum	<i>Sciaenops ocellatus</i>	♦	♦	♦	♦	♦
Florida pompano	<i>Trachinotus goodei</i>		♦	♦		♦
INVERTEBRATE SPECIES						
ornate crab	<i>Callinectes ornatus</i>	♦	♦	♦		
blue crab	<i>Callinectes sapidus</i>	♦	♦	♦	♦	♦
brown shrimp	<i>Penaeus aztecus</i>		♦	♦		
pink shrimp	<i>Penaeus duorarum</i>		♦	♦		
white shrimp	<i>Penaeus setiferus</i>		♦	♦		
1. This species is currently protected in Florida.						

Site Related Contamination

Data collected during the preliminary site investigation indicated that soil and groundwater at the Broward County/21st Manor Dump contain elevated concentrations of trace elements and pesticides. Maximum concentrations of these contaminants in soil and in groundwater from on-site, off-site, and site background locations are summarized in Tables 2 and 3, respectively, along

with screening guidelines (Lindsay, 1979; U.S. EPA, unpublished). No surface water or sediment samples were collected.

Not all media were analyzed for all contaminants of concern. Soils were analyzed for selected trace elements and pesticides, but the analytes list was not consistent between sampling sites. Groundwater was analyzed for selected trace elements and volatile organic compounds (VOCs). Some trace elements and pesticides that were detected in soil were not analyzed for in groundwater.

Table 2. Maximum concentrations ($\mu\text{g/l}$) of trace elements detected in groundwater at the Broward County/21st Manor Dump.

Trace Elements	On-site	Off-site	Site Background	AWQC ¹
Cadmium	13	ND	ND	9.3
Chromium	300	11	ND	50
Lead	120	7	39	8.5
Mercury	1.9	ND	ND	0.025
Nickel	110	ND	ND	8.3
Zinc	590	510	ND	86

1: Ambient water quality criteria for the protection of aquatic organisms. Marine chronic criteria presented (U.S. EPA, unpublished).
 ND: Not detected at method detection limit.

Table 3. Maximum concentrations (mg/kg) of contaminants detected in soils at the Broward County/21st Manor Dump.

	On-site	Off-site	Site Background	U.S. Average ¹
INORGANIC SUBSTANCES				
<u>Trace Elements</u>				
Chromium	13	3.3	4.8	100
Lead	130	19	44	10
Zinc	120	22	ND	50
ORGANIC COMPOUNDS				
<u>Pesticides</u>				
Dieldrin	0.065	0.011	ND	NA
4,4'DDE	0.26	0.0069	0.0022	NA
4,4'DDD	0.75	ND	ND	NA
4,4'DDT	0.04	0.0059	ND	NA

1: Lindsay (1979).
 ND: Not detected at method detection limit.
 NA: Screening level not available.

Of the trace elements analyzed in soil, only concentrations of lead and zinc exceeded average U.S. soils concentrations (Lindsay, 1979). Pesticide concentrations were highest in on-site soil (Table 3). The concentrations of lead, mercury, and nickel measured in groundwater collected on-site exceeded their respective marine chronic ambient water quality criteria (AWQC) by factors greater than ten. These trace elements were not detected in off-site or site background groundwater samples at concentrations exceeding screening criteria.

References

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