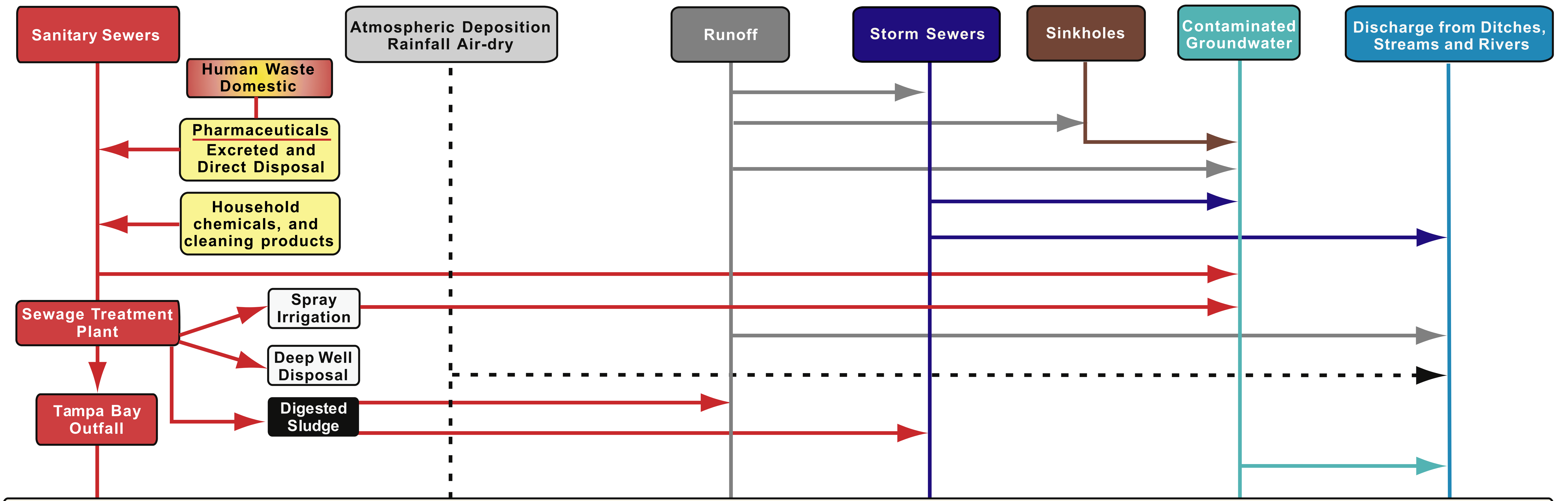


CHEMICAL CONTAMINANTS TO TAMPA BAY

Anthropogenic Contaminant Pathways



Examples of Potential Sources and Contaminants

- | Sanitary Sewers | Atmospheric Deposition | Runoff | Storm Sewers | Sinkholes | Contaminated Groundwater | Discharge from Ditches, Streams and Rivers |
|--|--|--|---|--|---|--|
| <ol style="list-style-type: none"> Human waste <ul style="list-style-type: none"> Nitrogen Phosphorus BOD₅ Pharmaceutical Products (PP) <ul style="list-style-type: none"> Analgesics Antibiotics Beta-Blockers Cardiac Drugs Hormones Lipid regulators Retinoids Trace metals Personal Care Products (PCP) <ul style="list-style-type: none"> Bath additives Disinfectants/antiseptics Fragrances (musks) Nutraceuticals Preservatives Household chemicals <ul style="list-style-type: none"> Detergents Disinfectants | <ol style="list-style-type: none"> Agriculture <ul style="list-style-type: none"> Insecticides Aircraft <ul style="list-style-type: none"> Fuels PAH: Polycyclic aromatic hydrocarbons (carcinogenic and teratogenic) Vehicles <ul style="list-style-type: none"> Fuels PAH Trace metals Boatyards/ship building <ul style="list-style-type: none"> Solids (Paint chips and blasting grit with metals, such as copper, chromium, iron) Volatile paint additives Fuel storage tanks <ul style="list-style-type: none"> Home heating Transportation Incinerators (Waste disposal) <ul style="list-style-type: none"> Dioxins Hydrogen chloride Lead Mercury Pollutant storage sites <ul style="list-style-type: none"> Solvents Petroleum hydrocarbons Power plants <ul style="list-style-type: none"> Sulfur oxides Nitrogen oxides | <ol style="list-style-type: none"> Aquaculture <ul style="list-style-type: none"> Antibiotics Agriculture <ul style="list-style-type: none"> Fertilizers Herbicides Insecticides Horticulture <ul style="list-style-type: none"> Fertilizers Insecticides Livestock <ul style="list-style-type: none"> Insecticides Pharmaceuticals Industrial and small businesses (Will vary with types) Poultry <ul style="list-style-type: none"> Pharmaceuticals Digested sludge Private Residences <ul style="list-style-type: none"> Animal wastes Fertilizers Insecticides Right of way maintenance <ul style="list-style-type: none"> Herbicides Fuel storage tanks <ul style="list-style-type: none"> Home heating Transportation | <ol style="list-style-type: none"> Industrial and small businesses (Will vary with types) Private Residences <ul style="list-style-type: none"> Animal wastes Fertilizers Herbicides Insecticides Reuse water irrigation (Parks and residential areas) <ul style="list-style-type: none"> PCP, PP Parking areas (Shopping centers) <ul style="list-style-type: none"> Fuels PAH Sanitary sewers overflow Streets and driveways <ul style="list-style-type: none"> PAH | <ol style="list-style-type: none"> Agriculture (See Runoff) Livestock (See Runoff) Industrial and small businesses (Will vary with types) Fuel storage tanks <ul style="list-style-type: none"> Home heating Transportation Landfills <ul style="list-style-type: none"> Human waste (disposable diapers) Medical waste? PCP, PP Sludge Pollutant storage tanks <ul style="list-style-type: none"> Commercial/residential heating fuels Solvents Petroleum hydrocarbons Potential upward migration <ul style="list-style-type: none"> Metals Nitrates PP, PCP Phosphates Trihalomethanes Septic tanks (see sanitary sewers) Sinkholes <ul style="list-style-type: none"> Illegal trash disposal (see Landfills above) | <ol style="list-style-type: none"> Contaminants from multiple sources <ul style="list-style-type: none"> Animal wastes Dioxins Fertilizers Fuels Heating fuels Herbicides Human waste Insecticides Lead Mercury Nitrates Nitrogen Oxides PAH Personal Care Products Petroleum hydrocarbons Pharmaceuticals Phosphates Solid waste Solvents Sulfur Oxides Trihalomethanes Volatile paint additives | |

Existing Water Quality Monitoring Programs

Yes	Yes	No*	Yes	Yes	Yes
<p>Domestic Wastewater Facilities* Hillsborough County (HC) HC Public Utilities Department Dale Mabry¹ Rice Creek¹ Falkenburg Road¹ River Oaks¹ Northwest Regional¹ South County¹ Pebble Creek¹ Valrico¹ City of Tampa¹</p> <p>Manatee County City of Bradenton¹ City of Palmetto¹</p> <p>Pinellas County City of Clearwater¹ City of Largo¹ City of Oldsmar¹ City of St. Petersburg (four DWS)²</p> <p>Polk County City of Lakeland¹ City of Mulberry¹ Meadowlands¹</p> <p>Agencies Presently Involved in Monitoring and Studying the Contaminants in the Tampa Bay Watershed System City of Tampa Eckerd College, Department of Marine Science Florida Department of Environmental Protection Florida Marine Research Institute Hillsborough County Environmental Protection Commission Manatee County Environmental Management Department Pinellas County Environmental Management Department Southwest Florida Water Management District Tampa Bay Estuary Program U. S. Geological Survey University of South Florida, College of Marine Science</p>	<p>HCEPC (Air Pollution Program) TBEP PCEMD</p>	<p>*Except for number 5 above which requires monitoring under NPDES and FDEP permits</p>	<p>NPDES Permits FDEP Permits</p>	<p>SWFWMD</p>	<p>Hillsborough County Alafia River^{3,4} Delaney Creek^{3,4} Hillsborough River^{3,4} Little Manatee River^{3,4} Rocky Creek^{3,4} Sweetwater Creek^{3,4} Palm River^{3,4} Double Branch Creek^{3,4}</p> <p>Manatee County Braden River^{3,4} Manatee River^{3,4}</p> <p>Pinellas County Allen Creek^{3,4} Brooker Creek^{3,4} Cross Bayou Canal (north half)^{3,4}</p>
<p>EXPLANATION DWS: Domestic Wastewater Facilities FDEP: Florida Department of Environmental Protection HC: Hillsborough County HCEPC: HC Environmental Protection Commission NPDES: National Pollution Discharge Elimination System PCEMD: Pinellas County Environmental Management Department SWFWMD: Southwest Florida Water Management District TBEP: Tampa Bay Estuary Program</p> <p>FOOTNOTES: * Advanced waste treatment is only required of those plants that discharge directly or indirectly into Tampa Bay 1 Advanced Waste Treatment 2 Secondary Waste Treatment 3 Discharge 4 Water Quality</p> <p>For further information, please contact: Mario Fernandez, Jr. U. S. Geological Survey 600 4th Street South St. Petersburg, FL 33701 Telephone: 727-803-8747 x3066 Email: mfernand@usgs.gov</p>					

