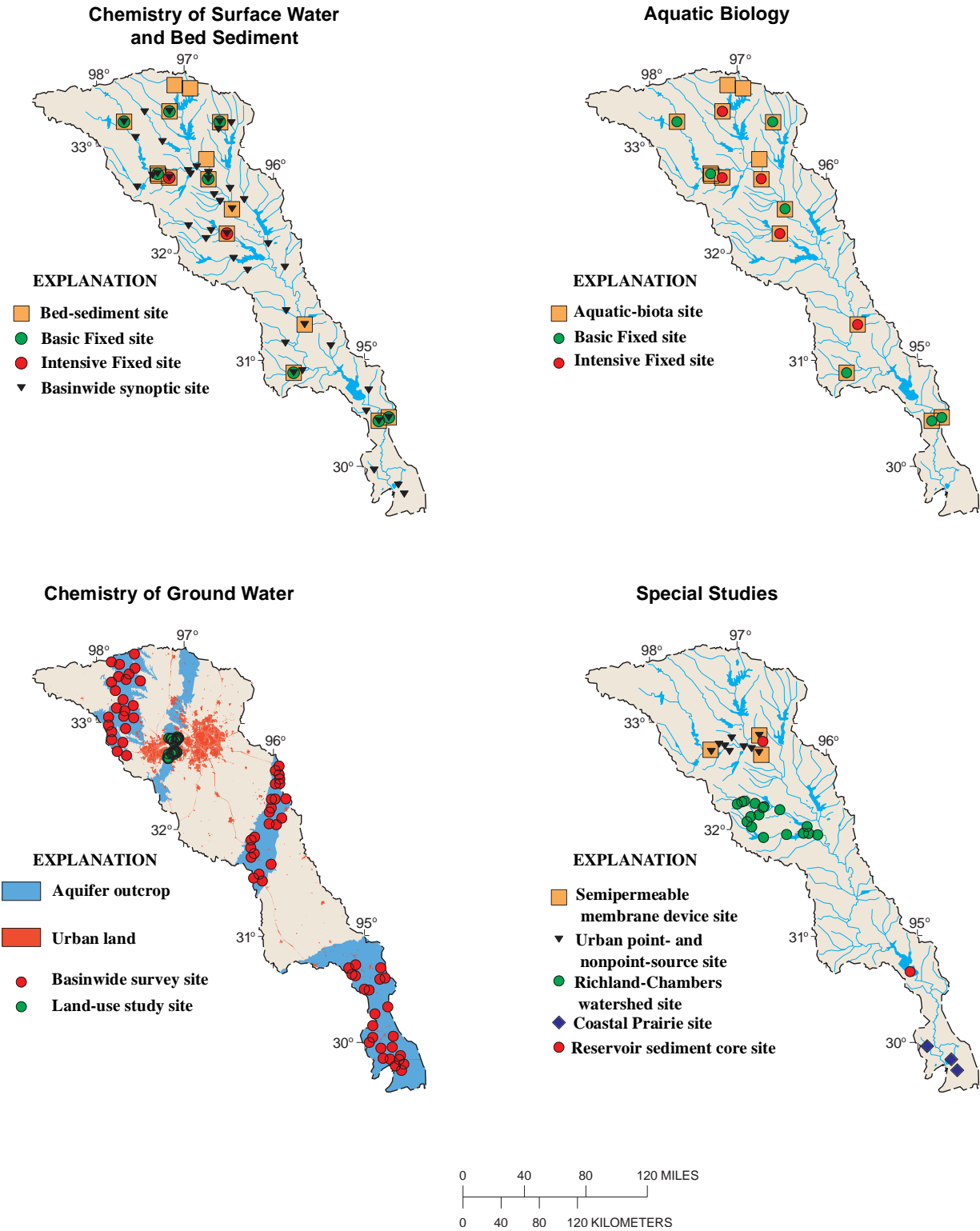


**STUDY DESIGN AND DATA COLLECTION
IN THE TRINITY RIVER BASIN**



Location of data-collection sites.

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Summary of data collection in the Trinity River Basin Study Unit, 1992–95

Study component	Objectives	Brief description and water-quality measures	Number of sites	Frequency during 1993–95
Chemistry of surface water and bed sediment				
Water chemistry— Basic and Intensive Fixed sites	Describe concentrations and loads of water-quality constituents at selected stream sites.	Sample at or near streamflow-gaging stations. Basic sites are sampled for major ions, organic carbon, suspended sediment, and nutrients. Intensive sites are a subset of the Basic sites and include sampling for pesticides.	8 Basic; 2 Intensive	~14 per year at Basic; ~25 per year at Intensive
Water chemistry— Basinwide synoptic studies	Describe short-term presence and distribution of contamination over the entire basin and how well the Basic and Intensive sites represent the Trinity River Basin.	Sample streams during winter base-flow and spring runoff conditions for major ions, organic carbon, suspended sediment, nutrients, and pesticides.	43	2
Bed-sediment contamination— Presence and distribution survey	Determine presence of potentially toxic compounds attached to sediment deposited on streambeds.	Sample depositional zones of streams for trace elements and hydrophobic organic compounds.	16	1
Aquatic biology				
Ecological assessments—Basic and Intensive Fixed sites	Assess in detail biological communities and habitat in streams representing primary ecological and land-use regions.	Sample and quantify fish, macroinvertebrates, and algae in streams at stream-chemistry sites and describe stream habitat. Intensive sites are a subset of the Basic sites where there is replicate sampling over three stream reaches.	7 Basic; 5 Intensive	1 at Basic; 1 per year and multiple reaches at Intensive
Aquatic-biota contamination—Presence and distribution survey	Determine presence of contaminants that can accumulate in tissues of aquatic biota.	Collect clam and fish species that are present in most streams of the Trinity River Basin. Sample composites of clams or fish for organic compounds and trace elements.	16	1
Chemistry of ground water				
Water chemistry— Basinwide survey	Describe the overall water quality and natural chemical patterns of water in aquifers.	Sample existing supply wells in the outcrop of three major aquifers for major ions, nutrients, pesticides, trace elements, and VOCs.	71	1
Water chemistry— Land-use study	Determine the effects of urban land use on the quality of shallow ground water.	Sample shallow monitoring and supply wells where there is residential and commercial development for major ions, nutrients, pesticides, trace elements, and VOCs.	38	1
Water chemistry— Flow-path study	Describe changes in water quality in an urban area along flow paths from a shallow aquifer to small streams.	Sample clusters of wells in land-use effects survey and a nearby small stream for major ions, nutrients, pesticides, and age-dating constituents.	3	1
Special studies				
Water chemistry— Use of SPMDs	Determine presence of organic contaminants in water and sediment by deploying caged clams and SPMDs and comparing the results of the two approaches.	Deploy caged native clams and SPMDs side by side for 1 month and determine the presence and concentration of PCBs and PAHs in each medium.	3	1
Water chemistry— Comparison of urban point- and nonpoint-source contaminants	Compare the presence and distribution of nutrients and pesticides in small urban streams and in effluent from regional wastewater-treatment plants in the same service area.	Sample streams and effluent from regional wastewater-treatment plants during late winter to summer for major ions, nutrients, and pesticides.	6 streams: 3 wastewater-treatment plants	6
Water chemistry— Richland-Chambers watershed	Describe presence and distribution of agricultural chemicals in streams and reservoirs in a major crop-producing area.	Sample streams from late winter to late summer for major ions, nutrients, pesticides, and suspended sediment. Reservoirs sampled at beginning or end of study, or both.	5 streams; 11 reservoirs	7 at streams; 1 or 2 at reservoirs
Water chemistry— Coastal Prairie agricultural area	Describe presence and distribution of agricultural chemicals in streams in a major crop-producing area with irrigation.	Sample streams for 1 year for major inorganic ions, nutrients, pesticides, and suspended sediment. Sampling much more frequent during late spring and summer than fall and winter.	3	~25
Water-quality trends—Reservoir sediment cores	Determine temporal trends of trace elements, organochlorine compounds, and PAHs in streams.	Collect sediment cores at Lake Livingston and White Rock Lake. Horizontal slices analyzed for age-dating elements, trace elements, organochlorine compounds, and PAHs.	2 reservoirs	1