SUMMARY SCOPE OF WORK
COMPILATION AND EVALUATION OF EXISTING ENVIRONMENTAL INFORMATION ON THE TRINITY RIVER, TEXAS
October 27, 2008

The Environmental Institute of Houston (EIH) proposes to conduct a comprehensive compilation and evaluation of environmental data for the Trinity River Authority (TRA). This data could be used in future analyses in support of efforts by the Statewide Science Advisory Committee and Basin and Bay Expert Science Teams (BBEST) when evaluating instream flow policies. The entire Trinity River Basin, including all TCEQ segments, will be evaluated. However, the focus of this study will be the main stem Trinity River including (TCEQ) segments 0801, 0802, 0803, 0804, 0805 and 0819.

Various data sources will be evaluated. However, the primary sources of data will include readily available federal, state and regional agency sponsored reports and electronic databases including data produced by the NWS, USGS, TCEQ, TPWD, TWDB, USFWS, USCOE and TRA. No new GIS products will be produced other than incorporation and analysis of readily available GIS data already in suitable format as needed for production of summary and synthesis reports.

Project Goals

The primary goal of this project will be to compile and organize existing historical information on the hydrology, biology and physical habitat, physical processes (geomorphology), and water quality of the Trinity River watershed. This will be used to produce a synthesis and summary report documenting past and present conditions and trends in the watershed for these variables. An appropriate data management plan will be necessary to ensure data integrity. We have summarized the major tasks and objectives that will be preformed as part of this study.

Objective 1: We will compile and review historical information contained in electronic databases, reports and documents related to biology and physical habitat, hydrology, and chemical processes (water quality, aquatic life uses, etc.) and published or located by the following sources: State of Texas, Federal, River Authority, Water District agency reports (including Clean Rivers Program Assessments and reports written by contractors), University studies of the river in question; and journal articles referenced in various academic and government online databases. A bibliography of existing studies including a matrix summarizing data types by study will be produced to support our data summary objective tasks listed below. This database will be provided in EndNote bibliographic format and exported to Access as needed. Relevant summary environmental data will be migrated to electronic format. Only data amendable to electronic format such as long time series water quality, hydrology and fisheries data will be converted to electronic format for future analysis.

Objective 2: We will review and summarize existing hydrologic data sets including: discharge measurements from special studies and USGS gage locations including the period of record, discharge data; impoundment locations and size; reservoir discharge and/or level data; reservoir operating rules and reservoir systems operations; water right diversion locations and amounts; and water right return flow locations. These summaries will help characterize the current and past status of the watershed. As a result of this review the following products will be produced:

Objective 3: We will summarize the location and results of existing physical habitat assessments, if any, within the study area. These summaries will help characterize the current and past status of the watershed. If available, we will acquire previously compiled and readily available GIS layers containing location of physical habitat assessments, habitat features, mesohabitat summaries, and geo-referenced imagery when available and provide these to the project sponsor.

Objective 4: We will summarize biological data for fish, other aquatic vertebrates, and benthic communities (including invertebrates, mussels, algae, aquatic macrophytes, etc.) collected within the study area. We will also summarize biological data on riparian and other wetland resources. These summaries will help characterize the current and past status of the watershed. A database of presence/absence data, abundance data, and community measures wherever possible, will be produced in electronic formats appropriate for use

by interagency science team. A summary report on biological assessments or other previous work to include a literature review of life history traits, environmental requirements, species distributions, community composition, and connectivity considerations will be produced. A summary report on spatial attributes and characteristics of riparian and other wetland resources will be produced to accompany the biological assessment summary report.

Objective 5: We will summarize readily available geomorphologic data related to sediment transport, erosion and deposition, substrate and cover characteristics, and channel patterns. Readily available and/or published historical studies or aerial photos will be compared with recent photos and/or recent studies to document changes in river meanders, areas of sediment deposition/scour and any changes in floodplain characteristics over time. These summaries will help characterize the current and past status of the watershed. When feasible this data will be redisplayed and imported in an ArcGIS compatible geodatabase.

Objective 6: We will summarize readily available (electronic) water quality data within the watershed. A summary report on published water quality assessments and other previous works related to identifying flows for maintaining water quality requirements for fish and wildlife will be produced.

A summary report summarizing the results of past studies and summary data in regards to the status and changes in hydrology, geomorphology, water quality and biota will be prepared. It is highly likely that major data gaps will be identified. The implications of these data gaps in relation to evaluating the influence of changing hydrology on river ecosystems will be discussed. All data collected during this project will be accompanied by detailed metadata describing the source of data, presence and/or availability of QA/QC data or QAPP plans from project. All data will be cross-reference in an Access compatible database which includes geographic location data and in EndNote bibliographic software when published data sources are used.

Project Duration

This project will start on September 1, 2008 and end on August 31, 2009. Quarterly reports will be provided throughout the project to the Trinity River Authority.