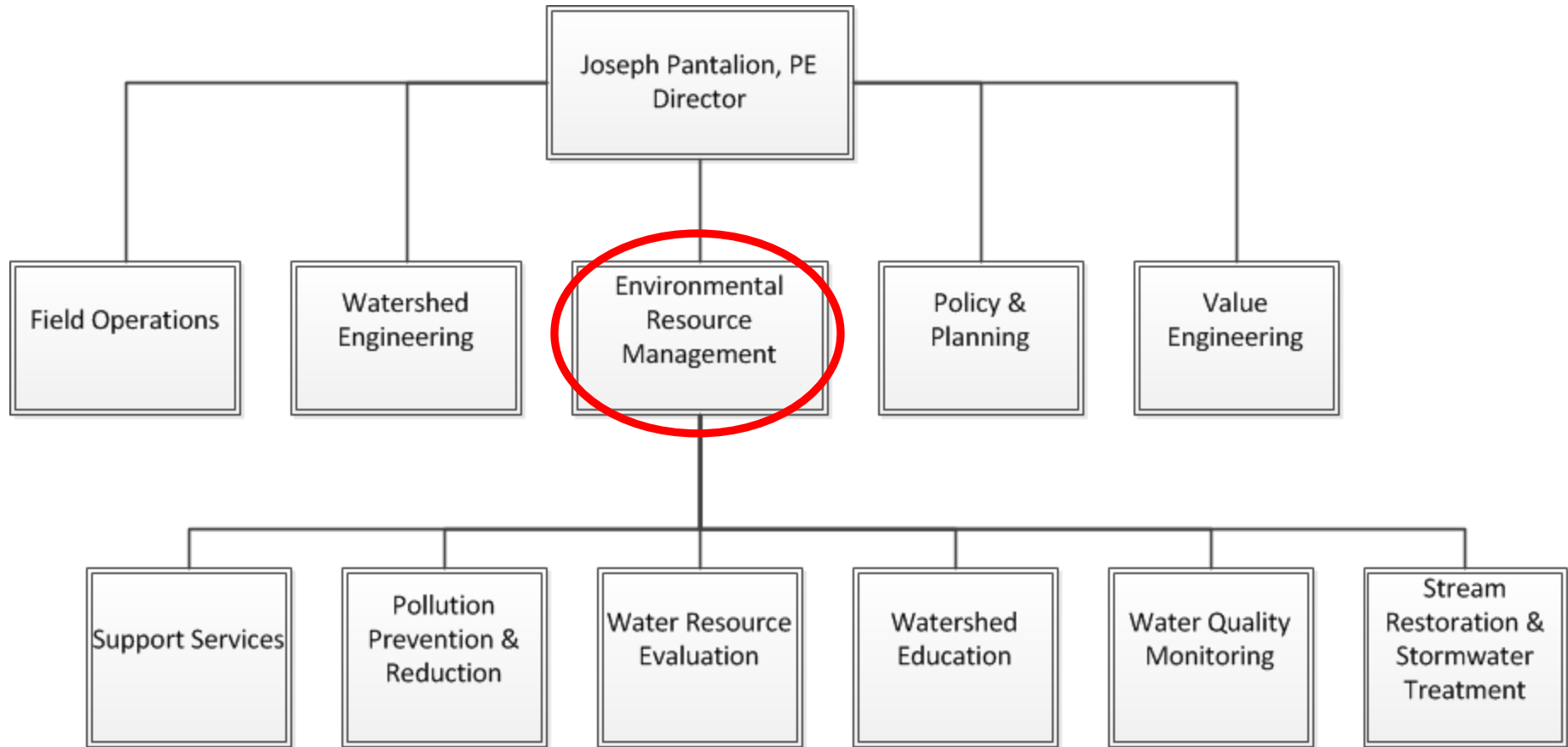# Water Resource Evaluation Section functions and electronic information resources

Presented to the Austin Environmental Commission
March 23, 2016
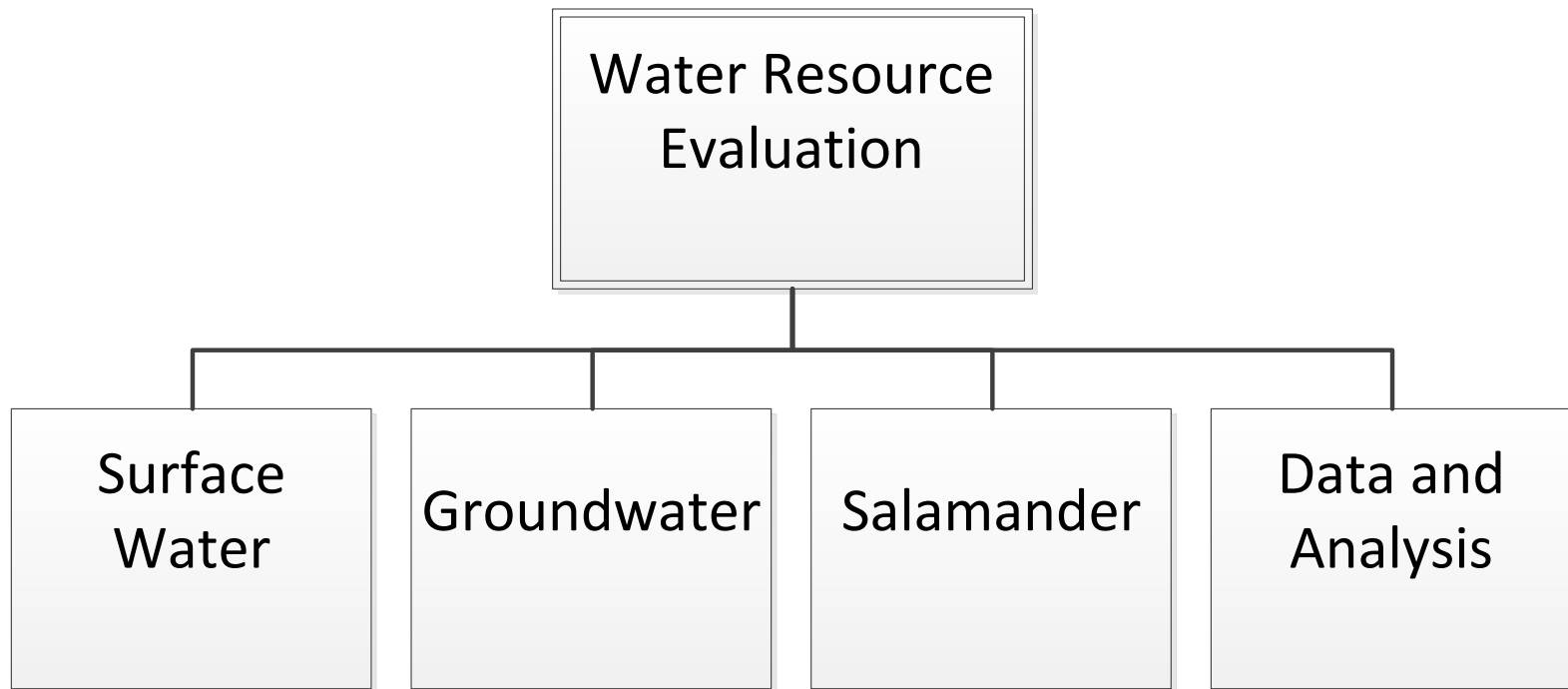
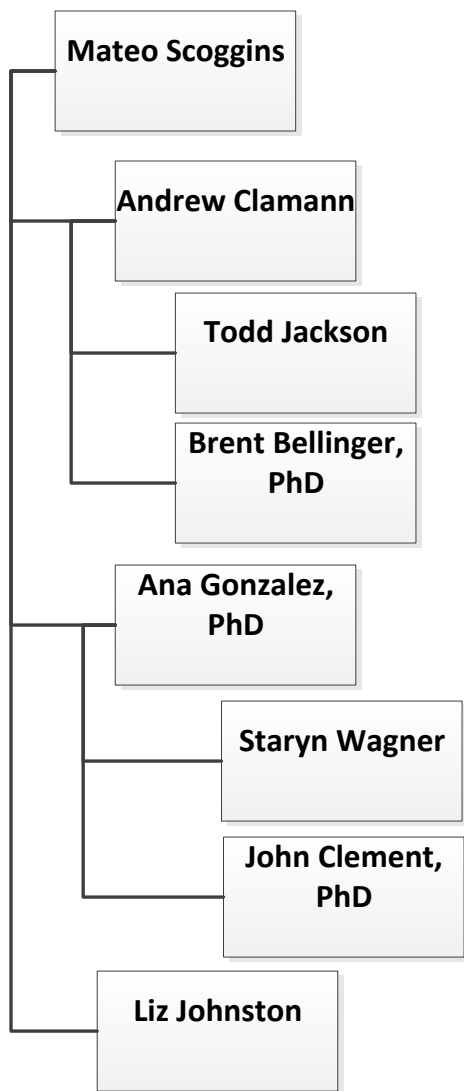Chris Herrington, P.E.

City of Austin
WATERSHED
PROTECTION

Division Organization

Joseph Pantalion, PE
Director

- Field Operations
- Watershed Engineering
- Environmental Resource Management
- Policy & Planning
- Value Engineering

Environmental Resource Management:
- Support Services
- Pollution Prevention & Reduction
- Water Resource Evaluation
- Watershed Education
- Water Quality Monitoring
- Stream Restoration & Stormwater Treatment

http://austintexas.gov/department/watershed-protection

Section Organization

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              │   Water Resource    │
              │     Evaluation      │
              └──────────┬──────────┘
        ┌────────────┬───┴────┬────────────┐
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│  Surface  │ │Groundwater│ │Salamander │ │ Data and  │
│   Water   │ │           │ │           │ │ Analysis  │
└───────────┘ └───────────┘ └───────────┘ └───────────┘
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Surface Water Team

Mateo Scoggins

Andrew Clamann

Todd Jackson

Brent Bellinger, PhD

Ana Gonzalez, PhD

Staryn Wagner

John Clement, PhD

Liz Johnston

- Creek and Lake Monitoring (non-storm)
- Development Review (Wetlands)
- Riparian Restoration and Monitoring
- Small-scale Stormwater Treatment
- Lake Policy Coordination
- Invasive Species Management
- Integrated Pest Management

austintexas.gov/invasive
austintexas.gov/creekside
austintexas.gov/department/austins-reservoir-resource

Groundwater Team

David Johns, PG

Scott Hiers, PG

Sylvia Pope, PG

Nico Hauwert, PhD, PG

Joan Balogh, PG

- Development Review (Karst)
- Void Mitigation
- Groundwater Quality Studies
- Hydrogeological Studies
- Open Space Acquisition
- Recharge Feature Enhancement

austintexas.gov/groundwater

Salamander Team

Nate Bendik

Dee Ann Chamberlain

Tom Devitt, PhD

Donelle Robinson, PhD

- Population Studies
- Refugium Management
- Habitat Restoration
- Genetic Analysis
- USFWS/TPWD Coordination

austintexas.gov/department/salamanders

Data and Analysis Team

Ed Peacock, PE

Rob Clayton

Aaron Richter, EIT

Abel Porras, PE

- Data Management
- Data Analysis
- Modeling
- Application Development
- QA/QC Oversight
- TCEQ Coordination
- TxDOT Coordination
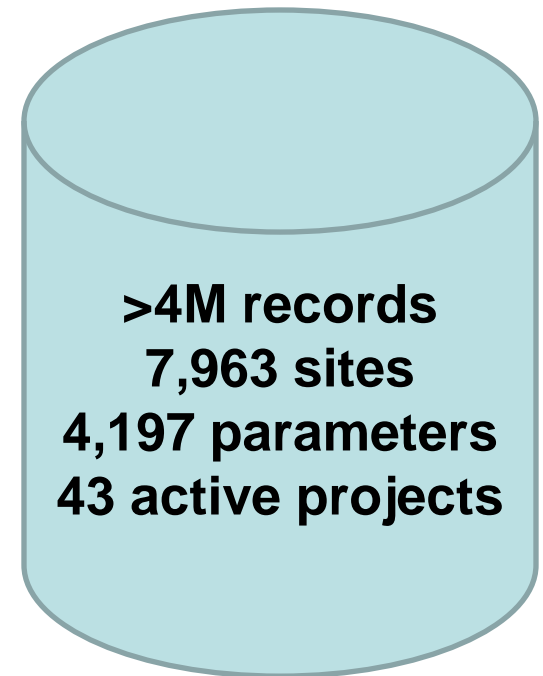
**>4M records
7,963 sites
4,197 parameters
43 active projects**

Open Data Portal

data.austintexas.gov/Environmental/Water-Quality-Sampling-Data/5tye-7ray

WATERSHED SCORES

Index	Score	Category	Details
Overall Score	58	Fair	East Bouldin Creek ranks better than 10 other watersheds in Austin
Water Chemistry	59	Fair	Water quality is average, conductivity is high
Sediment Quality	62	Fair	PAHs are high, herbicides/pesticides are low, metals are low
Recreation	41	Marginal	Bacteria levels may be a threat
Aesthetics	69	Good	Lots of litter present, odor is not a problem, most of the creek bed is dry
Habitat	60	Fair	Some sediment deposition, cover is insufficient, some channel alteration, bank stability is marginal, buffer is small
Aquatic Life	55	Fair	The benthic macroinvertebrate community is marginal, the diatom community is good

*The above table represents a summary of data collected as part of the Environmental Integrity Index (EII)

Click here for the EII source data

WATERSHED FACTS

- Portions of East Bouldin Creek are listed on the State Water Quality Inventory as being of concern for contaminants in sediment.
- Staff research indicates that a source of high PAH levels may be from coal-based parking lot sealants.
- High nutrient and bacteria concentrations may soon improve due to Austin Clean Water Program's recently finished rehabilitation of some wastewater infrastructure.
- Biological integrity is consistently poor due, in part, to the stream degradation caused by high levels of impervious cover which creates flashy streamflow during rain events which scour the streambed.
- Future development may hold promise for improved conditions as progressive water quality controls are implemented in locations which currently have none.

austintexas.gov/GIS/FindYourWatershed/

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Publication Search

City of Austin
WATERSHED PROTECTION

Departments » Waters

Watershed P

Bayesian Analysis of stream water quality data in relation to wastewater treatment plant effluent
SR-15-03, January 2015

Abel Porras, P.E.

City of Austin
Watershed Protection Department
Environmental Resource Management Division

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Search

Abstract

Environmental data taken from two central Texas streams were analyzed to determine the effects of effluent from wastewater treatment plants on the receiving streams. The two streams were chosen based on their flow regime and the nutrient concentration of the effluent. The effluent had an impact on the chemistry of the surface water for slow moving streams with high nutrient concentrations. For fast moving streams with low nutrient concentrations, the effluent mostly impacted the benthic algae cover. Changes in the ratio of carbon to nitrogen and carbon to phosphorus were detected in the stream benthic algal cover downstream of the wastewater treatment plants. This indicates active algal activity in the stream and might point to estimates of important biological parameters, such as periphyton death rates for future models. These impacts were detected using Bayesian credible intervals of the paired differences between upstream stations and downstream stations. The data was also used to construct Bayesian credible intervals for the various parameters sampled at the streams. These credible intervals can be used as default inputs into more deterministic water quality models. Finally, a linear model was developed to explore the relation between the water quality parameters sampled at the streams and the growth of stream periphyton.

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