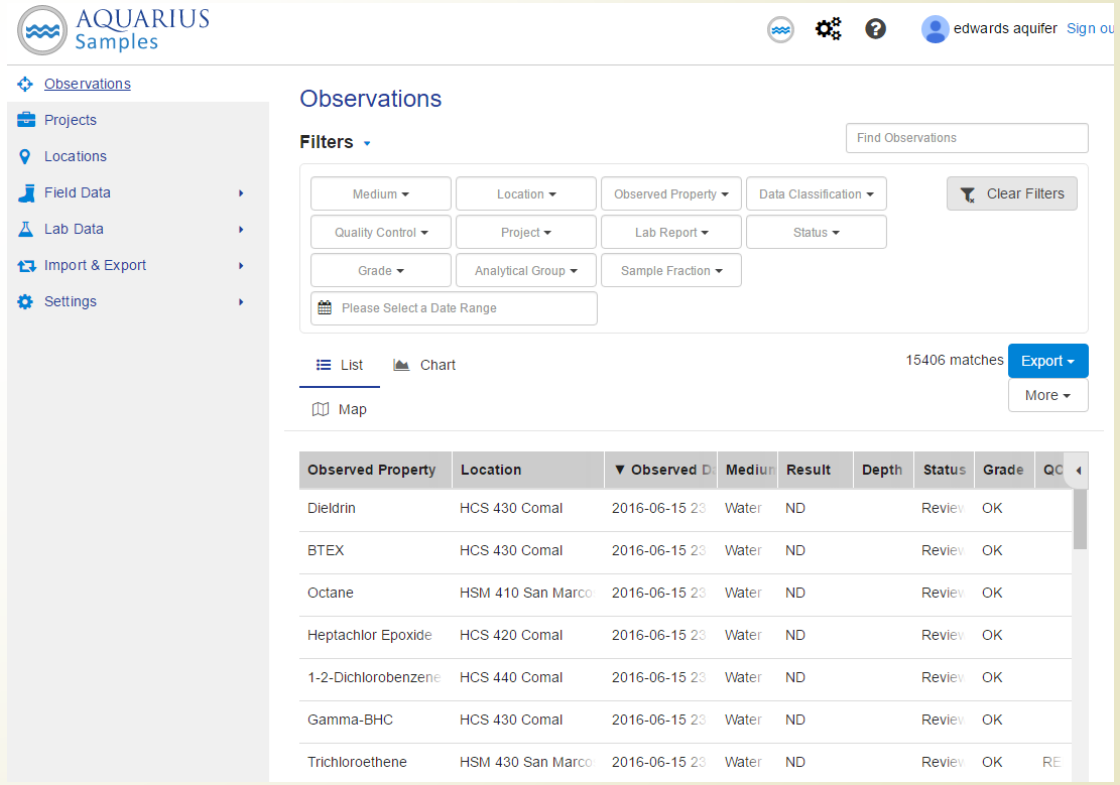
EAHCP Database Overview

Chad Furl Ph.D., Chief Science Officer

November 10, 2016

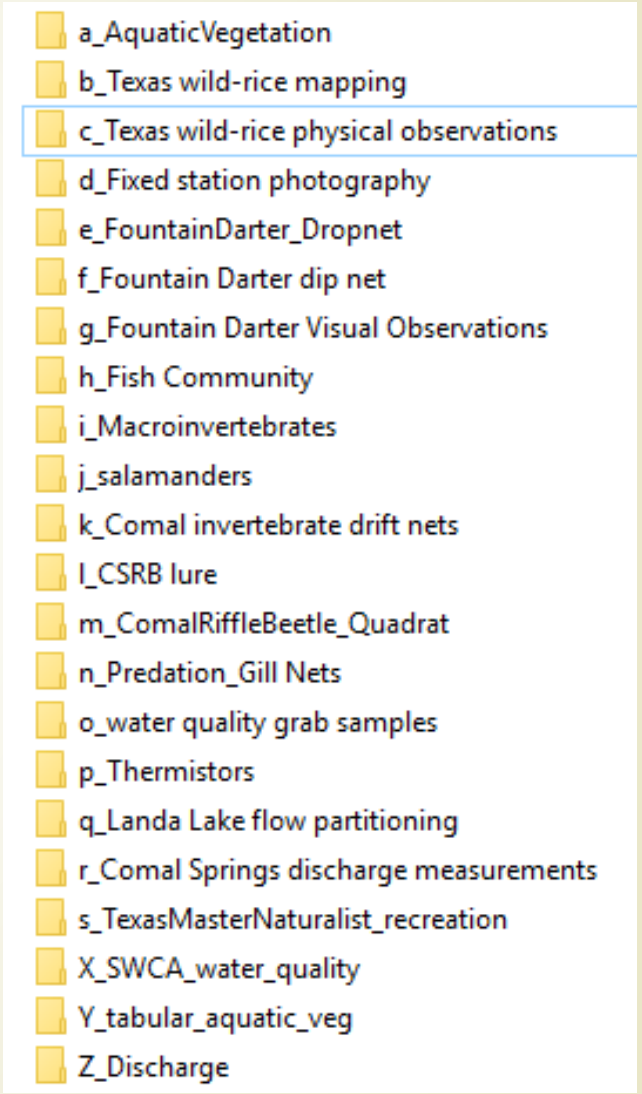
EAHCP Database

- 2016 Applied Research project
- Backbone of 2017 Applied Research Projects
- AQUARIUS SAMPLES database
- AQUATIC Informatics is performing data migration



EAHCP Database

- **Sources:** Biowest (~70%), SWCA, TSU, MCWE, TPWD, USGS, Texas Master Naturalists, and EAA
- **Data Types:** Hydrological, Chemical, Biological, & Vegetation
- **File Types:** GIS, LIMS, JPEG, Excel, PDF, and Access Databases



EAHCP Database

- GOALS
  - House Data in AQUARIUS SAMPLES
  - Eliminate as much data processing by outside researchers as possible
  - Organize data enabling relational analyses
  - Organize data for rapid internal desktop analyses

EAHCP Database

- PROBLEMS
  - Data consistency - file formats, file naming conventions, value naming conventions, time stamps, units, etc.
  - Data quality – data gaps, different collection/analysis methods, different collection entities, etc.
  - Locations – reach vs point, proximity, coordinates not attatched

EAHCP Database

a_Aquatic Vegetation › Comal › Old Channel › 2013

- OCR_Crit2013_Veg.shp
- OCR_Crit2013_Veg.shp
- OCR_Crit2013_Veg.shx
- OCR_Fall2013_Bry.dbf
- OCR_Fall2013_Bry.prj
- OCR_Fall2013_Bry.sbn

a_Aquatic Vegetation › Comal › Old Channel › 2011

- OCR_spr11_veg.dbf
- OCR_spr11_veg.prj
- OCR_spr11_veg.sbn
- OCR_spr11_veg.sbx
- OCR_spr11_veg.shp
- OCR_spr11_veg.shp
- OCR_spr11_veg.shx

a_AquaticVegetation › Comal

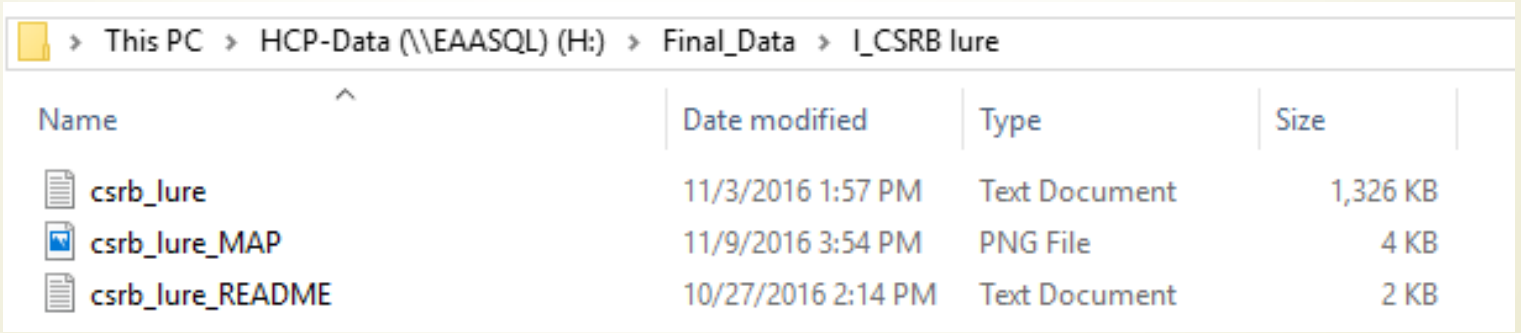
- OCR_2002_May_ROU_veg
- OCR_2002_Oct_ROU_veg
- OCR_2003_Apr_ROU_veg
- OCR_2003_Aug_ROU_veg
- OCR_2003_Nov_ROU_veg
- OCR_2004_Apr_ROU_veg
- OCR_2004_Oct_ROU_veg
- OCR_2005_Apr_ROU_veg
- OCR_2005_Oct_ROU_veg
- OCR_2006_Apr_ROU_veg
- OCR_2006_Nov_ROU_veg
- OCR_2007_Apr_ROU_veg
- OCR_2007_Oct_ROU_veg
- OCR_2008_Apr_ROU_veg
- OCR_2008_Oct_ROU_veg
- OCR_2009_Apr_ROU_veg
- OCR_2009_Jun_LFL_veg
- OCR_2009_Oct_ROU_veg
- OCR_2010_Apr_ROU_veg
- OCR_2010_Jun_HFL_veg
- OCR_2010_Oct_ROU_veg

EAHCP Database

Other Veg & coverage	Water Depth (ft)	Substrate
20% Bryophytes within	3	Silt
20% Bryophytes within	1.5	Silt
20% Bryophytes within	3.5	Gravel
20% Bryophytes within	2.6	gravel
20% Bryophytes within	2.8	Silt
20% Bryophytes within	2.2	Gravel
20% Bryophytes within	2	Silt over gravel
20% Bryophytes within	1.65	Silt over gravel
20% Bryophytes within	1.9	Silt over gravel
20% Bryophytes	2.3	Gravel
20% Bryophytes	2.2	Silt over Gravel
20% Bryophytes	3	Silt
20% Bryophytes	2.75	Gravel
20% Bryophytes	2.6	Silt
20% Bryophytes	3.8	Sand
20% Bryophytes	2.55	Gravel
20% Bryophytes	2.2	Gravel
20% Bryophytes	1.1	Gravel
20% Bryophites	2.8	Gravel
20% Bryo within	2.7	Silt
20% Bryo within	1	Silt
20% Bryo	2.7	Gravel
20% Algae within	1.7	Gravel
20% Algae within	2.7	Silt
20% Algae	3.3	silt over gravel
20% Algae	2.4	Gravel
2% Open	0.9	Silt over gravel
15% Terrestrial vegetation/ 5% Hydrilla	1	Sand
15% Open / 5% Hydrilla	1.8	Silt
15% open	3.2	Gravel
15% Open	2.4	

EAHCP Database

- SOLUTION
  - Examine each piece of data individually to produce a single consistent format across all data types.
  - Retain original "sample type" separation
  - GIS and JPEG files named to convey location, date, survey type.
  - Access, Excel, LIMS converted to pipe delimited file
  - Each "sample type" has a delimited file, README, and map.



EAHCP Database

csrb_lure_README - Notepad

File Edit Format View Help

```
1_CRSB lure

Data are contained in two pipe delimited (|) text files: < csrb_lure >
********************************************************************************
> csrb_lure.txt < contains the following column headings:

location - site description
date_set - date the lures were set in place
date_collected - date the lures were collected
LureNumber - lure number
comment - field comments
data collector - initials of collector
flow - velocity
flow units - velocity units (meters/sec)
depth set - water depth when the lure was set
depth collect - water depth when the lure was collected
depth unit - depth in units of feet
phylum - insect phylum
sphylum - insect sphylum
class - insect class
sclass - species class
order - insect order
family - insect family
```

csrb_lure - Notepad

File Edit Format View Help

```
location|date_set|date_collected|LureNumber|comment|data.collector|flow|flow.units|depth.set|depth.collect|depth.unit|c
Spring Island|NA|05.01/2004|1|NA|RG|0.02|m/s|NA|1.05|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterel
Spring Island|NA|05.01/2004|2|NA|RG|0.05|m/s|NA|2.35|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterel
Spring Island|NA|05.01/2004|3|NA|RG|0.04|m/s|NA|2.65|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterel
Spring Island|NA|05.01/2004|4|NA|RG|0.04|m/s|NA|2.7|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterelm
Spring Island|NA|05.01/2004|5|NA|RG|0.03|m/s|NA|3.05|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterel
Spring Island|NA|05.01/2004|6|NA|RG|0.05|m/s|NA|3.2|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterelm
Spring Island|NA|05.01/2004|7|NA|RG|0.02|m/s|NA|3.9|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterelm
Spring Island|NA|05.01/2004|8|NA|RG|0.03|m/s|NA|3.5|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterelm
Spring Island|NA|05.01/2004|9|NA|RG|0.05|m/s|NA|3.1|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|heterelm
Spring Island|NA|05.01/2004|10|NA|RG|0.03|m/s|NA|3.15|ft|CSRB|arthropoda|crustacea|insecta|NA|coleoptera|elmidae|hetere
```

Current Status

- AI is about 30% done with migration
  - Weekly meetings

Folder Name	Format Ready	QAQC PrepUpload	Upload	QAQC SAMPLES	Final Status
a_AquaticVegetation	YES	YES	10/17/2016	11/1/2016	Complete
b_Texas wild-rice mapping	YES	YES	10/17/2016	11/1/2016	Complete
c_Texas wild-rice physical observations	AS IS				
d_Fixed station photography	YES	YES	10/17/2016	11/2/2016	Complete
e_Fountain Darter Drop Net	YES	YES	11/8/2016		
f_Fountain Darter Dip Net	YES				
g_Fountain Darter Visual Observations	YES	YES	11/8/2016		
h_Fish Community					
i_Macroinvertebrates	YES				
j_Salamanders	YES				
k_Comal Invertebrate Drift Nets	YES				
l_Comal Springs riffle beetle lure	YES	YES	10/27/2116	11/3/2016 Not Available	
m_Comal Springs riffle beetle quadrat	YES				
n_Predation_Gill Nets	YES				
o_Water quality grab samples	YES	YES	10/21/2016		
p_Thermistors	YES				
q_Landa Lake flow partioning	YES				
r_Comal Springs discharge measurements	YES	YES	10/17/2016	11/2/2016	Complete
s_Texas master naturalists data	YES	YES	10/17/2016	11/3/2016 Not Available	
t_Standard Operating Procedures	YES				
u_Annual reports	YES				
SWCA water quality-Sed, Storm, Surf	YES	YES	10/21/2016		