

Surface Water Monitoring Network Program

As of June 30, 2014

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Louisiana Geological Survey

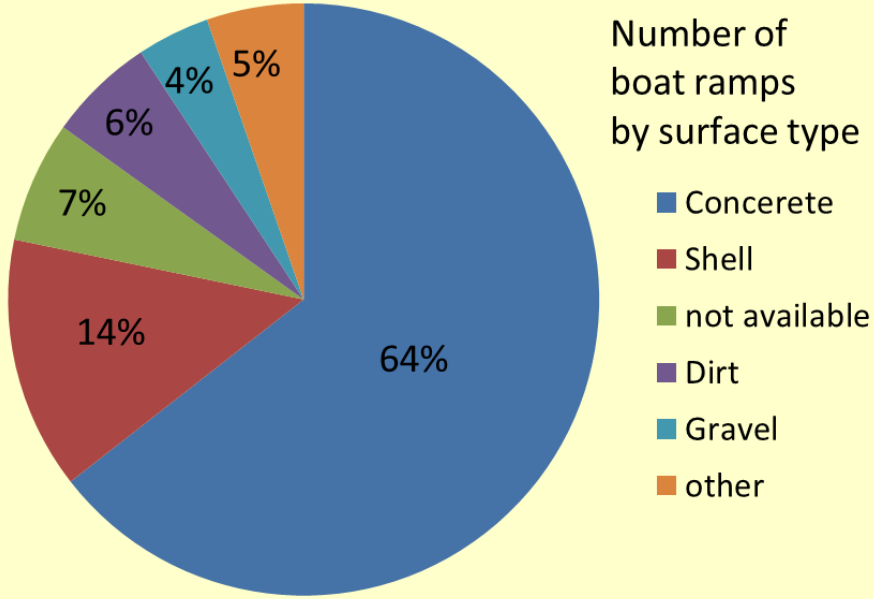


Water Resources Commission July 30, 2014 Baton Rouge, Louisiana

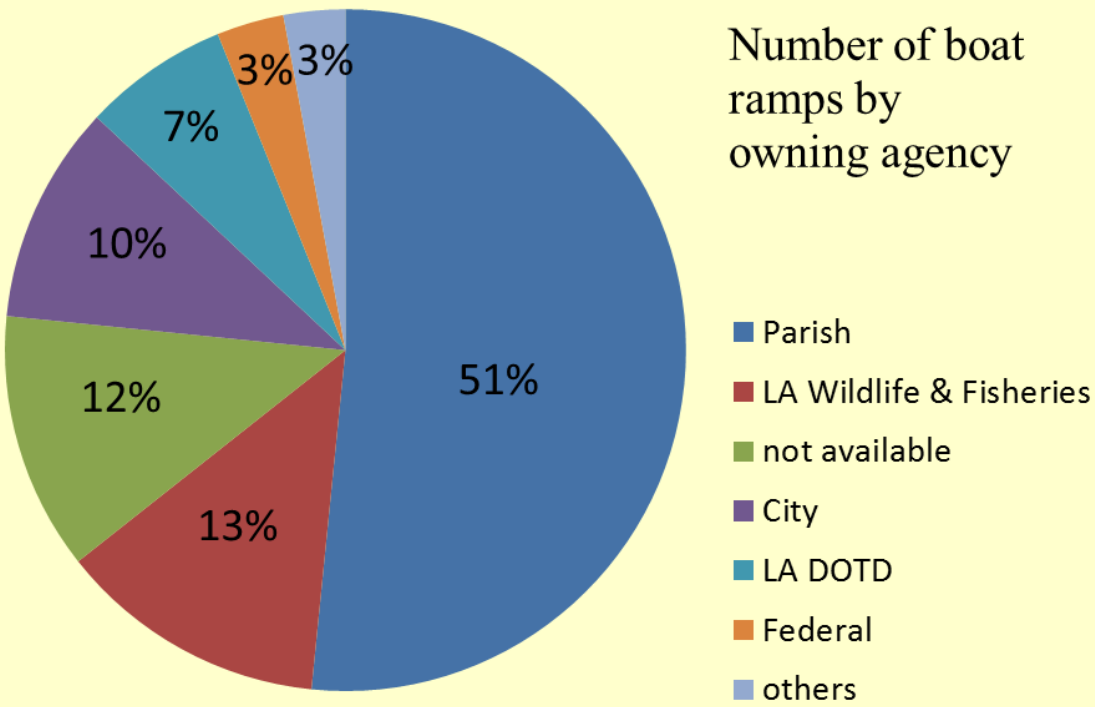
- 1) Inventory of Public Access to LA surface waters
- 2) Inventory of Public Dams
- 3) Monitoring of Select LA Lakes
- 4) Development of Stream Rating Curves
- 5) Summary of progress

There are 377 public boat ramps in LA.

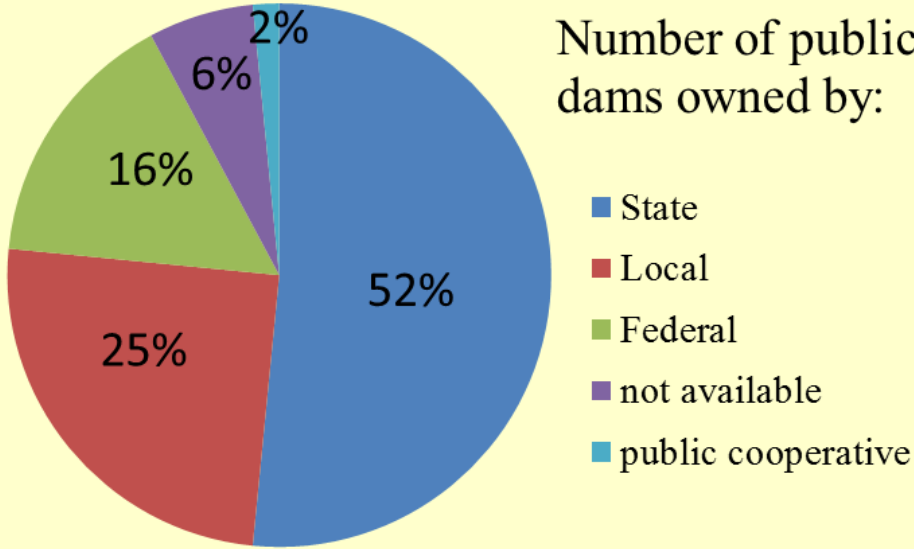
Number of boat ramps by surface type



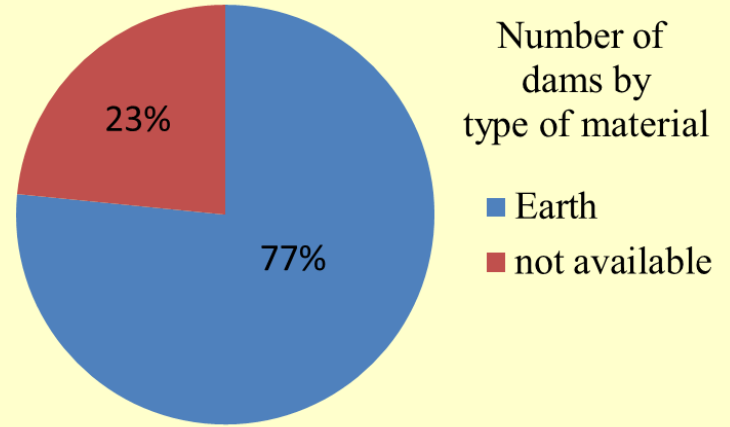
Number of boat ramps by owning agency



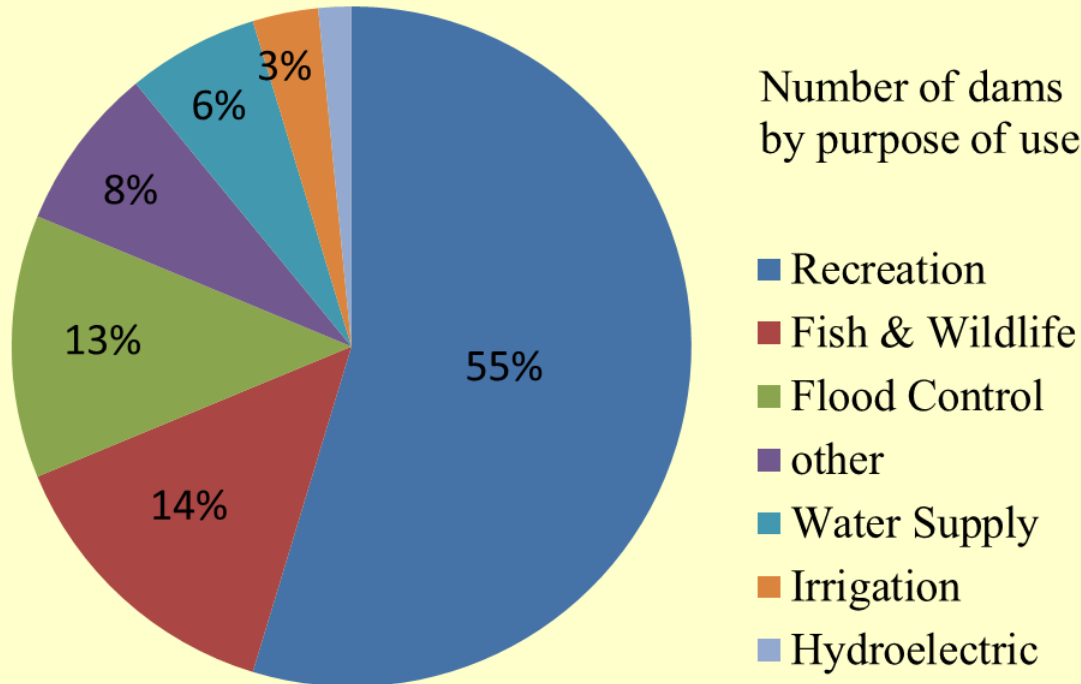
Number of public dams owned by:

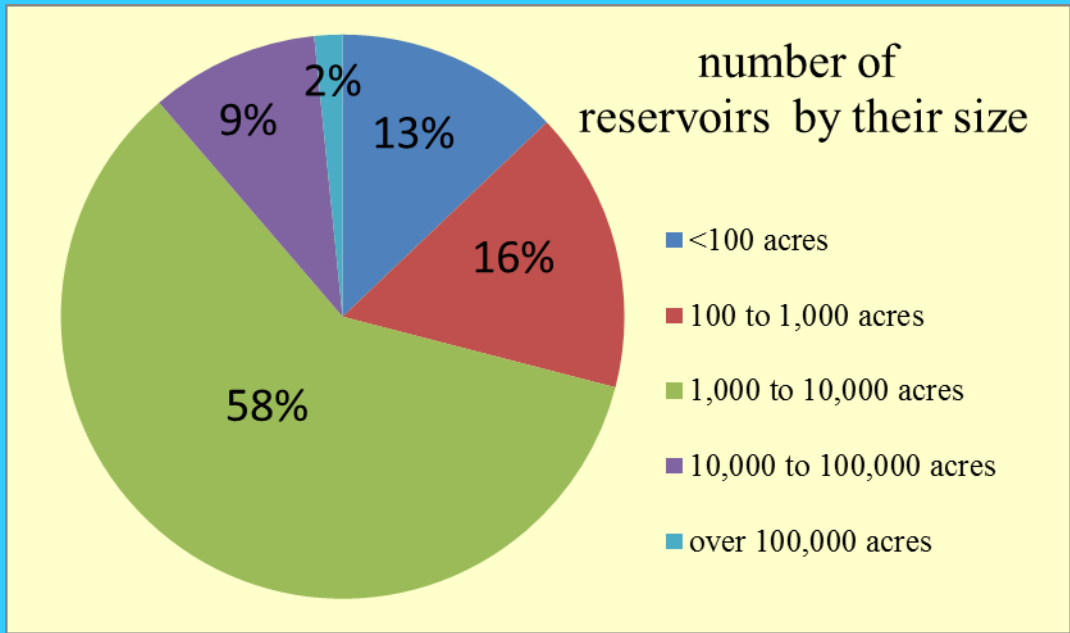


Number of dams by type of material



Number of dams by purpose of use





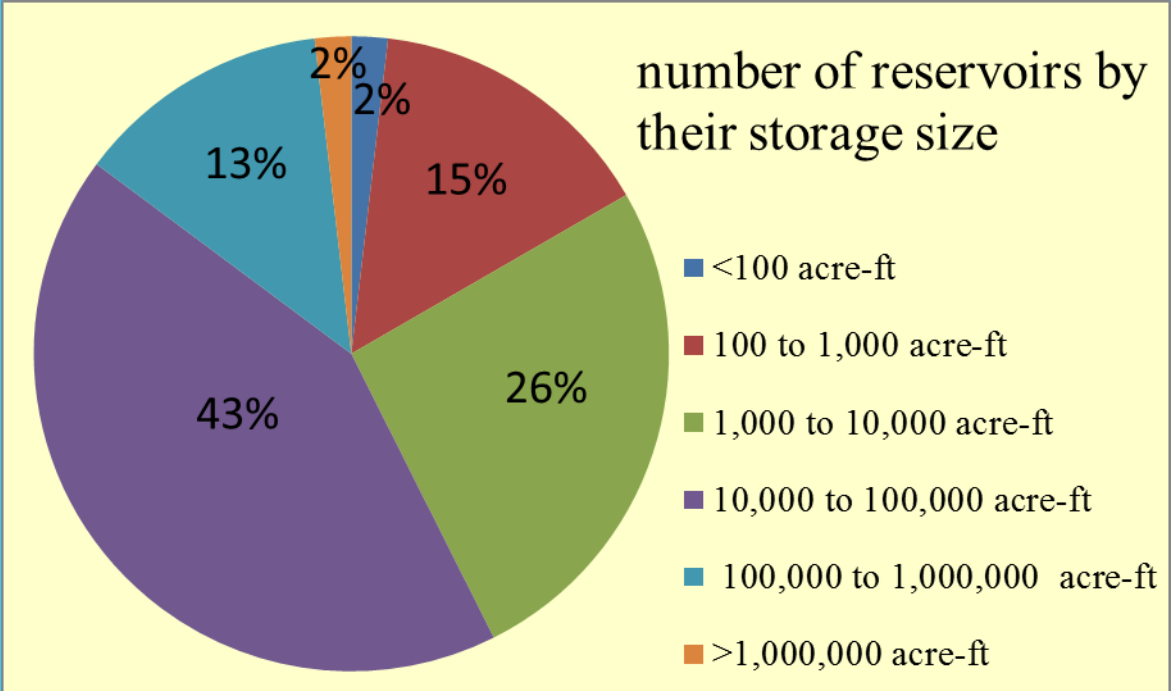
Toledo Bend is largest reservoir with 181,600 acres a surface area, which over ten times larger than the second largest reservoir Lake Bistineau at 17,200 acres

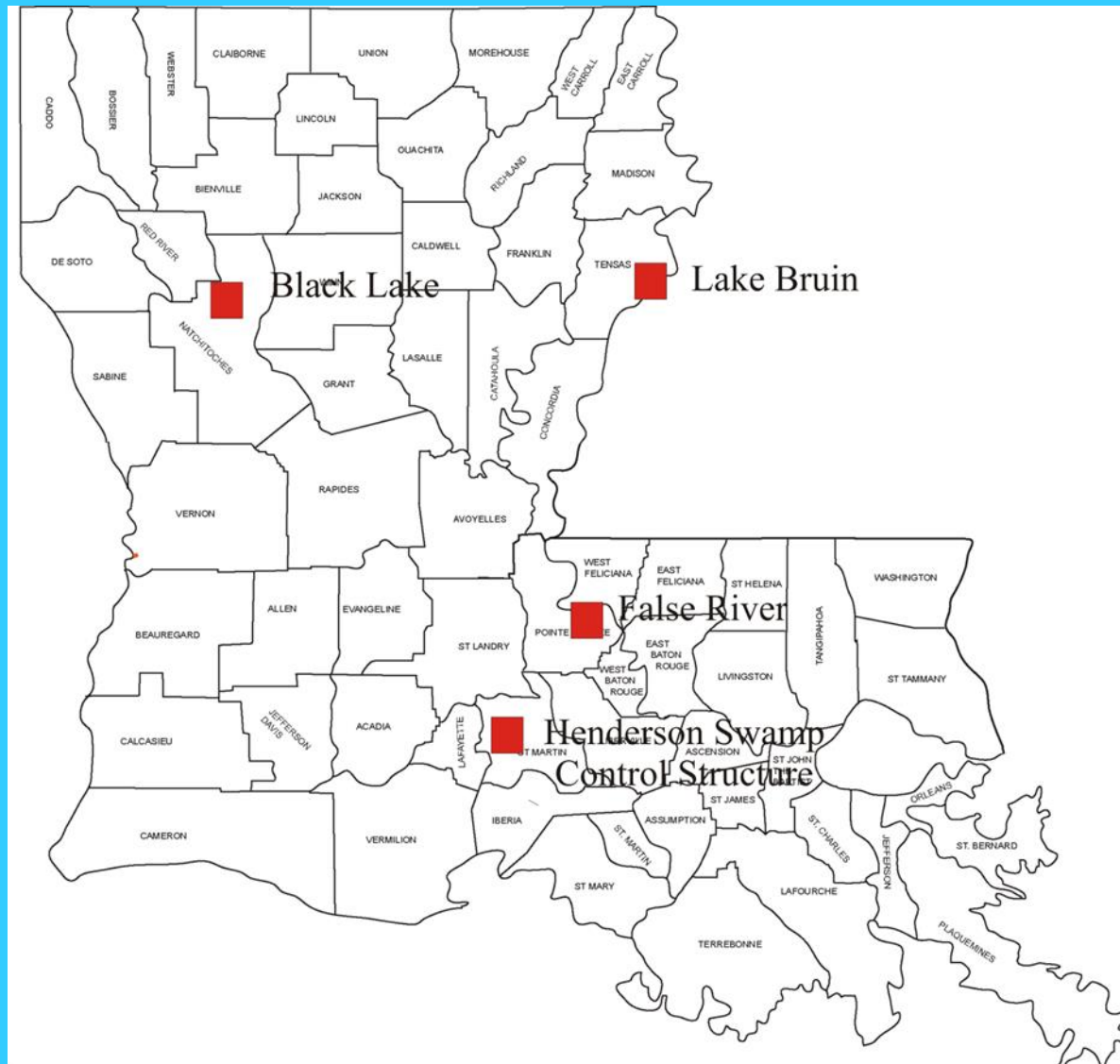
Toledo Bend has 43% of the state's total acres of reservoir

Toledo Bend is largest reservoir with a volume Of 4,477,000 acre-ft.,* which is 34 times larger Than second largest reservoir Bayou Darbonne Lake at 130,000 acre-ft.

* 50% allocated to Texas

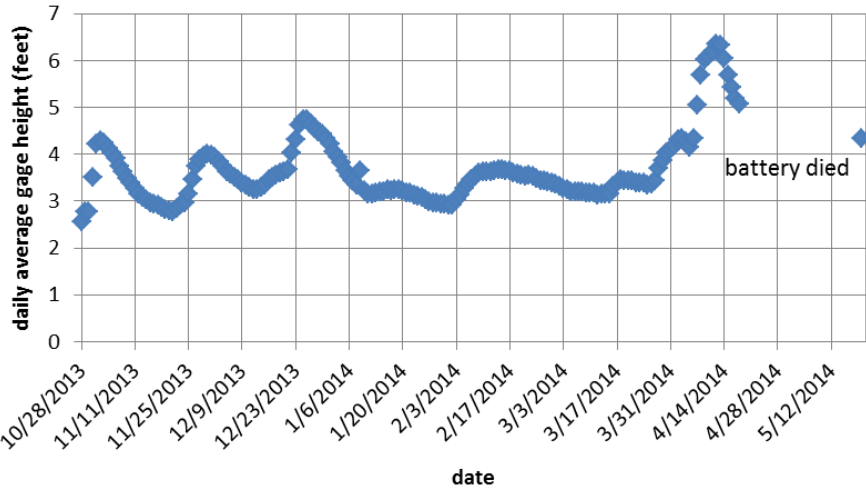
Toledo Bend has 73% of the state's total acre-ft. volume of reservoirs



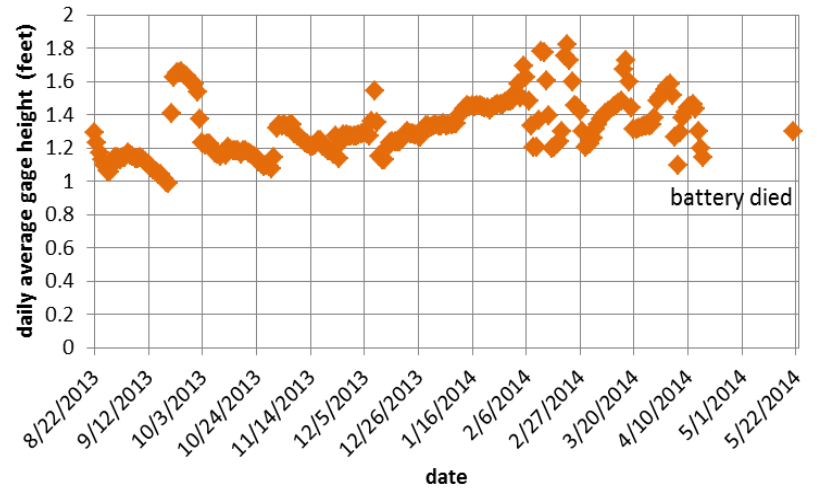


Original sites for monitoring, site at Henderson Swamp Control Structure has been dropped recently due to destruction of equipment by vandals between times of staff collection of data.

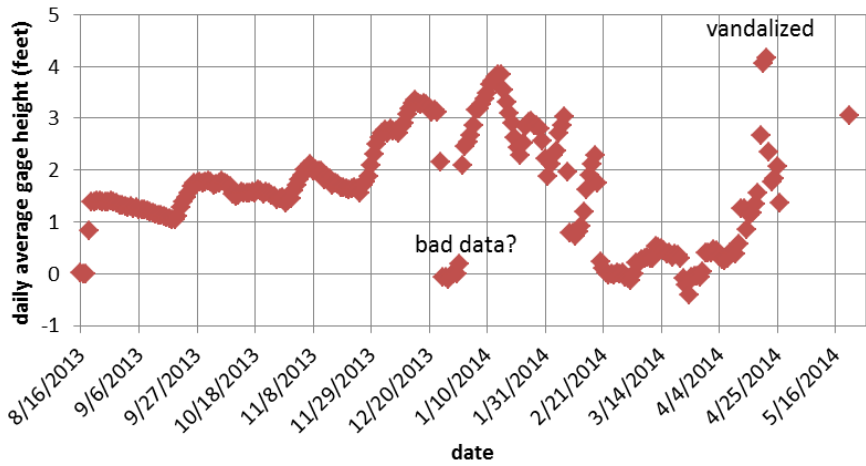
Black Lake



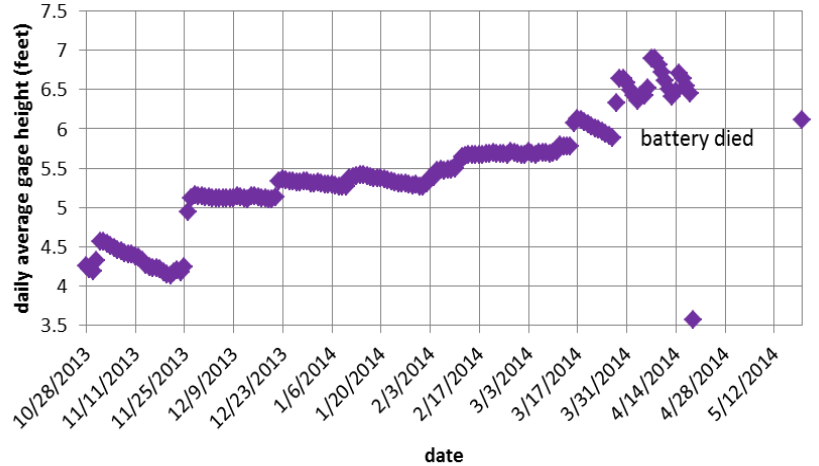
False River

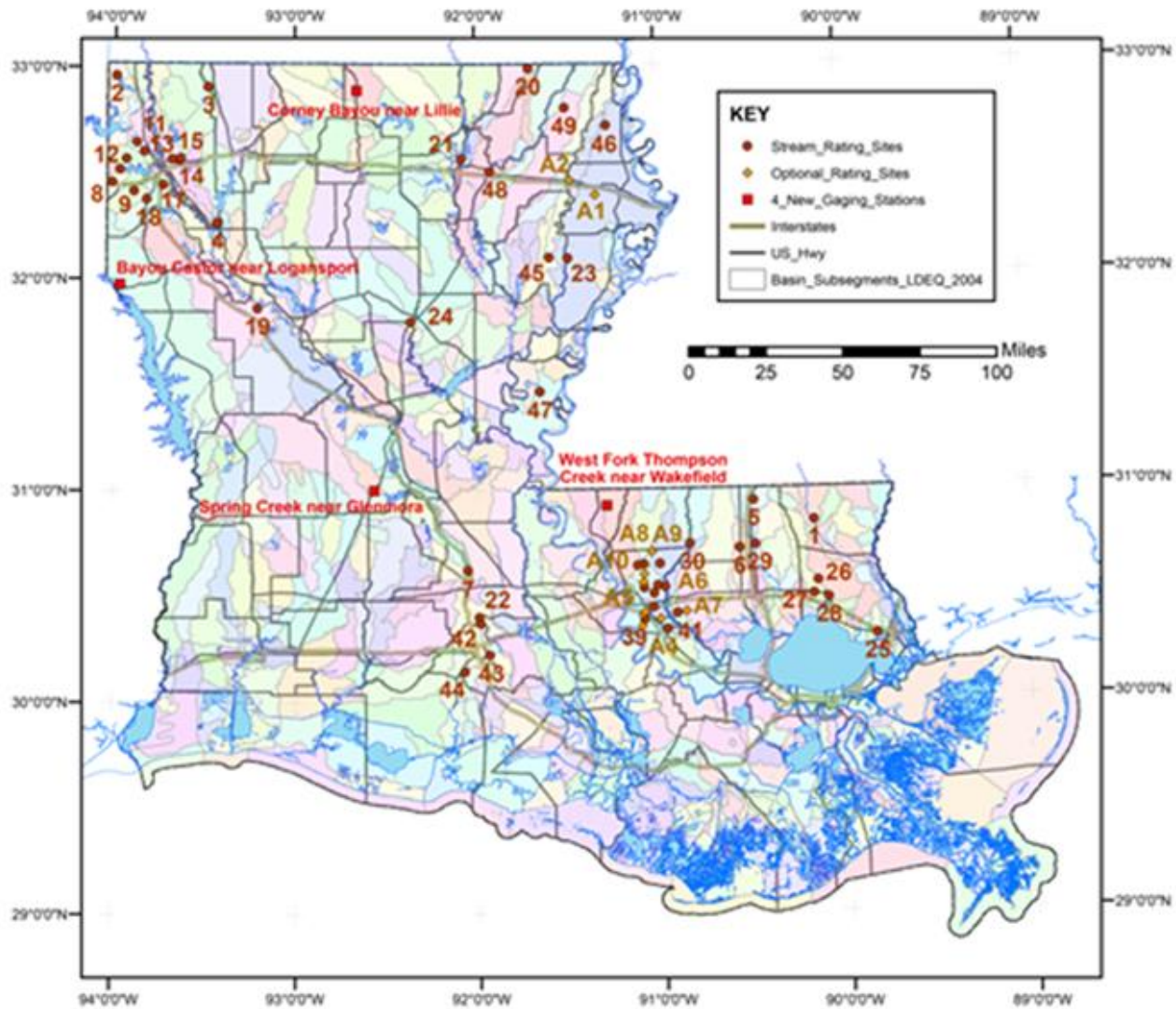


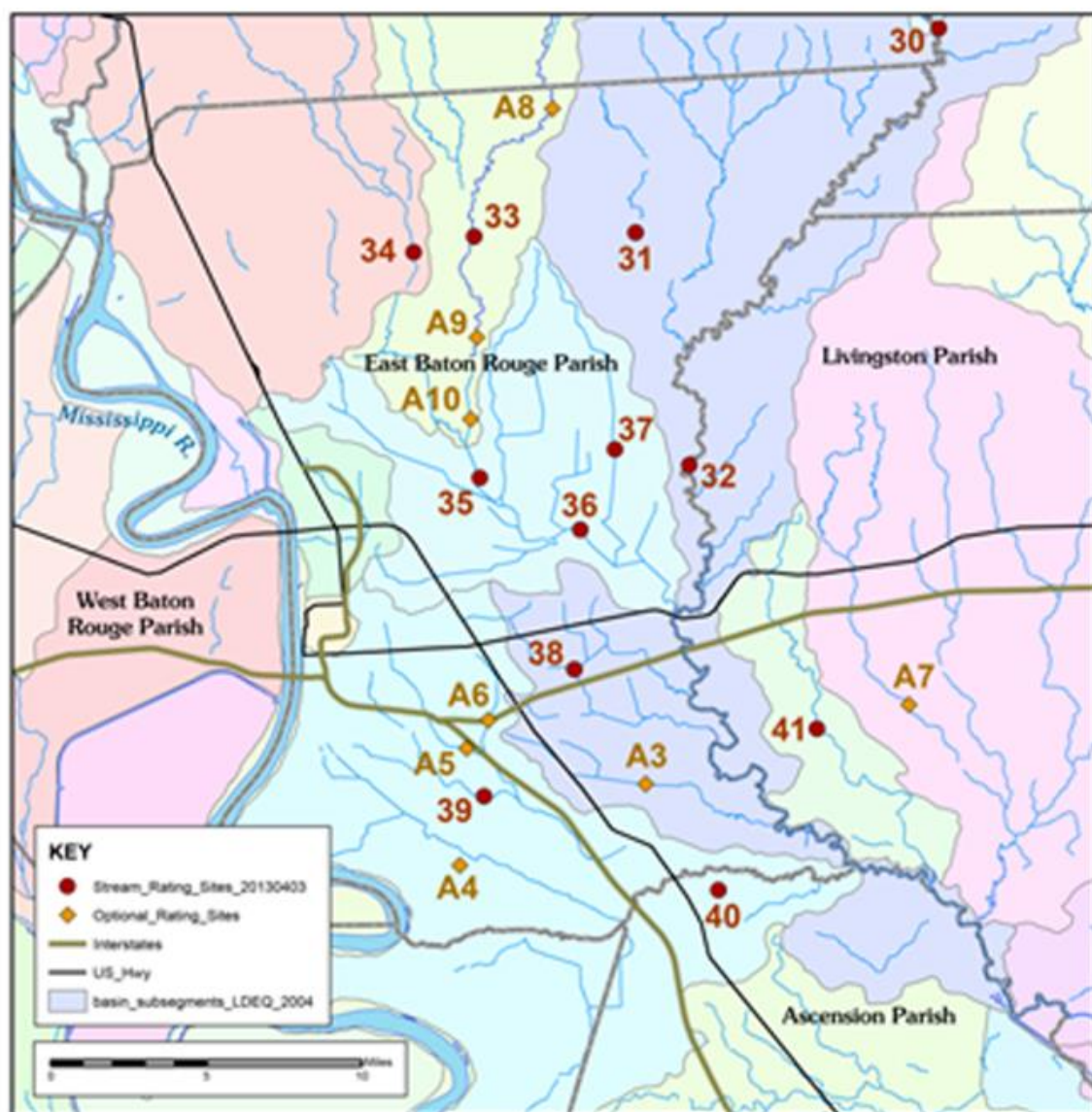
Henderson Lake



Lake Bruin







There are two instruments used for discharge measurements Flow tracker for low flow small streams and river surveyor for large streams and higher flow

The River Surveyor instrument can be used from banks of medium size streams while bridge pull is only technique that can be used during floods or for very large streams



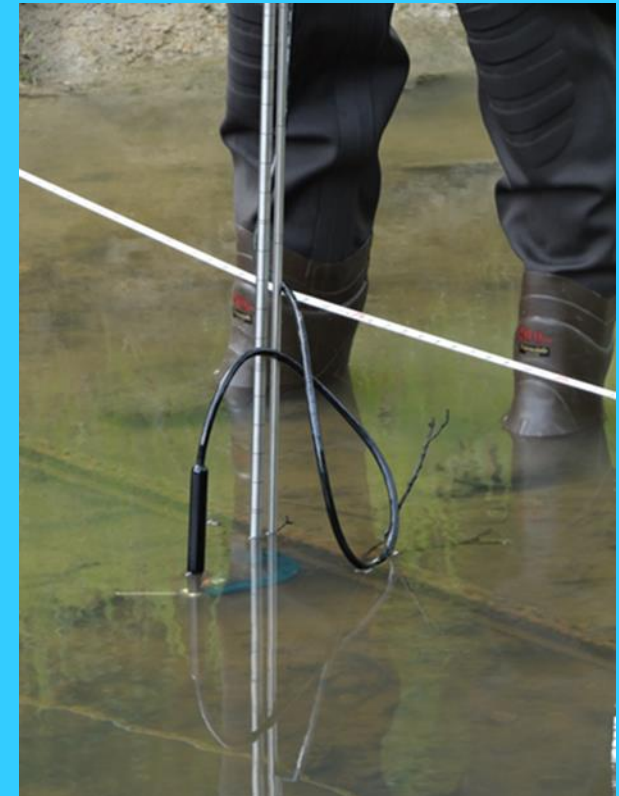
- Two ways of using the River Surveyor
- 1) To left bank pull
 - 2) Below left and right bridge pull

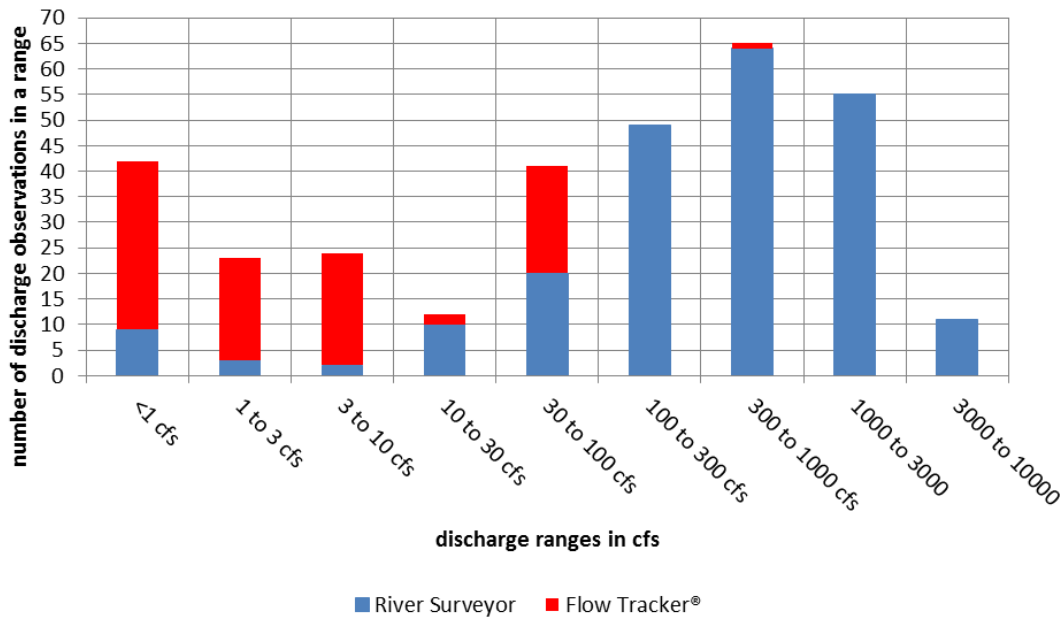




Flow tracker for small streams

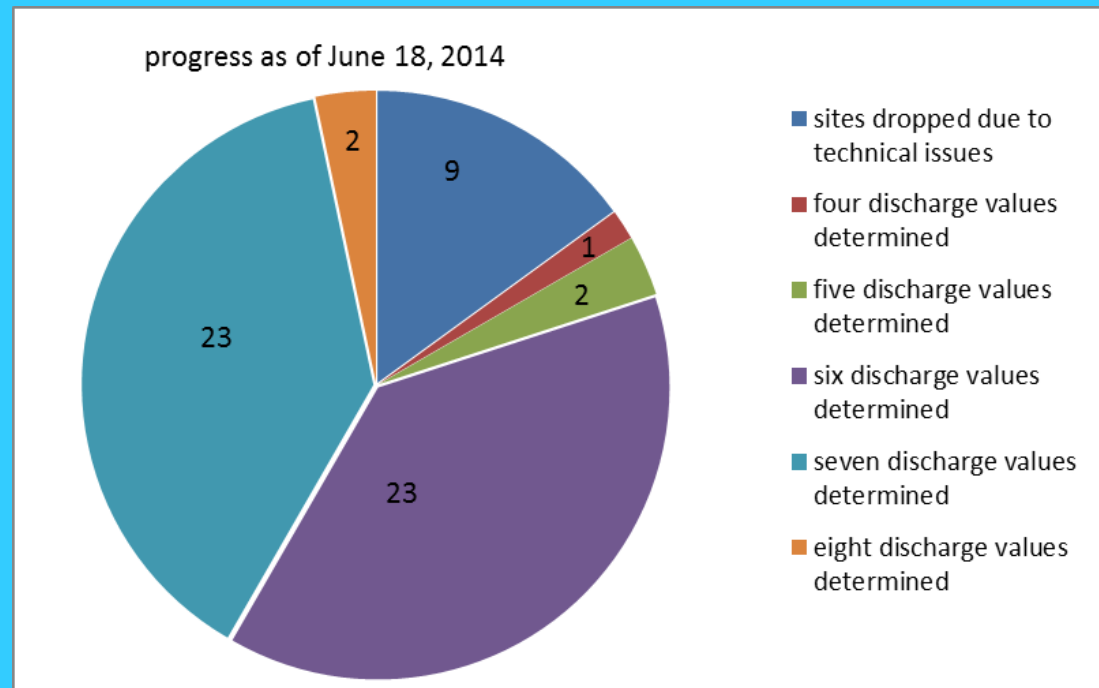
- 1) Left close up view of recorder
- 2) Below views of field setup





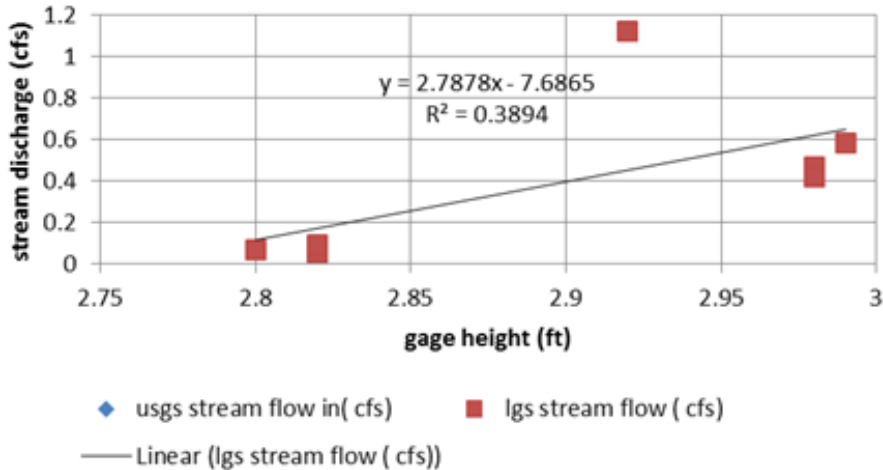
Streams categorized by number of discharge measurements

Number of observations by discharge value determined

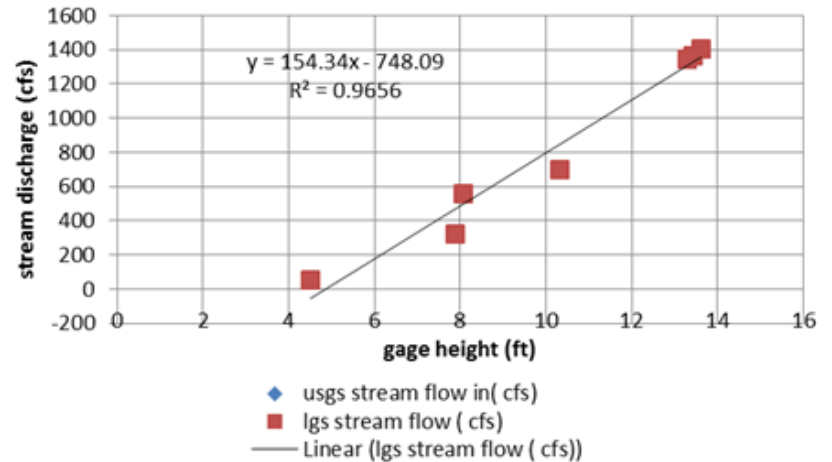


Examples of rating curves

Shettleworth Bayou

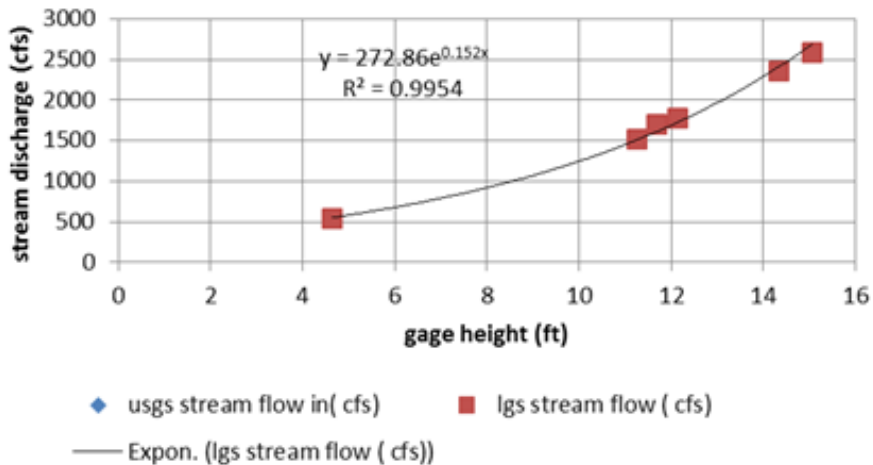


Red Chute Bayou at Dogwood Trail, Bossier City

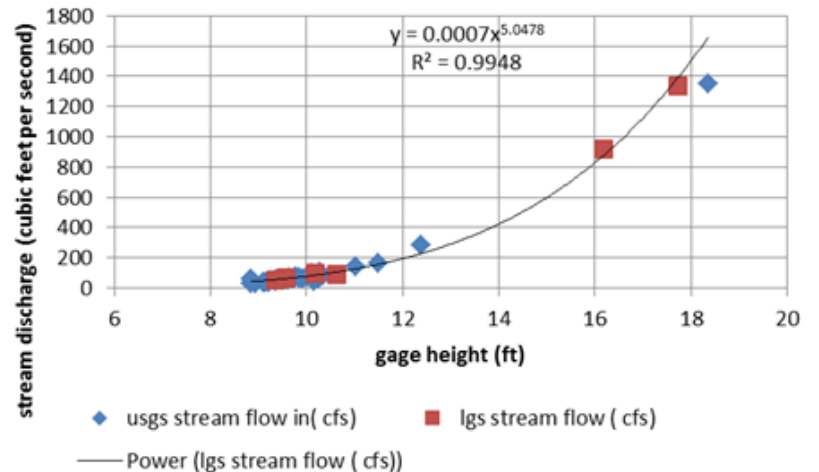


Above are examples of linear functions

Bayou Bartholomew northwest of Jones



Tchefuncte River near Covington, LA



Above example of exponential function

Above example of power function

Summary, work done currently

- 1) Contract requirements of compiling information on public access points to surface water and public dams has been completed
- 2) Requirements of starting four monitoring sites has been meet. A fourth damaged site is currently being re-established
- 3) Progress on stream measurements has been meet with typical six or seven measurements and is well on its way to completing current contract requirements of eight measurements for each of the 51 streams within the study.

Summary, why to continue current work

- 1) However the monitoring work and associated expense will be wasted if current monitoring and discharge measurement is not continued. **It is not complete.**
- 2) International standards require at least 15 measurements of stream discharge for the development of stream rating curve.
- 3) As the USGS field data shows there is a requirement to continue stream discharge measurements even after the initial rating curve is developed. The stream rating curves will change as the morphology of the stream channel changes and runoff rates both of which respond to changes in development of a stream's watershed, as well as climate change