Approved: March 10, 2009
Date

MINUTES OF THE HOUSE VISION 2020 COMMITTEE

The meeting was called to order by Chairman Tom Sloan at 1:30 p.m. on January 26, 2009, in Room 711 of the Docking State Office Building.

All members were present except:
Representative Clay Aurand- excused
Representative Bill Feuerborn- excused
Representative Joe Seiwert- excused
Representative Lee Tafanelli- excused

Committee staff present:
Art Griggs, Office of the Revisor of Statutes
Scott Wells, Office of the Revisor of Statutes
Corey Carnahan, Kansas Legislative Research Department
Chris Courtwright, Kansas Legislative Research Department
Mary Koles, Committee Assistant

Conferees appearing before the committee:
Mark Jakubauskas, Kansas Biological Survey
Tracy Streeter, Kansas Water Office
Kerry Wedel, Kansas Department of Health and Environment
Greg Foley, State Conservation Commission
Ken Stark, U.S. Army Corps of Engineers, Kansas City District
John Grothaus, U.S. Army Corps of Engineers, Kansas City District

Others attending:
See attached list.

Chairman Sloan welcomed the conferees to the second day of reports about State water issues. The conferees presented a collaborative PowerPoint report (Attachment 1). Chairman Sloan introduced the conferees as they spoke.

Mark Jakubauskas, Kansas Biological Survey, discussed data collection and data sharing, including bathymetric surveys, and the ASTRISK proposal (Attachment 1, pages 1-22).

Tracy Streeter, Director, Kansas Water Office, explained policy, planning, and implementation activities, including TWI assessment to target restoration (Attachment1, pages 23-31).

Kerry Wedel, Section Chief, Kansas Department of Health and Environment, Watershed Management Section, addressed watershed restoration and protection, specifically the WRAPS program (Attachment 1, pages 32-40).

Greg Foley, Executive Director, State Conservation Commission, discussed the current status of management practices to control sediment (Attachment 1, pages 41-45).

Ken Stark, U.S. Army Corps of Engineers, Kansas City District, Regional Sediment Manager, described federal programs that are in action to address reservoir sustainability, specifically key concepts of regional sediment management (Attachment 1, pages 55-57).

John Grothaus, U.S. Army Corps of Engineers, Kansas City District, discussed ways Kansas and Corps have and can continue to work together. For example, the completed project at Kanapolis and the ongoing project at John Redmond Reservoir (Attachment 1, pages 55-57).

The following documents distributed to committee members on January 21, 2009, have continued relevance: Sedimentation In Our Reservoirs: Executive Summary; Sedimentation in Our Reservoirs (book); and Kansas Water Authority, 2009 Annual Report.

Following the presentations, Chairman Sloan opened the meeting for questions from the committee.

Minutes of the House Vision 2020 Committee at 1:30 p.m. on January 26, 2009, in Room 711 of the Docking State Office Building.

Questions were asked by Chairman Sloan and Representatives Barbara Craft, Pat George, and Tom Hawk.

Responses were given by the appropriate conferees. Discussions ensued.

Chairman Sloan thanked the conferees for their presentations.

The next meeting is scheduled for January 28, 2009.

The meeting was adjourned at 3:00 p.m.

House Vision 2020 Committee Guest List

Date: Monday, Jan. 26, 2009

Name	Representing Client/Authority
SCOTT CARLSON	SCC
GREG FOLEY	SCC
Mark Jakubauskas	Kansas Biological Survey
Ed MIETINKO	Ks Biol. Survey
Jerry deNoyelles	KS Biol. Survey
Scott Campbell	KS Biological Survey
ED CARNEY	KDHE
Earl Lewis	KWO
Kerry Wedel	KDHE
Jamie Aaggero	KDHE
Shawn Steele	KWO
SEAN MILLER	CAPITOL STRATEGIES
Donn Teske	KFB
Kent Askren	Ks Farm Bureau
Dan Korber	Kansas, Inc
John Selk	Landplan Engineering
Lindsey Douglas	KDA
Leslie Kaufman	Ks Corp Council

Vision 2020: Day 2

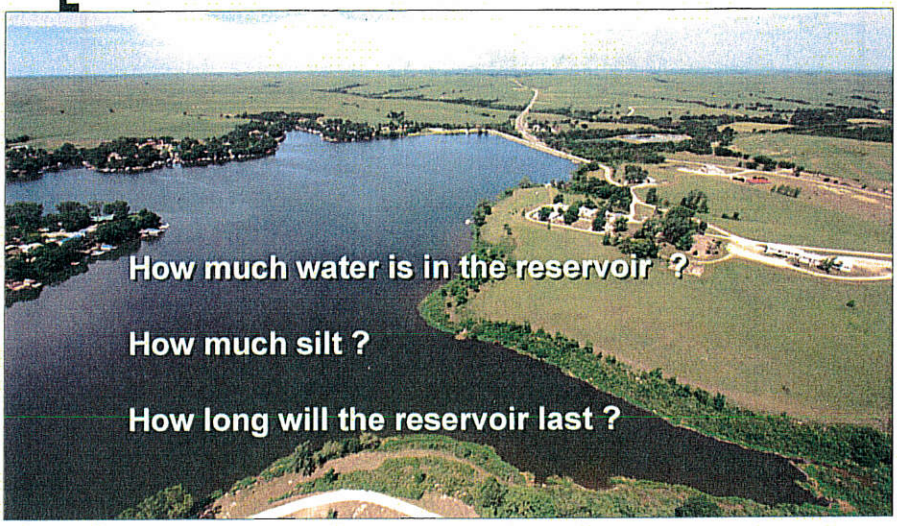
Current Actions to Secure, Protect, and Restore Kansas Reservoirs

Dr. Mark Jakubauskas

Reservoir Data Collection and Data Sharing

House Vision 2020
1-26-2009
Attachment 1-1

Fundamental Questions:



Answers to fundamental questions: What is the current state of our reservoirs?

Reservoir	Date of closure	Date of last survey	Years since last survey
Kanopolis	1948	1982	**26***
Marion	1968	1982	**26***
Wilson	1964	1984	**24***
Council Grove	1964	1985	**23***
Melvern	1972	1985	22
Pomona	1963	1989	18
Fall River	1949	1990	17
Toronto	1960	1990	17
Clinton	1977	1991	16
Big Hill	1981	1992	15
Elk City	1966	1992	15
Milford	1967	1994	13
Hillsdale	1981	1996	11
Cheney	1964	1998	9
Tuttle Creek	1962	2000	7
Perry	1969	2001	6
El Dorado	1981	2005	2
John Redmond	1964	2007	0

Good news . .

. . . Bad news . . .

* New reservoir depth and sediment assessments, 2007-08

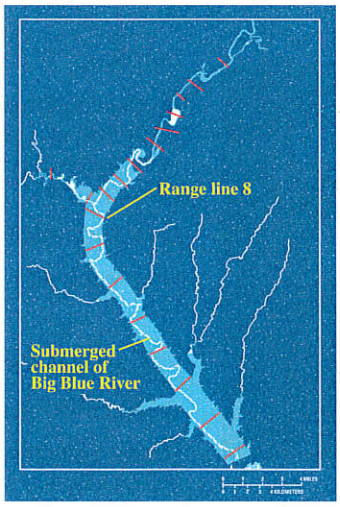
What about the little guys ?

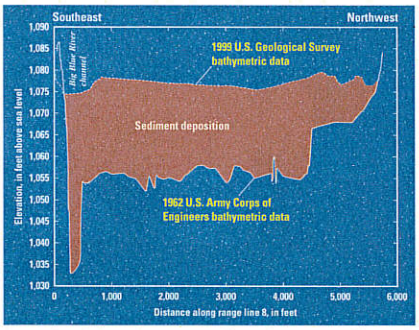
IF data or information exists for state and local reservoirs, it may be incomplete, out-of-date, or just plain wrong.

Mission Lake, City of Horton:

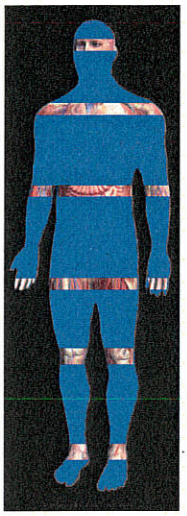
Area (acres)	Volume (acre-feet)	Source of (Mis)-Information
71	493	*Potential Water Quality Enhancement Strategies, Mission Lake, Horton, Kansas.* BG Consultants, 2004;
154	1070	National Inventory of Dams, US Army Corps of Engineers, no date
No data	940	U.S. Geological Survey Scientific Investigations Report 2004-5228. 80 p.
No data	849	*Preliminary Renovation Plan, Mission Lake Dredging Project.* Black & Veatch Corporation, September 2007.

Typical Traditional Sedimentation Surveys "Range lines" across a reservoir

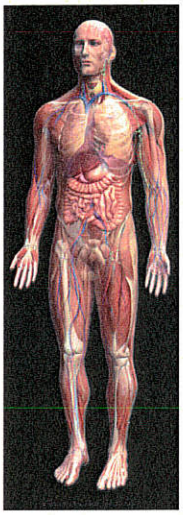




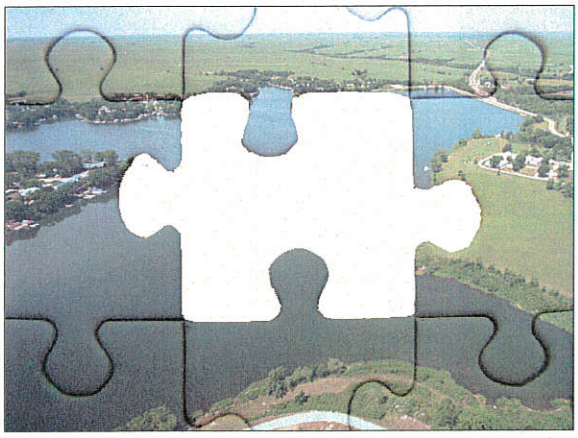
Limitations of…
Typical Traditional Sedimentation Surveys



OR ?



Information gaps



By 2006 –

Multiple agencies were each finding a serious information gap about our reservoirs.

How much water ?

How much silt ?

KBS creates ASTRA

-$100,000 investment

-Ongoing funding by KWO from Water Plan

Planned Reservoir Surveys Through FY2012

Kansas Biological Survey and Kansas Water Office

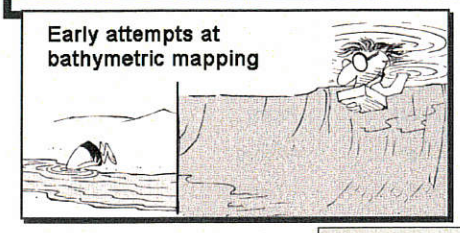
FY08	FY09	FY10	FY11	FY12
Kanopolis	Clinton	Toronto	Tuttle	Lovewell
Wilson	Pomona	Fall River	Perry	Waconda
Marion	Hillsdale	Elk City	Milford	Sebelius
Council Grove	Melvern	Big Hill	Cheney	Cedar Bluff
Herington	Miola	Centralia	Lake Afton	Anthony City
Wabaunsee	Louisburg SFL	Banner Creek	Wyandotte Co.	Cedar Creek
Bone Creek	Osage City	Atchison SFL	Strowbridge	Augusta City
Wellington	Rock Creek	Yates Center (New)	Polk Daniels (Elk Co SFL)	Augusta Santa Fe
Winfield	Ft. Scott City	Pony Creek	Lake Meade	Thayer City Lake (Old and New)
Council Grove City Lake	Madison City	Lake Shawnee	Ford Co.	Pleasanton
Parsons	Wolf Creek	Pottawatomie Co. Lake#1	Coldwater	Alma

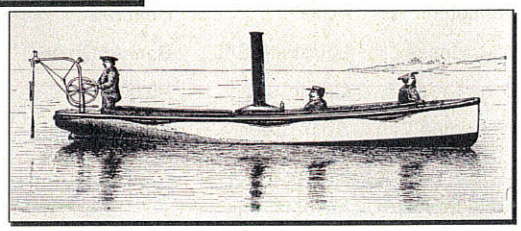
This list includes only about 10% of the publicly-owned reservoirs in Kansas

Reservoir Surveys

(and how we do them)

The technology has advanced considerably……

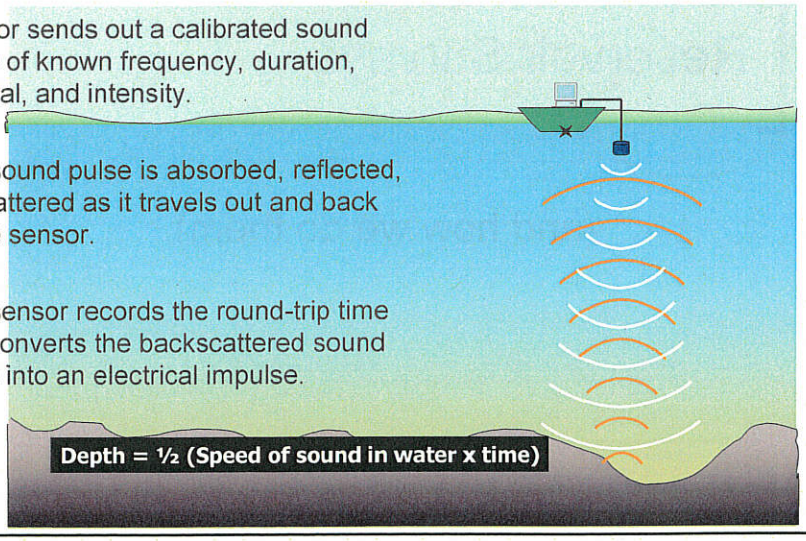




Traditionally, a sounding line with weight was used
- Poor positional accuracy
- Extremely labor-intensive

Basic Echosounding

- Sensor sends out a calibrated sound pulse of known frequency, duration, interval, and intensity.
- The sound pulse is absorbed, reflected, or scattered as it travels out and back to the sensor.
- The sensor records the round-trip time and converts the backscattered sound pulse into an electrical impulse.



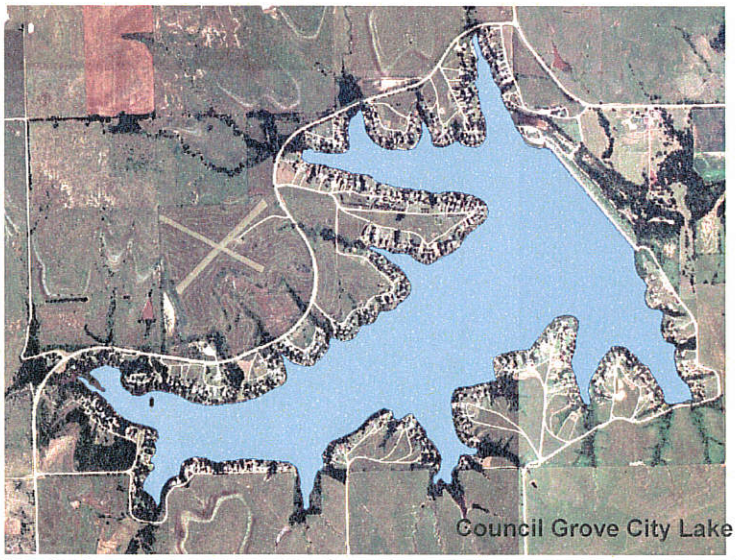
KBS/ASTRA mapping echosounder – some brief notes

Biosonics DT-X digital acoustic echosounder.

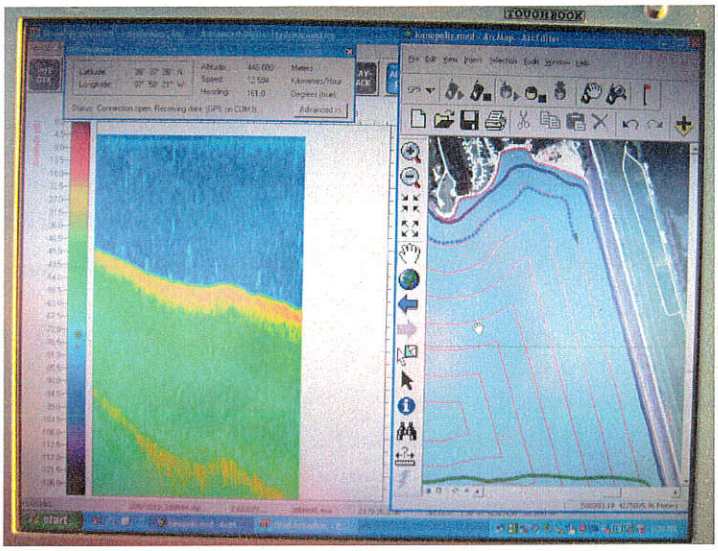
- 200-kHz frequency split-beam transducer
- 38-kHz frequency single-beam transducer
- GPS antenna (latitude/longitude)

Dedicated 22' lake boat for surveys

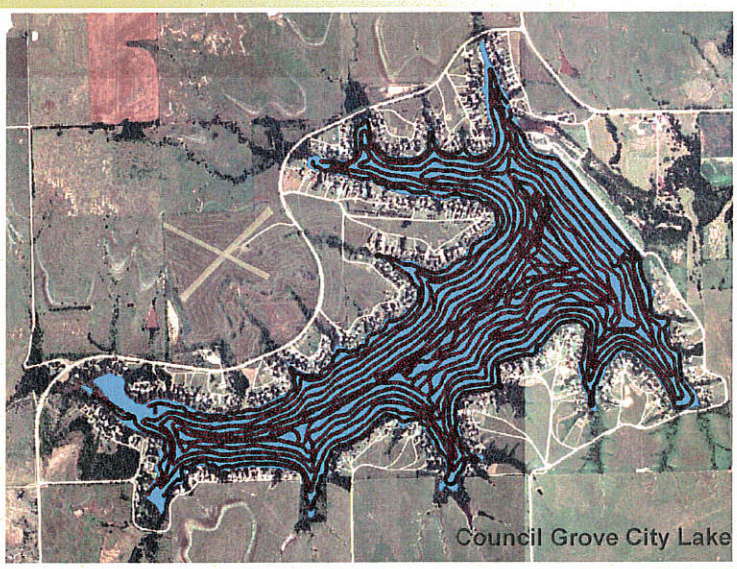
An air photo is used to guide the survey



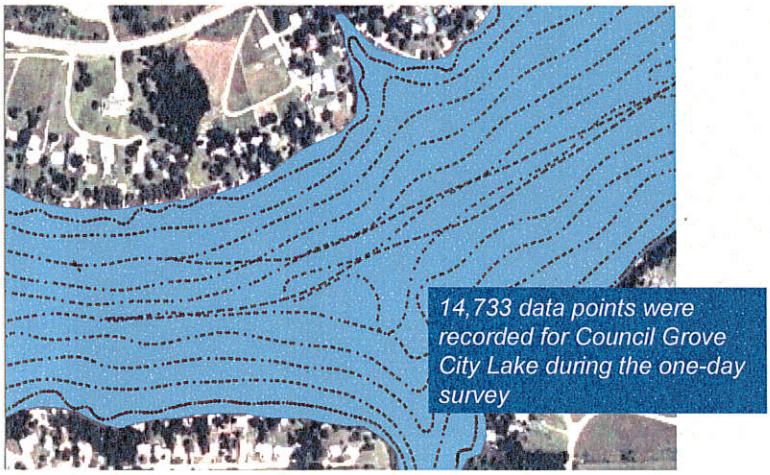
Real-time survey tracking



A series of lines are traced on the lake



The echosounder measures depth at thousands of points along each line.



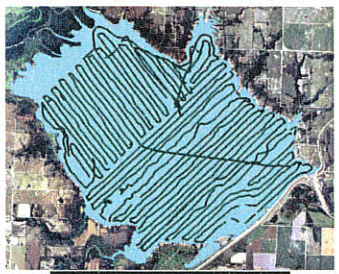
Location, depth, and other information are recorded at each point

Attributes of all_points_UTM

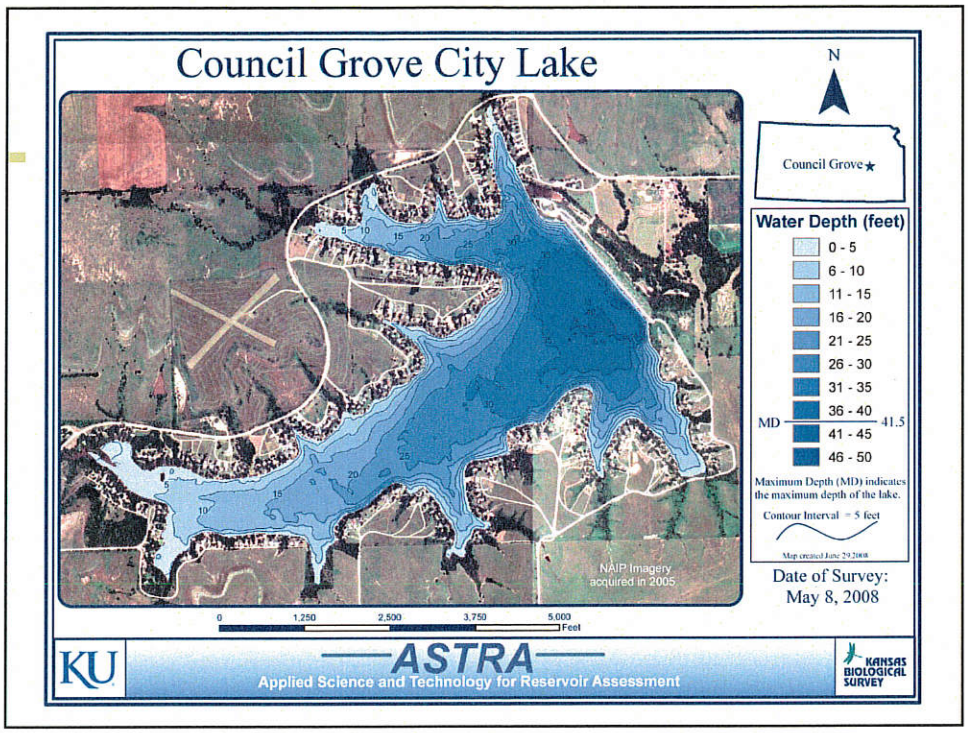
FID	Shape*	Ping	Date_	Time	Latitude	Longitude	Depth	Type	E0	E1	E2
0	Point	4	5/6/2008	11:13:00AM	38.680440	-96.558462	1.99	2	0.000059	0.00255	0.000333
1	Point	11	5/6/2008	11:13:01AM	38.680446	-96.558462	1.9	0	0.000000	0.00145	0.000015
2	Point	18	5/6/2008	11:13:02AM	38.680422	-96.559515	1.38	0	0.000000	0.00145	0.000015
3	Point	25	5/6/2008	11:13:04AM	38.680408	-96.559522	1.79	1	0.000000	0.00059	0.000006
4	Point	32	5/6/2008	11:13:05AM	38.680377	-96.559567	1.59	2	0.000000	0.00165	0.000025
5	Point	39	5/6/2008	11:13:07AM	38.680362	-96.559585	1.71	0	0.000000	0.00124	0.000024
6	Point	46	5/6/2008	11:13:08AM	38.68033	-96.55962	1.79	2	0.000000	0.00152	0.000099
7	Point	53	5/6/2008	11:13:09AM	38.680313	-96.559637	1.93	2	0.000000	0.0022	0.000019
8	Point	60	5/6/2008	11:13:11AM	38.680278	-96.559668	2.14	2	0.000000	0.0023	0.000019
9	Point	67	5/6/2008	11:13:12AM	38.680262	-96.559685	2.44	2	0.000000	0.00333	0.000051
10	Point	74	5/6/2008	11:13:14AM	38.680227	-96.559722	2.8	2	0.000000	0.00342	0.000325
11	Point	81	5/6/2008	11:13:15AM	38.68021	-96.559742	2.9	2	0.000000	0.00377	0.000029
12	Point	88	5/6/2008	11:13:16AM	38.68021	-96.559742	2.99	2	0.000000	0.00413	0.000049
13	Point	95	5/6/2008	11:13:18AM	38.680168	-96.55981	3.01	2	0.000000	0.00425	0.000029
14	Point	102	5/6/2008	11:13:19AM	38.680168	-96.55981	3.08	2	0.000000	0.00379	0.000047
15	Point	109	5/6/2008	11:13:21AM	38.680147	-96.559865	3.13	2	0.000000	0.00413	0.000049
16	Point	116	5/6/2008	11:13:22AM	38.680147	-96.559865	3.15	0	0.000000	0.00309	0.000017
17	Point	123	5/6/2008	11:13:23AM	38.680135	-96.559938	3.2	0	0.000000	0.000872	0.000009
18	Point	130	5/6/2008	11:13:25AM	38.680132	-96.559967	3.18	2	0.000000	0.00143	0.000006
19	Point	137	5/6/2008	11:13:26AM	38.680132	-96.559962	3.2	2	0.000000	0.00494	0.000022
20	Point	144	5/6/2008	11:13:29AM	38.680117	-96.559948	3.32	0	0.000000	0.00265	0.000009
21	Point	151	5/6/2008	11:13:29AM	38.680105	-96.559962	3.46	0	0.000000	0.00458	0.000008
22	Point	158	5/6/2008	11:13:33AM	38.680098	-96.559128	3.67	2	0.000000	0.00529	0.000033
23	Point	165	5/6/2008	11:13:33AM	38.680069	-96.559163	3.74	2	0.000000	0.00439	0.000015
24	Point	172	5/6/2008	11:13:33AM	38.680082	-96.55921	3.74	2	0.000000	0.00467	0.000013
25	Point	179	5/6/2008	11:13:35AM	38.680072	-96.559265	3.83	2	0.000000	0.00459	0.000029
26	Point	186	5/6/2008	11:13:36AM	38.680068	-96.559268	3.82	2	0.000000	0.00681	0.000023
27	Point	193	5/6/2008	11:13:37AM	38.680058	-96.559288	3.86	2	0.000000	0.00325	0.000039
28	Point	200	5/6/2008	11:13:39AM	38.680057	-96.559349	3.97	2	0.000000	0.0043	0.000083
29	Point	207	5/6/2008	11:13:43AM	38.680057	-96.559349	4.03	2	0.000000	0.00517	0.000044
30	Point	214	5/6/2008	11:13:42AM	38.68005	-96.559398	4.04	2	0.000000	0.00699	0.000115
31	Point	221	5/6/2008	11:13:43AM	38.68005	-96.559398	4.05	2	0.000000	0.00574	0.000039
32	Point	228	5/6/2008	11:13:44AM	38.680048	-96.55943	3.94	2	0.000000	0.00613	0.000039
33	Point	235	5/6/2008	11:13:45AM	38.68005	-96.559445	3.92	0	0.000000	0.00594	0.000063
34	Point	242	5/6/2008	11:13:47AM	38.680056	-96.559475	3.78	2	0.000000	0.00514	0.000045
35	Point	249	5/6/2008	11:13:49AM	38.680058	-96.559488	3.67	2	0.000000	0.00405	0.000077
36	Point	256	5/6/2008	11:13:50AM	38.68007	-96.559512	3.6	2	0.000000	0.00437	0.000067
37	Point	263	5/6/2008	11:13:51AM	38.680077	-96.559523	3.53	2	0.000000	0.00488	0.000082
38	Point	270	5/6/2008	11:13:53AM	38.68009	-96.559545	3.45	2	0.000000	0.00254	0.000069
39	Point	277	5/6/2008	11:13:54AM	38.680098	-96.559567	3.27	2	0.000000	0.00447	0.000084
40	Point	284	5/6/2008	11:13:56AM	38.680115	-96.559562	3.36	2	0.000000	0.0037	0.000053
41	Point	291	5/6/2008	11:13:57AM	38.680123	-96.559593	2.83	2	0.000000	0.00391	0.000032

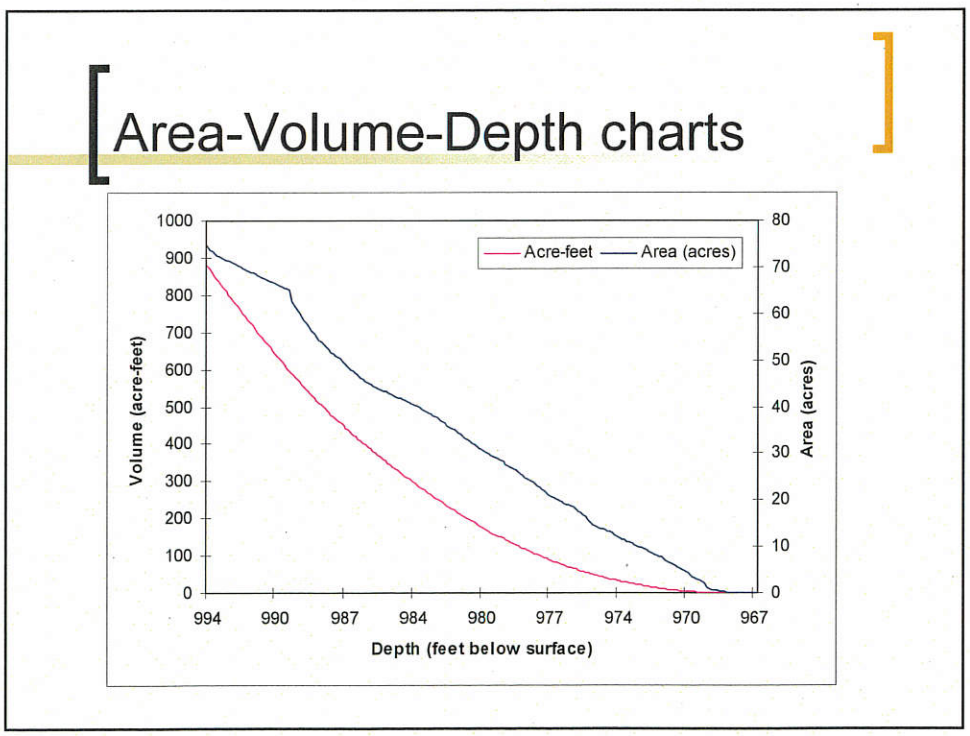
Record: 1 of 14733 | Show: All | Selected | Records: (0 out of 14733 Selected) | Options

Acoustic echosounding allows thousands of depth measurements to be taken during bathymetric surveys, producing highly detailed reservoir maps.

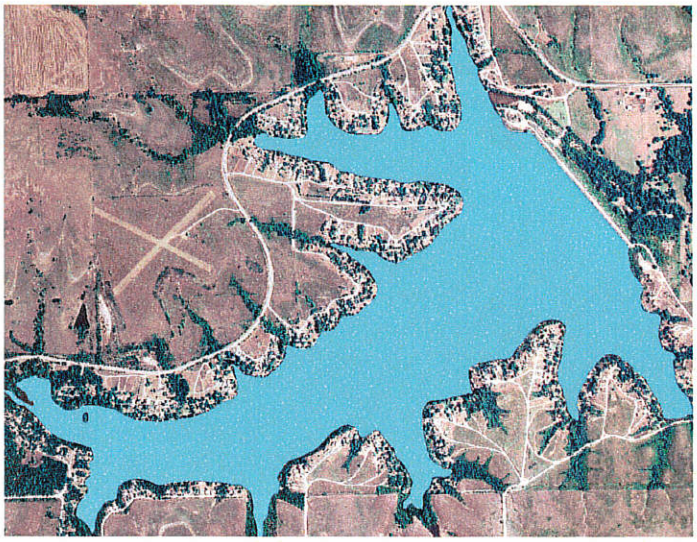


John Redmond, April 2007
331,300 depth points


Council Grove City Lake
N
Council Grove
Water Depth (feet)
0 - 5
6 - 10
11 - 15
16 - 20
21 - 25
26 - 30
31 - 35
36 - 40
MD
41.5
41 - 45
46 - 50
Maximum Depth (MD) indicates the maximum depth of the lake.
Contour Interval = 5 feet
Map created June 29 2008
NAIP Imagery acquired in 2005
Date of Survey:
May 8, 2008
0
1,250
2,500
3,750
5,000
Feet
KU
ASTRA
Applied Science and Technology for Reservoir Assessment
KANSAS BIOLOGICAL SURVEY

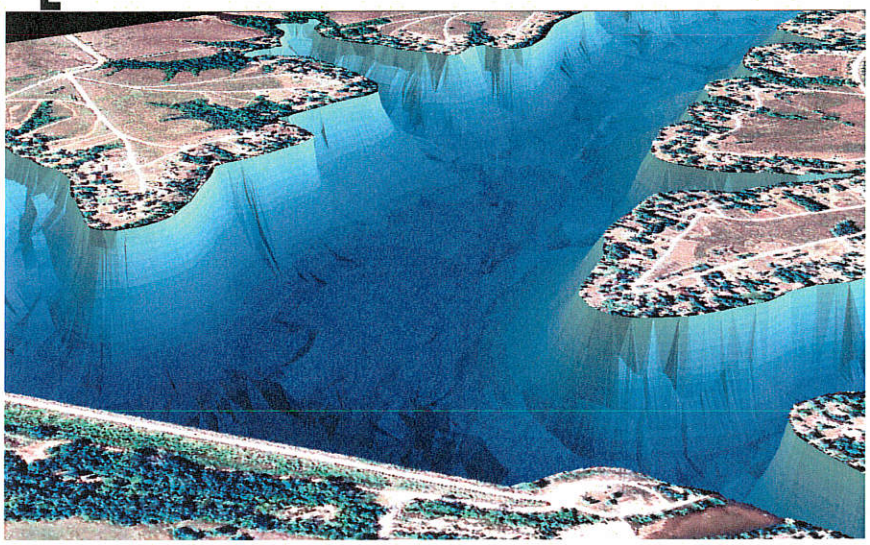

Area-Volume-Depth charts
Acre-feet
Area (acres)
Volume (acre-feet)
Area (acres)
Depth (feet below surface)
1000
900
800
700
600
500
400
300
200
100
0
80
70
60
50
40
30
20
10
0
994
990
987
984
980
977
974
970
967

Data Visualization



Data Visualization

Data Visualization

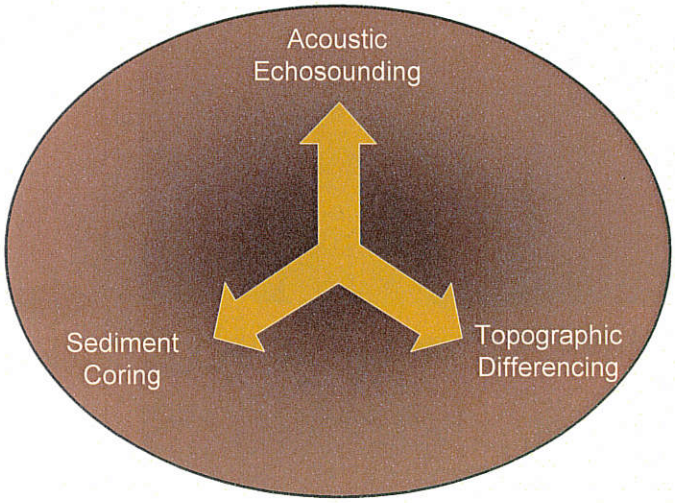


Measuring Sediment Accumulation

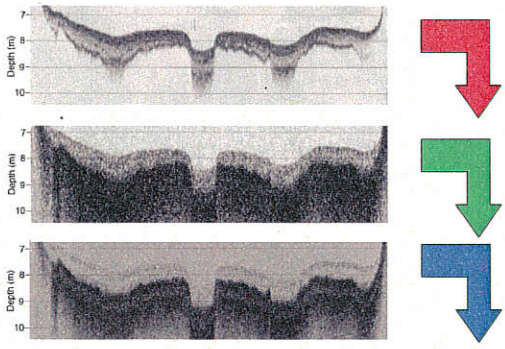
"So how much sediment is in the lake ?"

Measuring Sediment Accumulation

Three approaches cross-check and calibrate each other



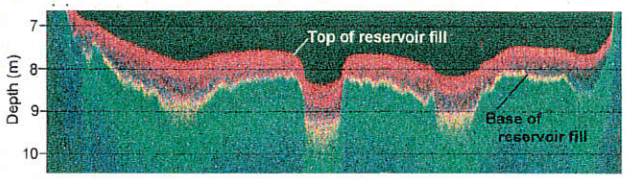
Measuring sediment accumulation using different frequencies of sound



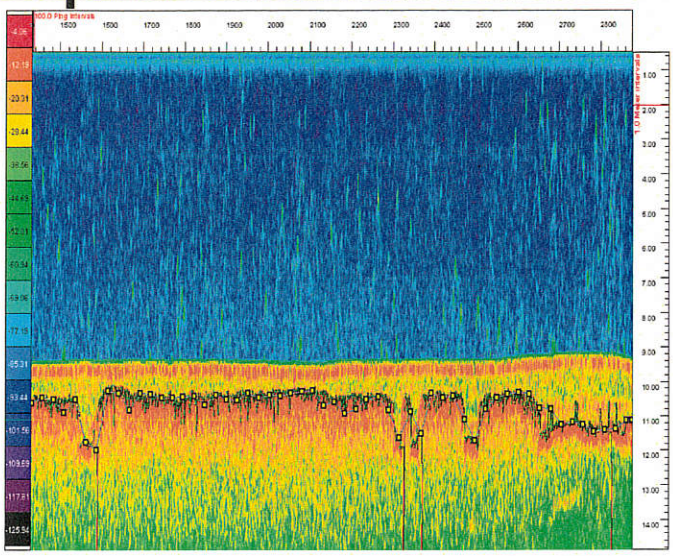
Higher frequencies bounce off the present reservoir bottom

Other, lower frequencies bounce off the "old" original bottom.

The difference is the accumulated sediment.

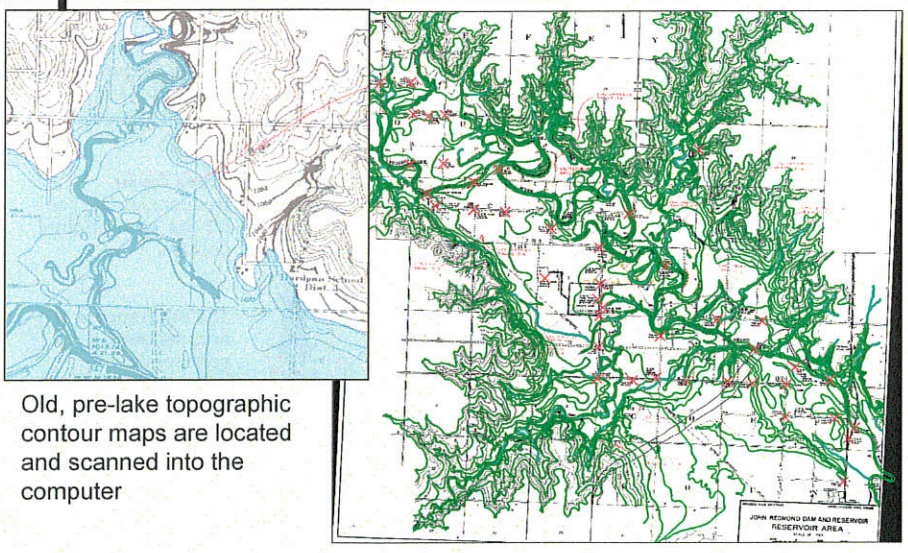


Measuring sediment accumulation using different frequencies of sound



First test:
Kanopolis Reservoir

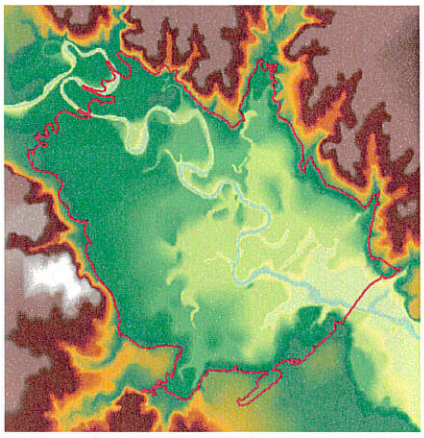
Measuring sediment accumulation using maps - *John Redmond Reservoir*



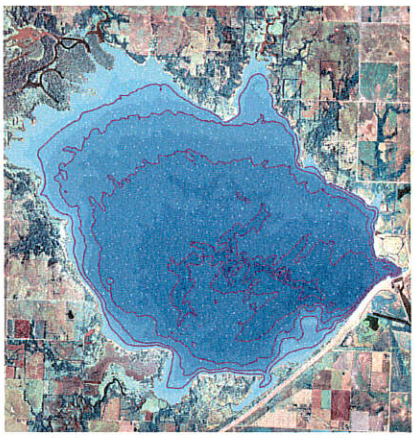
Old, pre-lake topographic contour maps are located and scanned into the computer

Measuring sediment accumulation using maps - *John Redmond Reservoir*

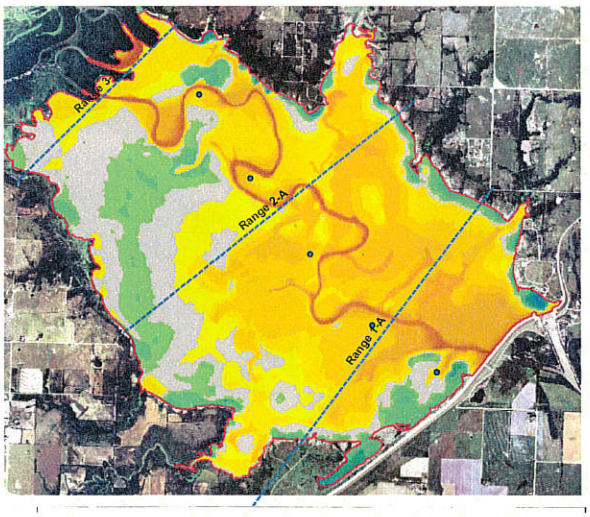
1957 lake depth

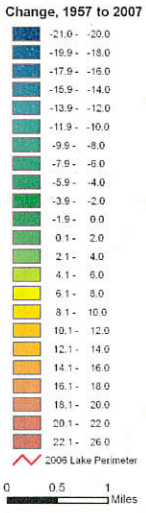


2007 lake depth

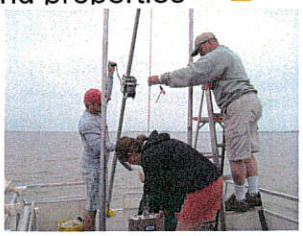


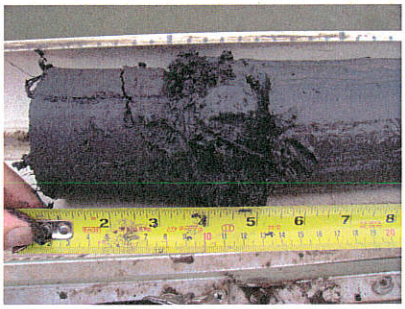
Measuring sediment accumulation using maps - *John Redmond Reservoir*





Measuring sediment accumulation by cores:
Vibra-coring for sediment thickness and properties





Measuring sediment accumulation by cores:
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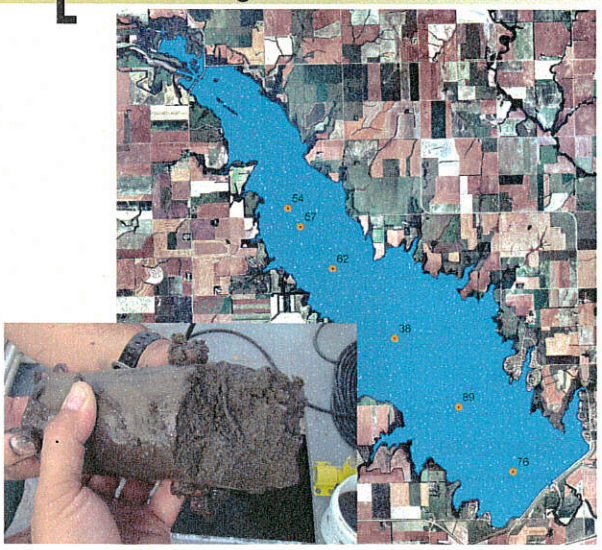
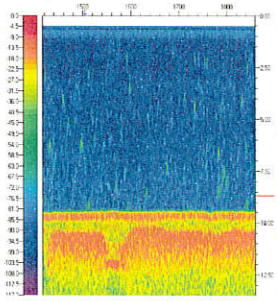




The Payoff:

Agencies benefit:

- Improved supply/demand modeling (KWO)
- Planning and prioritizing (KDHE)
- Assurance about water supply (City of Winfield)
- Better information for dredging (City of Horton)
- Better information on sedimentation (Corps)

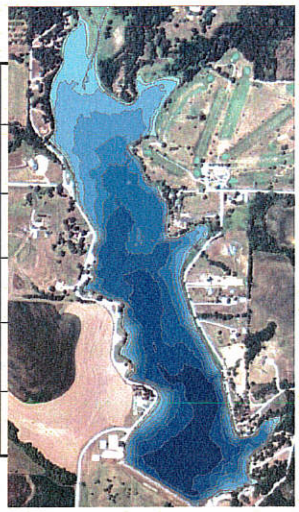
Kansas citizens like it too !

- "…like a gift from Heaven..." (Wellington Lake).
- "…can't believe the state is doing this !" (Parsons Lake).
- "…we really needed this…" (Mission Lake).

What about the little guys ?

Mission Lake, City of Horton:

Area (acres)	Volume (acre-feet)
~~71~~	~~493~~
~~154~~	~~1070~~
~~No data~~	~~940~~
~~No data~~	~~849~~
124 acres	**1035 acre-feet**

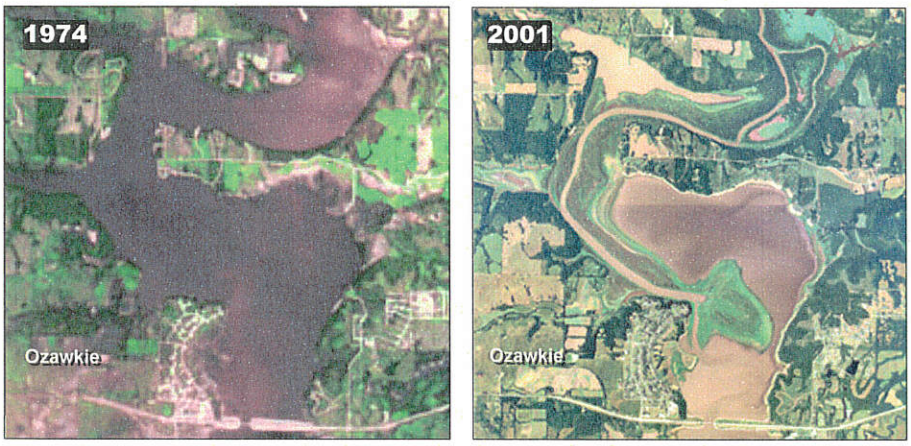


Reservoirs from Space

Satellites are watching your lake…

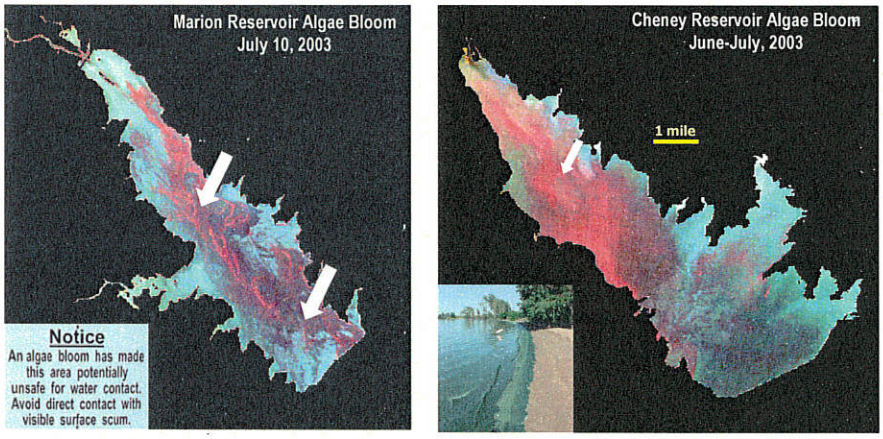
Satellites are watching your lake.....

Perry Lake Upper Basin Sedimentation, 1974-2001



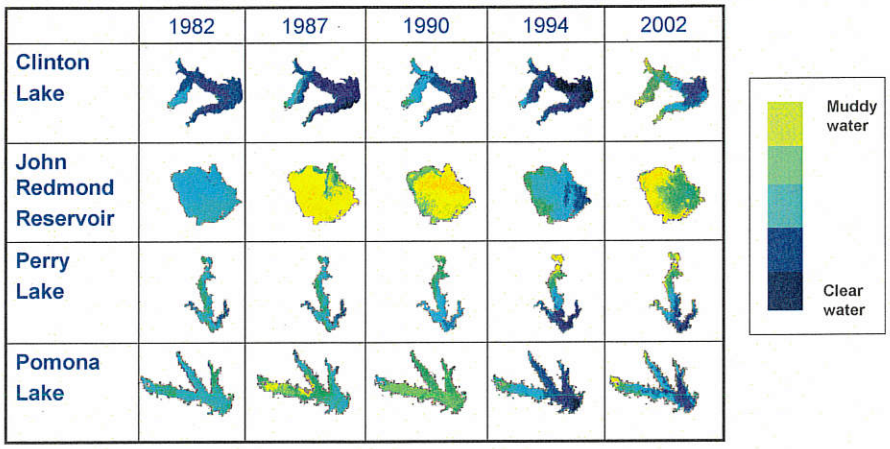
Satellite images can show changes over time

Satellites are watching your lake.....



Satellite images can show the extent of a reservoir problem

Satellites are watching your lake.....

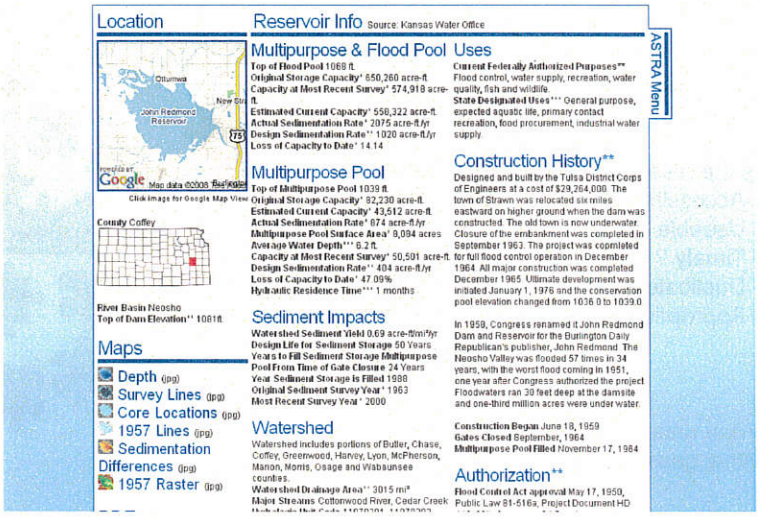


Satellite images can show the extent of a reservoir problem over time

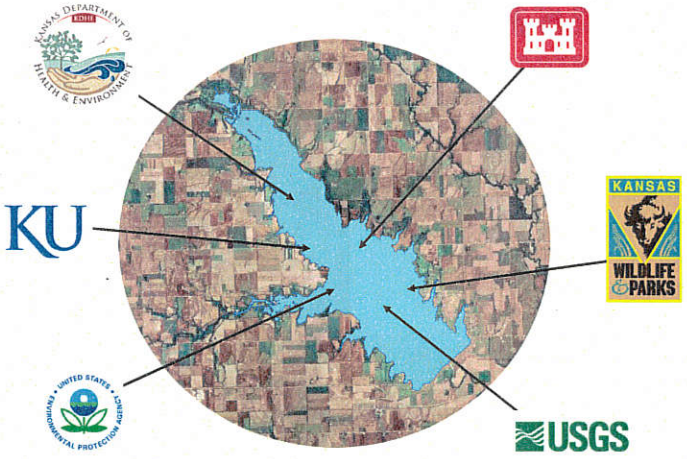
Data Management and Coordination

Putting the Pieces Together

ASTRA Reservoir Information System - Downloadable maps and data



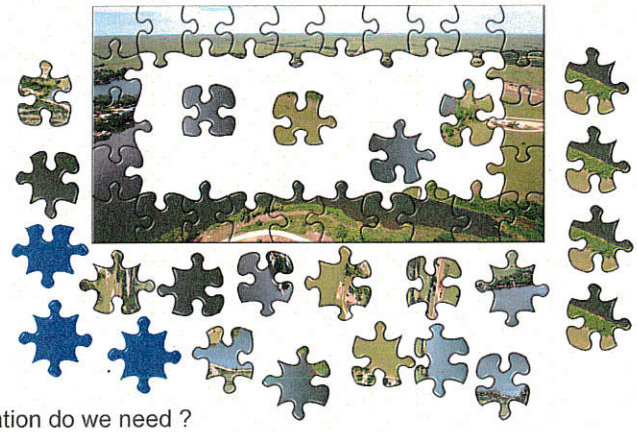
Multiple agencies conducting multiple sampling events – (sometimes coordinated…sometimes not)



Data Management and Coordination

Does reservoir data:
- Exist ?

Is the reservoir data:
- Accessible ?
- Useable ?
- Timely ?
- Duplicated ?
- Appropriate ?



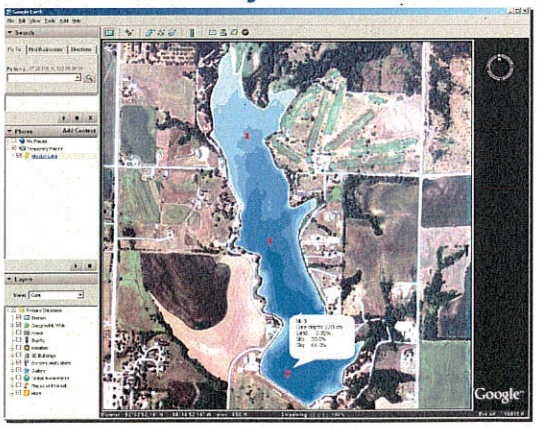
What data and information do we need ?
What gaps exist in our database ?

Improved sharing/access of reservoir data & information

AST-RISK

ASTRA Reservoir Information System for Kansas

- Online reservoir information from multiple local, state, federal, and other sources.
- Data portal: Spatial data, real-time and archived databases, reports, and other information.



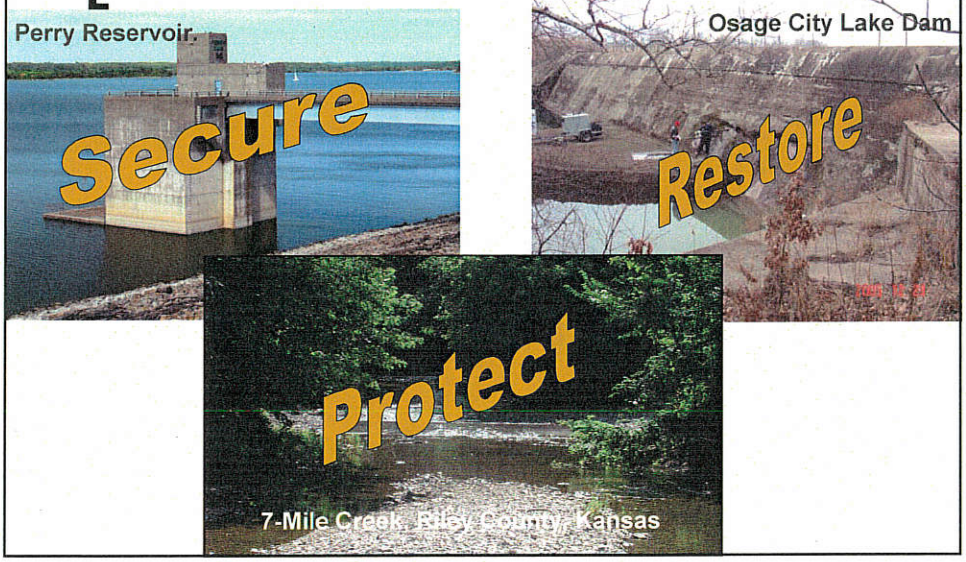
(Providing answers to) Fundamental Questions:

Tracy Streeter

Policy, Planning and Implementation

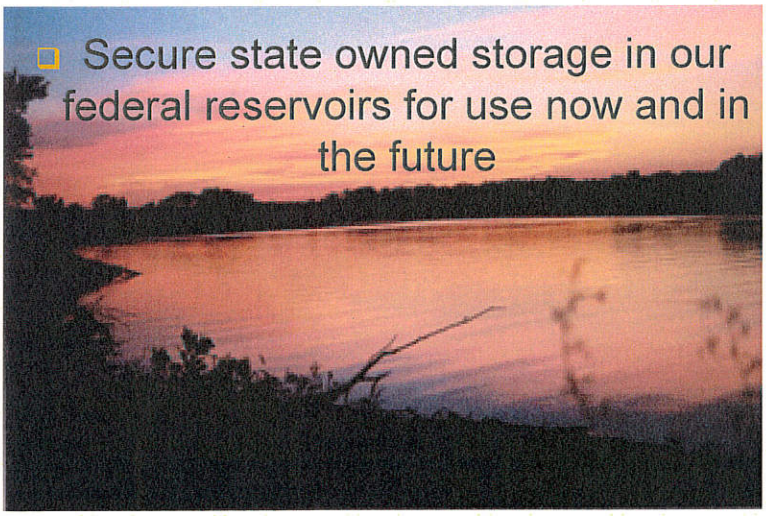
KANSAS WATER OFFICE

RESERVOIR SUSTAINABILITY INITIATIVE



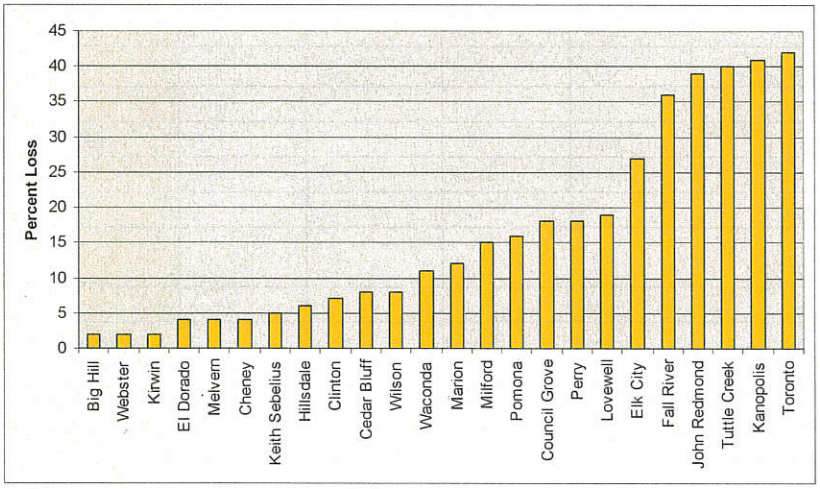
Secure

- Secure state owned storage in our federal reservoirs for use now and in the future



Secure

- Water storage lost due to sedimentation.



Secure

- Reservoir Beneficial Use Fund
  - Enacted by the 2007 Legislature
  - $534,000 appropriated to purchase remaining storage
  - Impetus on Perry and Milford
  - $30 million + to purchase
- Hillsdale – big price tag resulting in extraordinary costs to all marketing customers
- Wilson & Kanopolis down the road

SUMMARY OF WATER SUPPLY STORAGE PURCHASED

BY THE STATE OF KANSAS

Reservoir	Storage Amount (Acre-Feet)				
	Under Contract	In Service [1]			Payment Deferred
		Water Marketing	Water Assurance	Excess Capacity	
Big Hill	25,700	9,200	0	0	16,500 af/$5.3 million
Clinton	89,200	53,500	0	0	35,700 af/$8.7 million
Council Grove	32,400	18,200	6,200	8,000	0
Elk City	30,180	20,180	0	10,000	0
Hillsdale	53,000	7,500	0	0	45,500 af/$40.8 million
John Redmond	37,450	27,450	3,500	6,500	0
Kanopolis	1,250	1,250	0	0	0
Marion	44,730	31,930	300	12,500	0
Melvern	50,000	14,350	7,700	27,950	0
Milford	300,000	46,650	55,000	0	198,350 af/$15.3 million
Perry	150,000	0	25,000	0	125,000 af/$15.7 million
Pomona	32,500	0	7,700	24,800	0
Tuttle Creek	50,000	0	41,350	8,650	0
Total	896,410	230,210	146,750	98,400	421,050 af/$85.8 million

Secure

- Increase storage at existing reservoirs
- Currently underway at John Redmond
  - 2' elevation increase ~ 17,000 acre-feet
  - Mitigation (ramps & wetlands) & Bulkhead replacement required
  - Costs +/- $1,000,000 subject to negotiations w/ Corps
- Potential at other reservoirs
  - Kanopolis
    - Beneficiaries beyond M & I users

Protect

- Protect our investment in the reservoirs by maintaining healthy watersheds through
  - conservation easements
  - streambank stabilization
  - continued WRAPS implementation
  - watershed structures
- KWA recommends enhanced funding for streambank stabilization & riparian easements

Protect

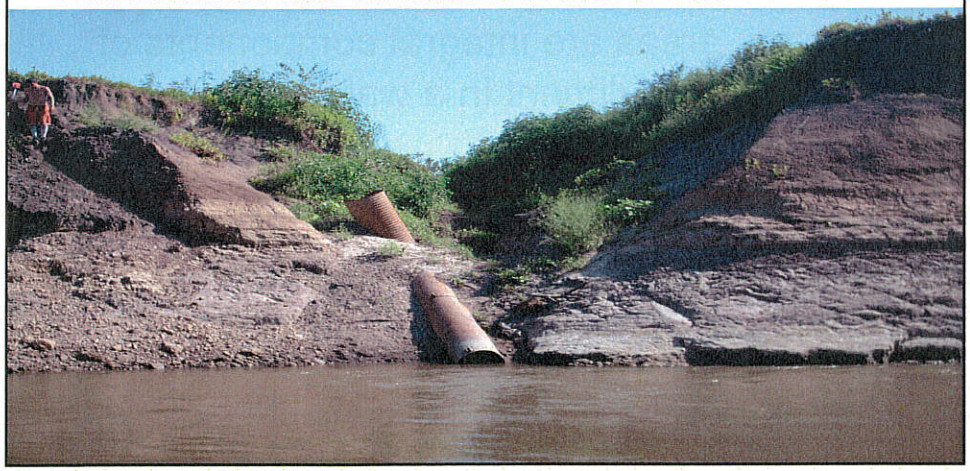
- Naturally occurring wetlands and healthy riparian areas are integral components of managing sediment in a watershed and maintaining streams.

Protect

- TWI and USGS studies
  - Assessment to target restoration of riparian buffer areas.

TWI Assessment

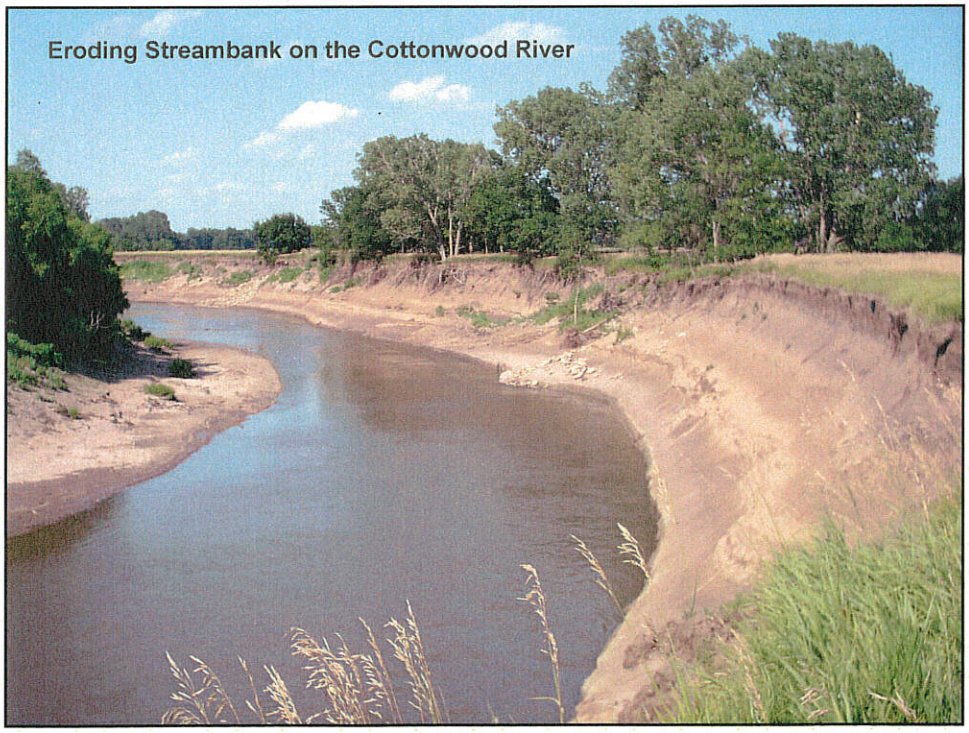
- Targeting Restoration: Riparian Area/Stream Channel Assessment and streambank stabilization



From TWI Stream Channel/ Riparian Area Assessment (Eidman Site)

Riparian Assessment Results

- TWI indentified 40 'Hot Spots' of Active Stream Bank Erosion on Cottonwood River
- Estimated Annual Sediment Load was 79,334 Tons per year
- About 11% of Annual Sedimentation Rate



Eroding Streambank on the Cottonwood River

Restore

- Clean Drinking Water Fees
  - $0.03/1,000 gal. = $3.4 million/year
  - 85% to Lake Restoration and Protection (per 2005 legislation)
- Initial project - Mission Lake
- Potential Future Projects:
  - Washington County RWD#1
  - Augusta Lake
  - Cedar Lake-Olathe
  - Gardner Lake
  - Osage City Reservoir
  - Santa Fe Lake-Augusta.

Reservoir Sustainability Initiative

Secure, Protect and Restore

- Secure
  - State owned storage in our federal reservoirs for use now and in the future.
- Protect
  - Our investment & maintain healthy watersheds through streambank stabilization, conservation easements, WRAPS & watershed structures.
- Restore
  - Impaired streams & riparian areas to extend life of our reservoirs
  - Existing water supply storage in existing lakes & reservoirs

Kerry Wedel

Watershed Restoration and Protection.

Kansas WRAPS

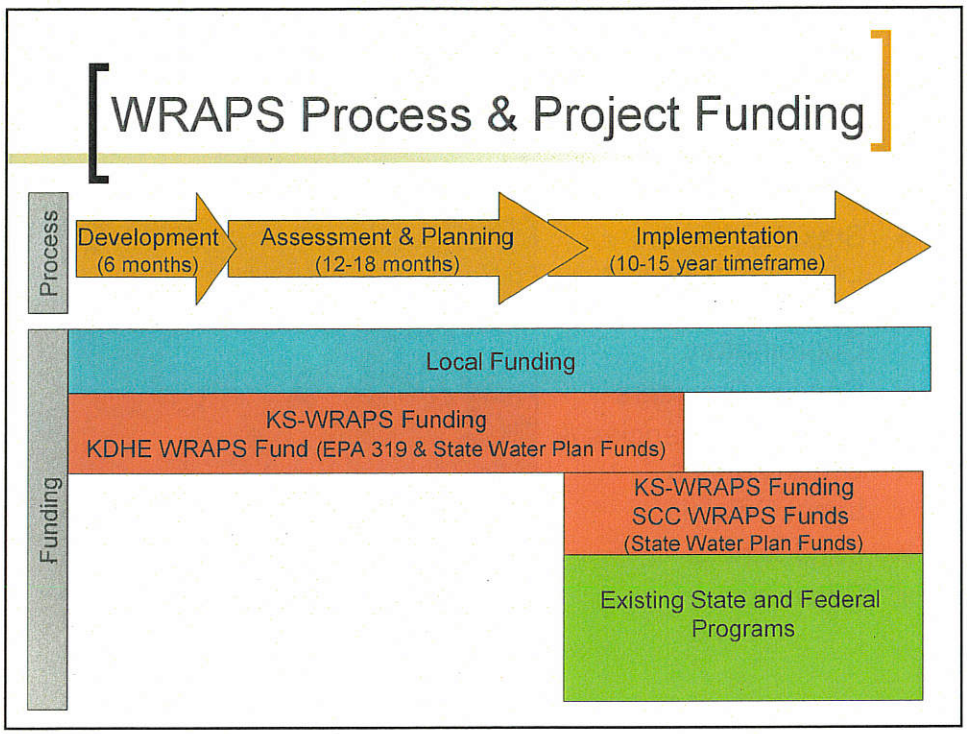
- Framework for stakeholders to protect and restore Kansas watersheds through collaborative planning and management.
- 2004 - Integrated with the Kansas Water Planning Process to address basin priority issues
- Designed to:
  - Support local stakeholders for watershed coordination, assessment and planning activities
  - Address multiple state and local priority issues
  - Utilize/supplement existing BMP implementation programs for watershed restoration and protection

WRAPS is about Collaboration

- Stakeholder Leadership Teams
- Watershed Coordinators
- Service Providers
- Resource Agencies & Organizations
- Local Officials
- Landowners
- Citizens

WRAPS Process

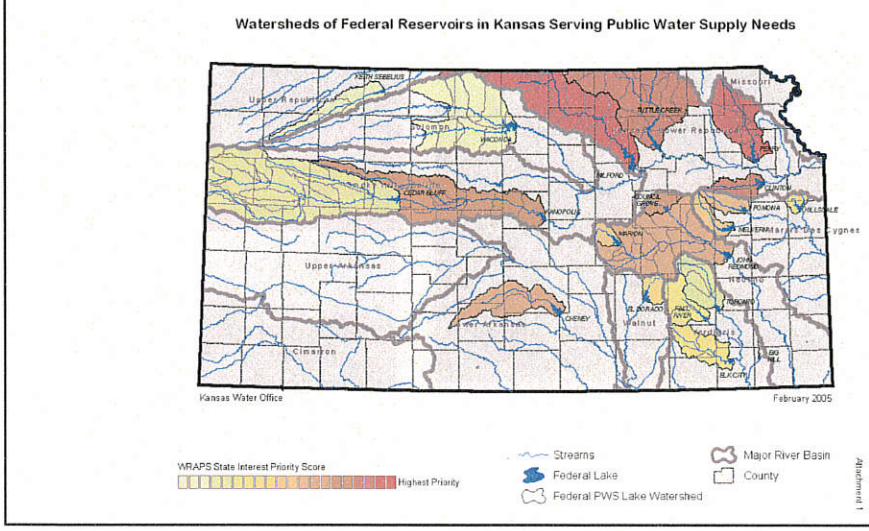
Development		Evaluation	Stakeholder community building
Assessment			Watershed conditions & behavior
Planning			Watershed goals & plan selection
Implementation			Carry out actions & achieve plan goals



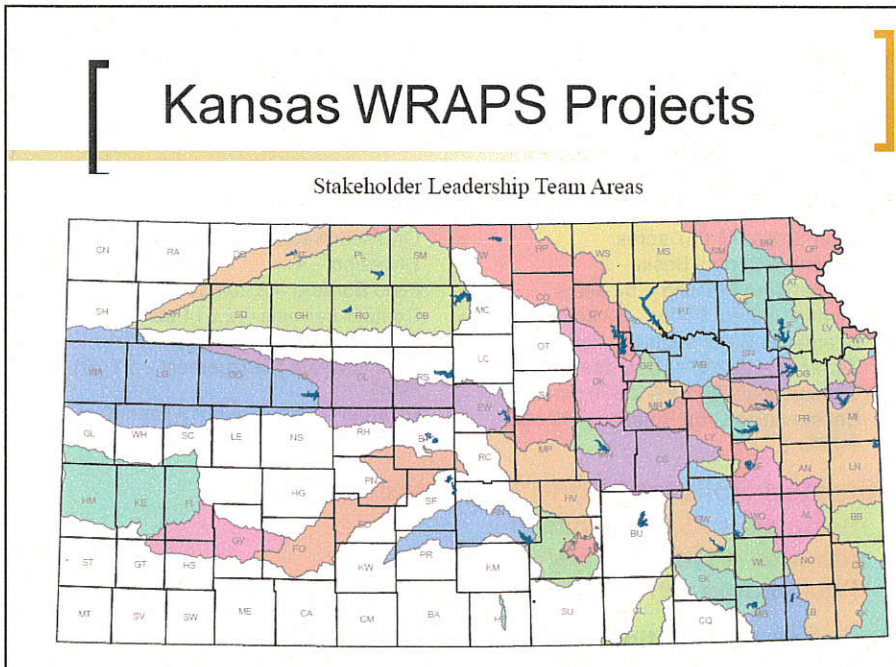
WRAPS – Priority Issues

- **STATE**
  - Restore Water Quality Impaired Surface Waters (Total Maximum Daily Loads)
  - Reduce Reservoir Sedimentation
  - Source Water Protection
  - Surface Water Nutrient Reduction
  - Riparian and Wetland Management
- **LOCAL - ?**

State Priority Reservoir Watersheds



Kansas WRAPS Projects



Best Management Practices

WRAPS Program Accomplishments
(October 1, 2007 - September 30, 2008)

Examples of Erosion Control/Sediment Mgmt Practices Installed

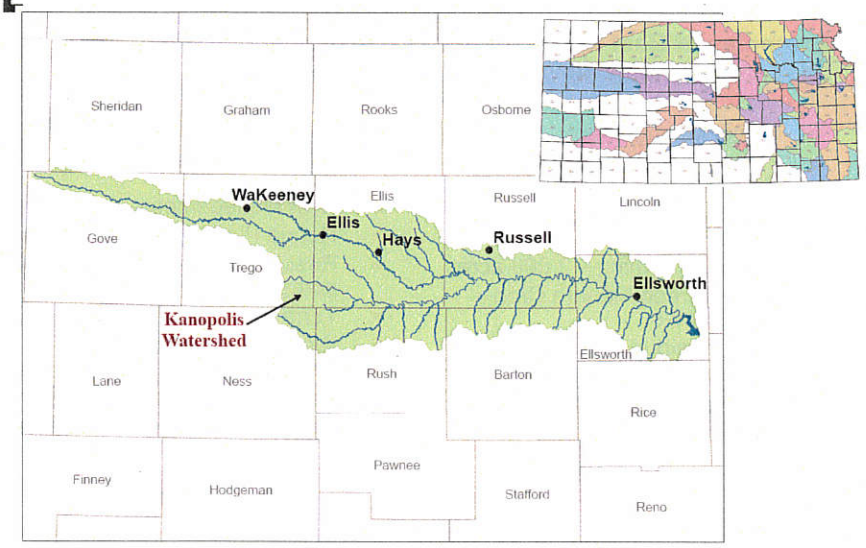
- Filter Strips – 1,057 acres
- Sediment Control Basin – 2
- Critical Area Planting – 52 acres
- Riparian Forest Buffer – 32 acres
- Alternative water supplies - 24
- Terraces – 222,574 linear feet
- Conservation Tillage – 2,670 acres
- Conservation Crop Rotation – 12,586 acres
- Grassed Waterways – 515 acres
- Diversion – 4
- Field Borders – 2,204 acres
- Contour Farming – 2,314 acres
- Cover Crop – 3,490 acres
- Crop Residue Management – 21,361 acres
- Riparian fencing – 43,319 linear feet

Estimated Pollutant Load Reductions:

- **Sediment = 25,038.8 tons/yr**
- **Nitrogen = 184,511.1 lbs/yr**
- **Phosphorus = 97,620.6 lbs/yr**

Information & Education: Over 5 million citizen contacts

Big Creek & Middle Smoky Hill R. (Kanopolis Lake) WRAPS



Big Creek & Middle Smoky Hill R. (Kanopolis Lake) WRAPS

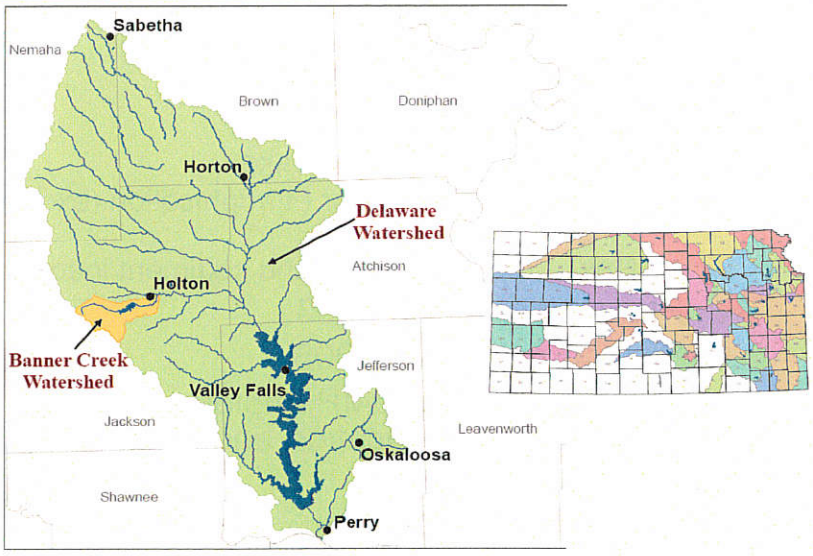
- 2,414 square mile watershed
- Kanopolis Lake
  - State Water Marketing Lake
  - High Priority TMDL for eutrophication (excess nutrients)
  - Goal – reduce nutrient and sediment loading
- Project initiated in 2003
- Plan completed in 2005
- Current focus on BMP Implementation, Information & Education and Monitoring

Big Creek & Middle Smoky Hill R. WRAPS Accomplishments

Examples of Best Management Practices Installed (October 1, 2007 – September 30, 2008)

- Brush Management – 561 acres
- Conservation Crop Rotation – 6,118 acres
- Conservation Tillage – 2,670 acres
- Contour Farming – 2,003 acres
- Cover/Green Manure Crop – 3,490 acres
- Crop Residue Use – 814 acres
- Fence – 3,402 linear feet
- Grazing - Prescribed – 2,505 acres
- Livestock Exclusion – 1,011 acres
- Nutrient Management – 12,292 acres
- Pest Management – 2,688 acres
- Range Planting – 4,865 acres
- Residue Management – 20, 547 acres
- Terrace – 180,642 linear feet
- Watering Facility – 5
- Wildlife - Upland Area Management – 2,596 acres
- Habitat Restoration – 600 acres

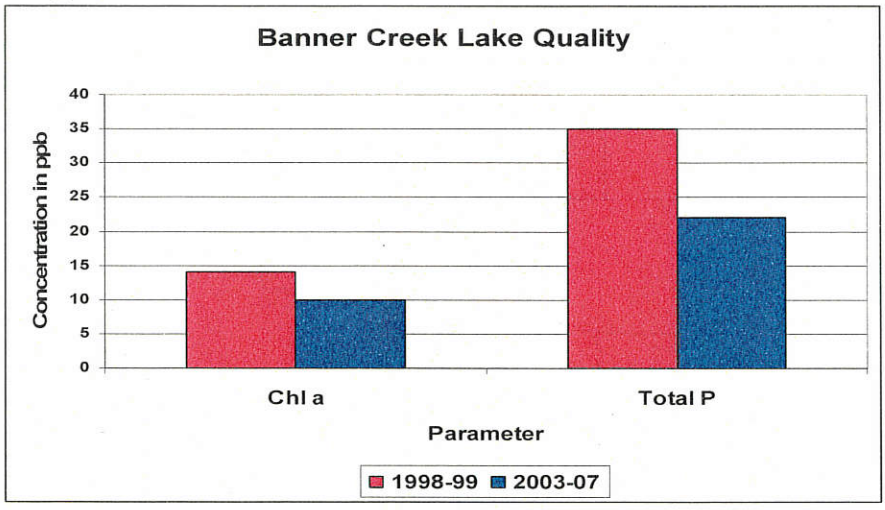
Delaware and Banner Creek WRAPS Watersheds



Delaware WRAPS

- 1,157 square mile watershed
- Project initiated in 2005
- Plan completed in 2007
- Perry Reservoir
  - State Water Marketing Lake
  - Reservoir Sedimentation Issues
- Current focus:
  - Information & education; riparian/streambank assessments; BMP workshops/tours; household hazardous waste; future BMP implementation projects

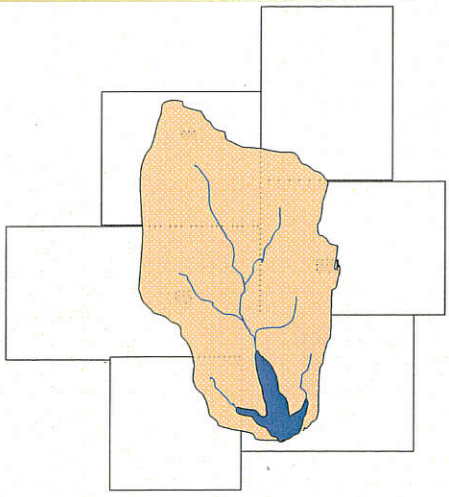
An Early WRAPS Success Story



WRAPS Summary

- Relatively new program - many projects beginning implementation phase
- Provides the framework and support for watershed stakeholders to address water resource issues collaboratively
- Program beginning to show results
- Stakeholder collaboration & support is key to success

Watershed Community



Greg Foley

Current Status of Management Practices to Control Sediment.

SCC KANSAS

Sediment Control Statewide State FY 2008

- Water Resources, Non-Point Source Pollution Control and the Riparian and Wetland Protection Programs:
  - Acres Protected = 47,570
  - Tons of Soil Saved = 697,273

Sediment Control Watersheds Above Reservoirs/Lakes

Reservoir/Lake	Acres Protected	Tons of Soil Saved
Milford	1,031	4,526
Perry	153	1,930
Tuttle	3,118	6,401
Clinton	12	144
Cheney	224	2151
Hillsdale	32	243
Melvern	112	348
Pomona	217	1,425
Council Grove	85	508

FFY 2008 NRCS EQIP Sedimentation Practice Implementation

- Under the category of Water Quality the NRCS implemented 624 projects statewide for $8.3 million the majority of which were erosion and sediment control practices.

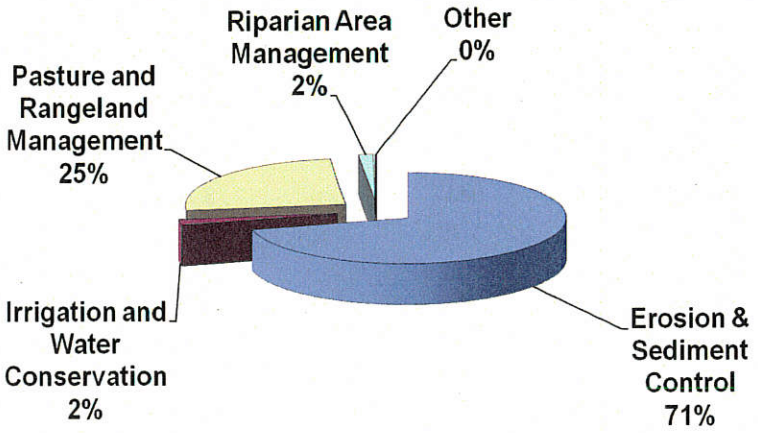
Sediment Control Watersheds Above Reservoirs/Lakes (cont.)

Reservoir/Lake	Acres Protected	Tons of Soil Saved
John Redmond	656	2,749
Marion	275	2,370
Cedar Bluff	3,159	3,498
Kanopolis	941	8,238
Waconda	1,784	8,347
Kieth Sebelius	1,026	2,628
Elk City	40	552
Fall River	0	0
Toronto	0	0

Water Resources Cost-Share Program FY 2009 Allocations

- **Total: $3,403,136**
  - District Needs - $2,717,511 (105 CD's)
  - TMDL - $ 566,625 (69 CD's)
  - T/A - $ 119,000

FY 2008 WR Project Implementation
Percent of Total Cost-share Committed



Water Resources Cost-Share Program

Erosion/Sediment Control

Pasture & Rangeland Practices

Water Resources Cost-Share Program

Riparian Area Protection & Enhancement

Irrigation & Water Conservation

Wetland Development/Restoration

Non-Point Source Pollution Control Cost-Share Program

Riparian Area Protection

Sediment Control

Abandoned Water Well Plugging

Non-Point Source Pollution Control Cost-Share Program

Livestock Waste System

Pasture & Rangeland Management

On-site Wastewater System

Nutrient Management

Streambank Protection Projects in WRAPS Watersheds Above Federal Reservoirs (SFY 08)

Reservoir	Projects	Cost-Share Funds
John Redmond	1	$122,500
Kanopolis	3	$38,145
Marion	2	$40,266
Perry	3	$48,793
Pomona	1	$4,220
Tuttle Creek	10	$289,423
Milford	0	$0
total	20	$533,347

Streambank Restoration

- Bank Stabilization (Weirs, Shaping)
- Revegetation
- Riparian Forest Buffers (Continuous CRP)
- Filter Strips (Continuous CRP)

FY 2006-2009 Commitments

- Federal FY 2005-2008 EQIP Signup
  - 60 Stream Restoration Projects
- State FY 2006-2009 Riparian and Wetland Funds ($504,000 SWP Funds Committed)
  - EQIP 50/50 Cost-Share
  - Supplemental Cost-Share

Summary

- 60 Streambank restoration projects.
- 17 miles of riparian area restored.
- $504,000 SWP Funds Committed
- $631,000 administered in Technical Service Provider contracts.
- Over $2,500,000 in combined Federal, State, and landowner project cost.

Multipurpose Small Lakes Program

Objectives:

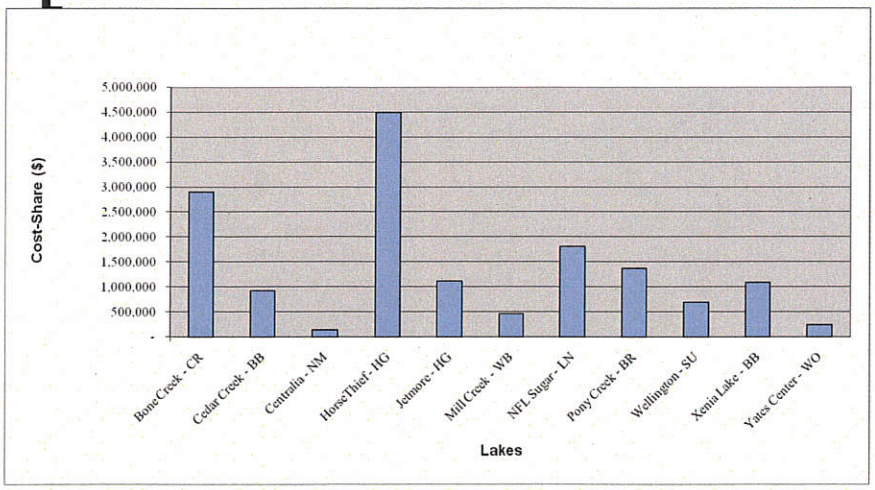
The objective of this program is to develop, to its fullest potential, a site that is being planned flood control and water supply or recreation. Projects funded by the legislature will receive assistance in the form of a grant for flood control and, if included, recreation. Funds appropriated for the water supply component shall be on a loan to be paid back to the state.

Activities:

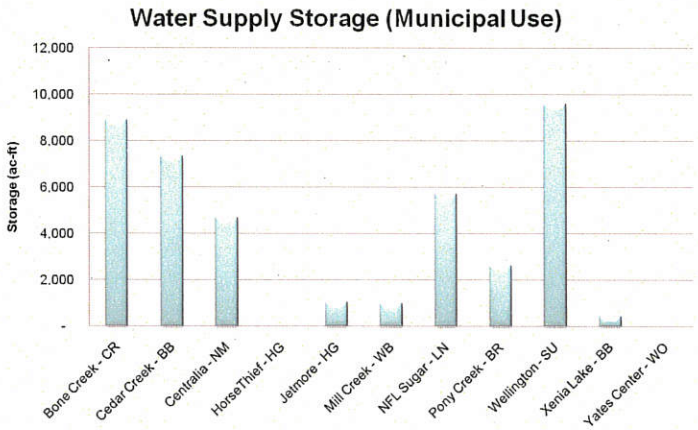
Since inception, 1985

- **Cost-shared on 11 structures**
- **Funding: $15.2 million**

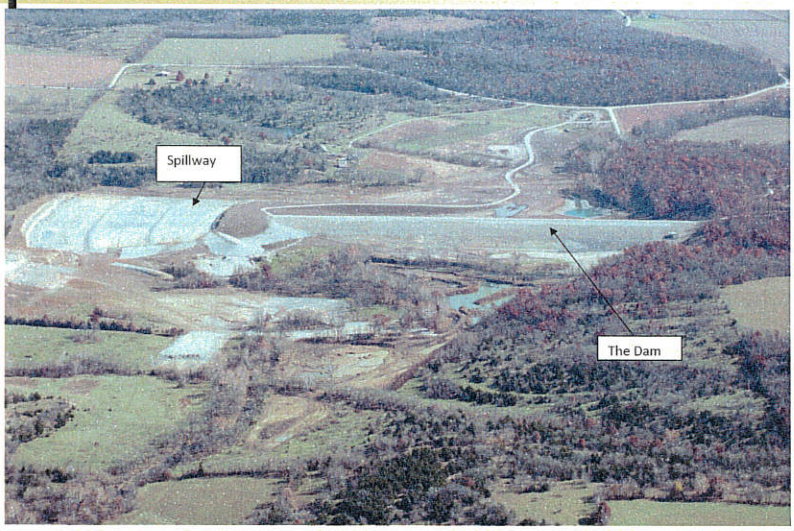
Multipurpose Small Lakes Program



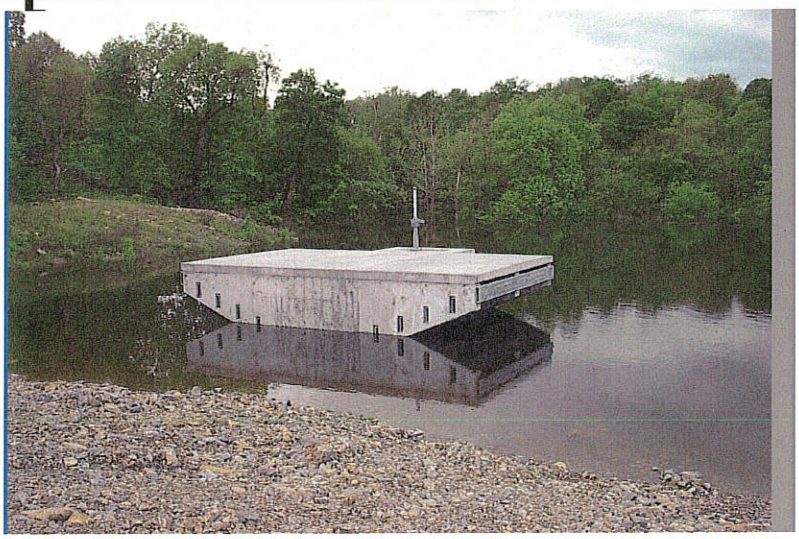
Multipurpose Small Lakes Program



Multipurpose Small Lakes Program



Multipurpose Small Lakes Program



Water Supply Restoration Program

State Water Plan Funds derived from the Clean Drinking Water Fee Fund (House Bill No. 2018).

Enacted 2007

Objectives:

- To assist eligible sponsors to restore and protect water supply systems where appropriate watershed restoration and protection are planned or in place.

Activities:

- **Pilot project: Mission Lake, Horton, Kansas: $2.6 million**
- **Washington County RWD No.1: $3.7 million (only** $882,069 committed yet)

Water Supply Restoration Program

Rank	Project Name	Sponsor	County	Basin	Year Built	Total Cost
1	Gardner Lake	Gardner	JO	KR	1937	1,000,000
2	Osage City Lake	Osage City	OS	MD	1913	2,725,083
3	Cedar Lake	Olathe	JO	KR	1938	7,711,408
4	Santa Fe Lake	Augusta	BU	WA	1927	8,743,600
6	Augusta Lake	Augusta	BU	WA	1932	6,200,000
7	Eureka Lake	Eureka	GW	VE	1938	1,000,000

Watershed Dam Construction Program

1. New Construction of dams above federal Reservoirs
2. Repair failing existing flood control dams
3. Cost-Share on Breach Inundation Maps

FY 2008 Activities:

- **Construction ($688,600):** 8 new flood control dams
- **Rehabilitation ($176,954):** 11 existing flood control dams
- **Breach Inundation Maps ($167,093):** 46 Sites

Ken Stark

Regional Sediment Management

US Army Corps of Engineers ®

Key Concepts of Regional Sediment Management

- Recognize sediment as a resource
- System-based approach – watershed perspective
- Understand and work with natural processes
- RSM includes:
  - navigation channel dredging & disposal
  - ecosystem restoration
  - flood control
  - hydrosystem operations
  - ESA species recovery actions
  - regulatory actions

Key Concepts of Regional Sediment Management

- Develop regional strategies for both environmental and economic benefits
- Strategic alliances with stakeholders – agencies, local sponsors, interest groups
- Activities and solutions go beyond traditional project boundaries and time scales
- Implement more efficient solutions

SEC. 2037, WRDA 2007 REGIONAL SEDIMENT MANAGEMENT

- Amends
  - Sec 204 of WRDA 92
  - Sec 207 of WRDA 96
  - Sec 145 of WRDA 76

Authorizes Corps participation in developing "regional sediment management plans," in cooperation with States.

The Old

Each Civil Works project goes it alone with its own budget; Corps Division sets priorities; sediment passed to next project

The New

Civil Works projects and stakeholders in a watershed work together with common goals to manage sediment as a natural resource for environmental sustainability and economic benefits