Kansas Water Office

Reservoir Sustainability Initiative

Presented to
U.S. Army Corps of Engineers
Institute for Water Resources
Water Supply Workshop
June 2-4, 2009

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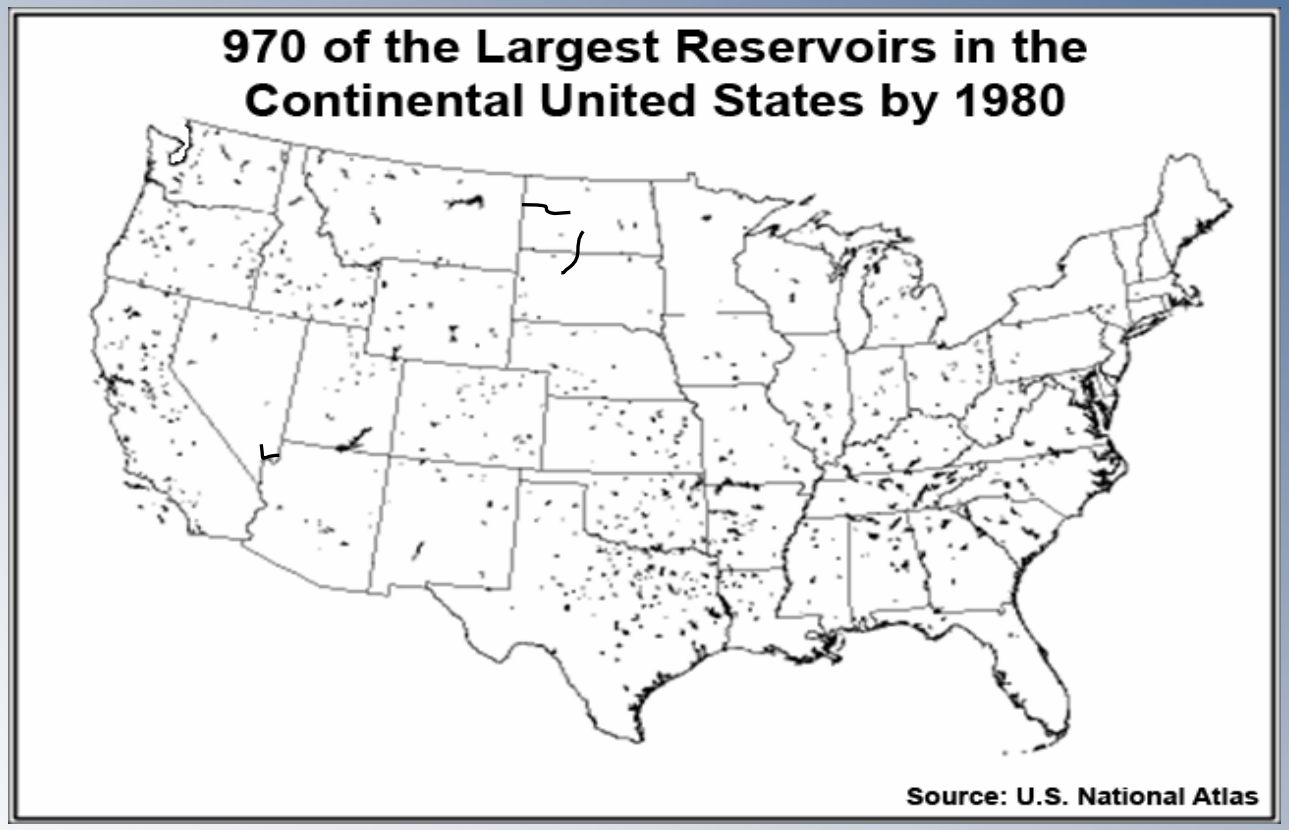
Reservoir Nationwide



More than two million reservoirs of all sizes
1,275 federal reservoirs, the largest being 307,000 acres

So what about Kansas?

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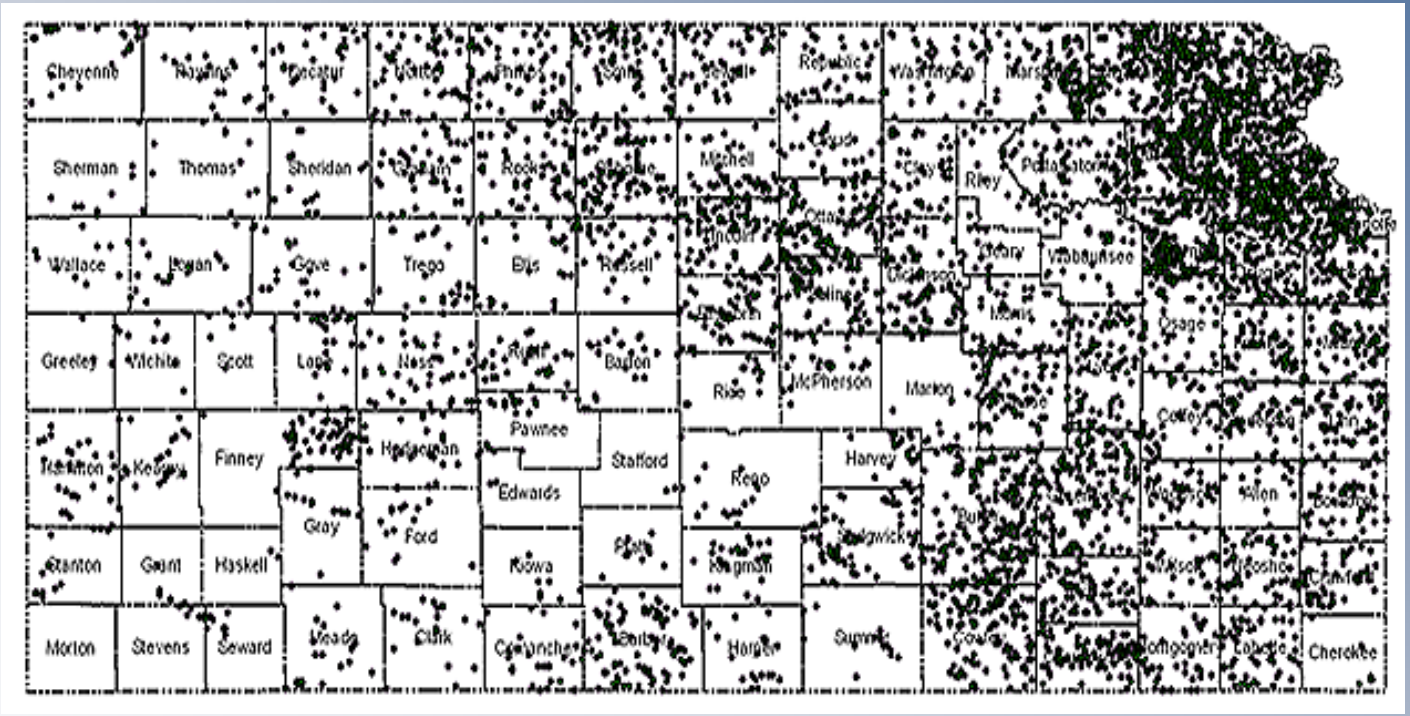
Federal, State, and Local Reservoirs in Kansas

5847 on the National Inventory of Dams



- 120,000 reservoirs of all sizes, incl. farm ponds
- Drinking water for more than 60% of Kansans
- More than $6 billion estimated construction costs in today's dollars

- Reservoirs used for drinking water: 93
  - Average age = >50 years old
- Designed life expectancy 50-100 years

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What's the Problem ?

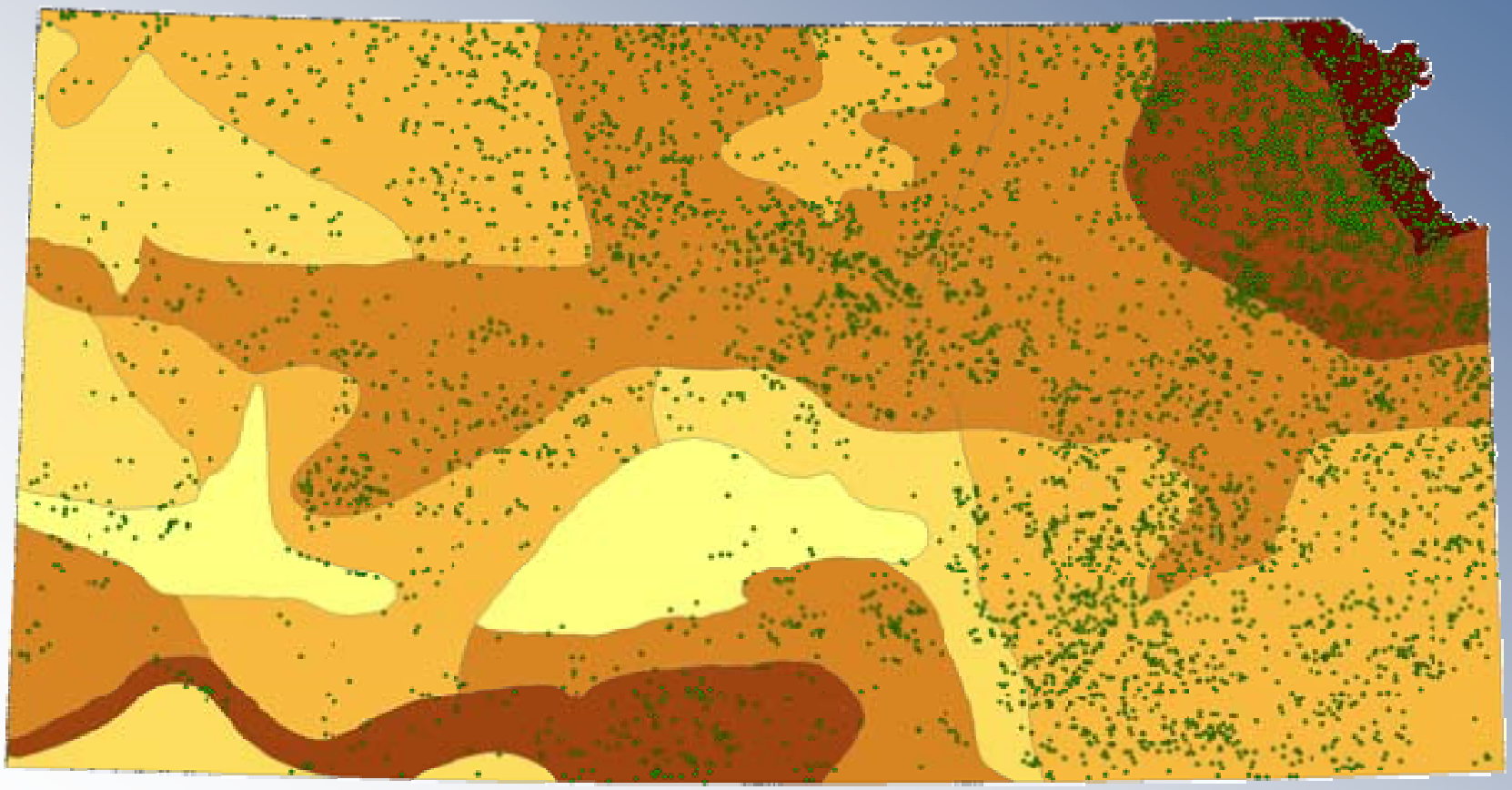
VERY few natural lakes in Kansas

Natural origin
Supportive environment
Lifespan ~ thousands of years
Usually not actively managed

Artificial origin (constructed)
Less supportive environment
Lifespan ~ 50-100 years
Active management

Sediment Yield

4000 of the larger reservoirs are in the 3 highest yield zones



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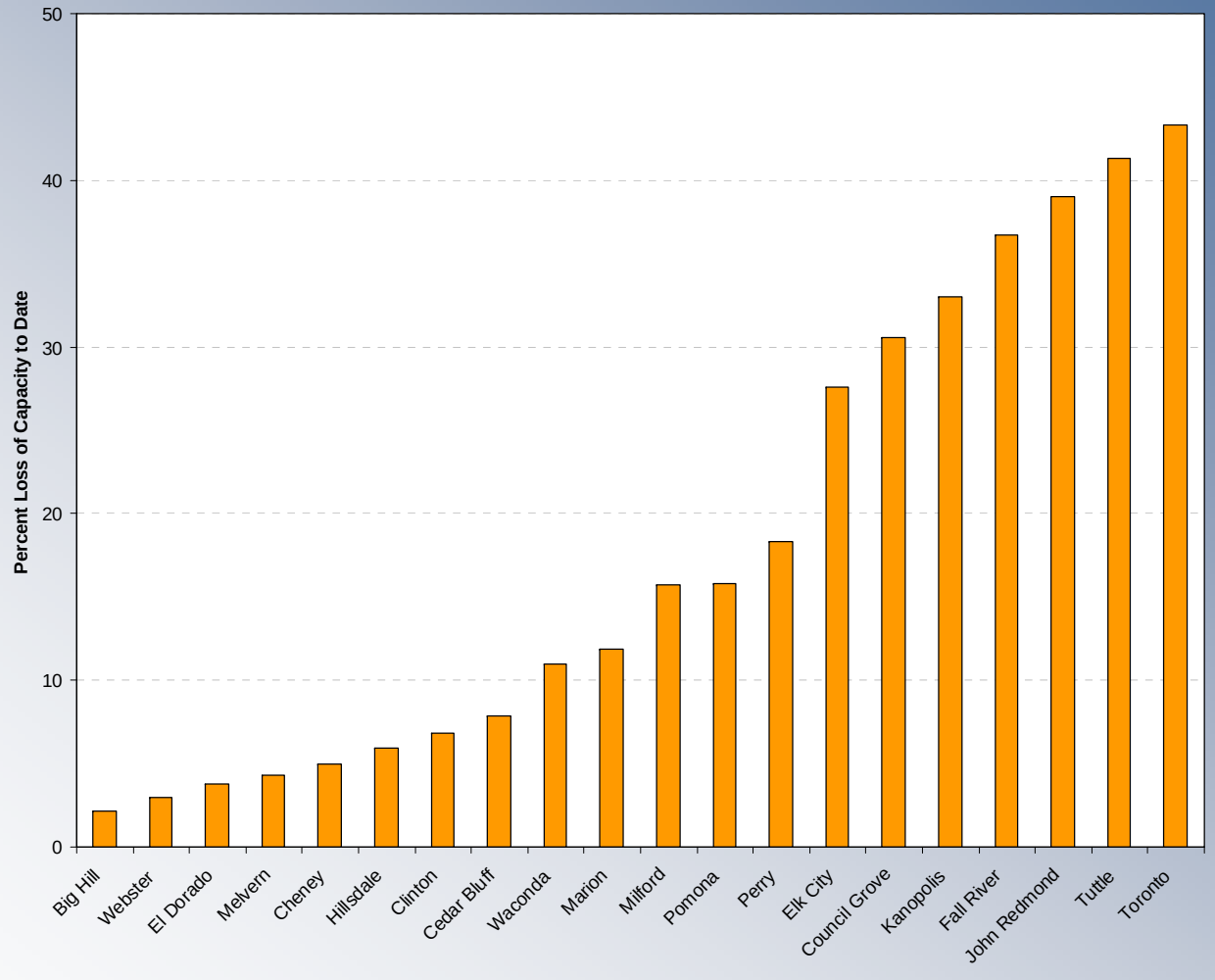
Loss of Capacity



Remember, most U.S. natural lakes are greater than 10,000 years old

Siltation Rates

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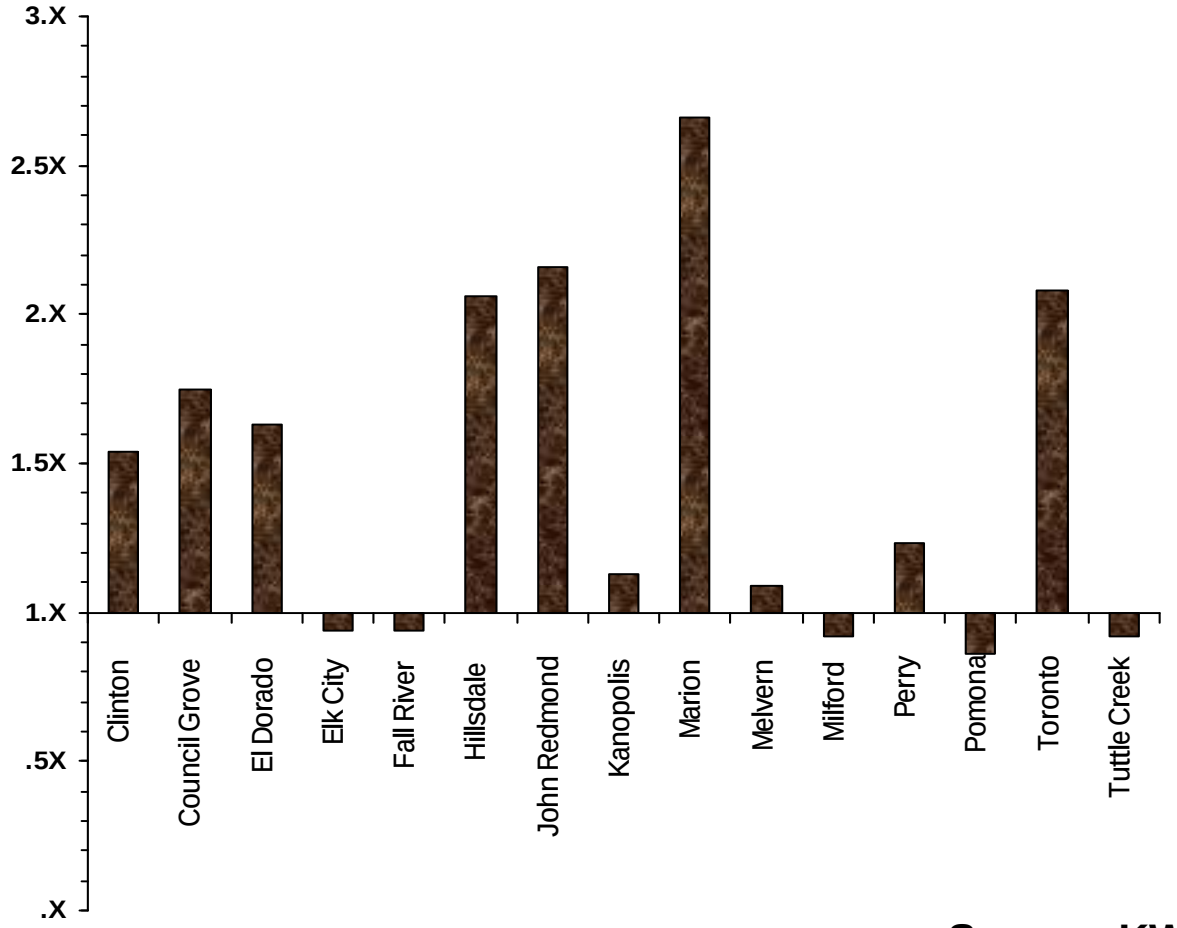
Actual sedimentation rate GREATER than designed rate

Actual sedimentation rate LESS than designed rate



Source: KWO

Water Marketing/Water Assurance Programs

- Two separate programs make use of storage in federal reservoirs
  - Water Marketing Program
  - Water Assurance Program
- Both make use of conservation storage in the reservoirs
- Both are dedicated to meet municipal and industrial needs

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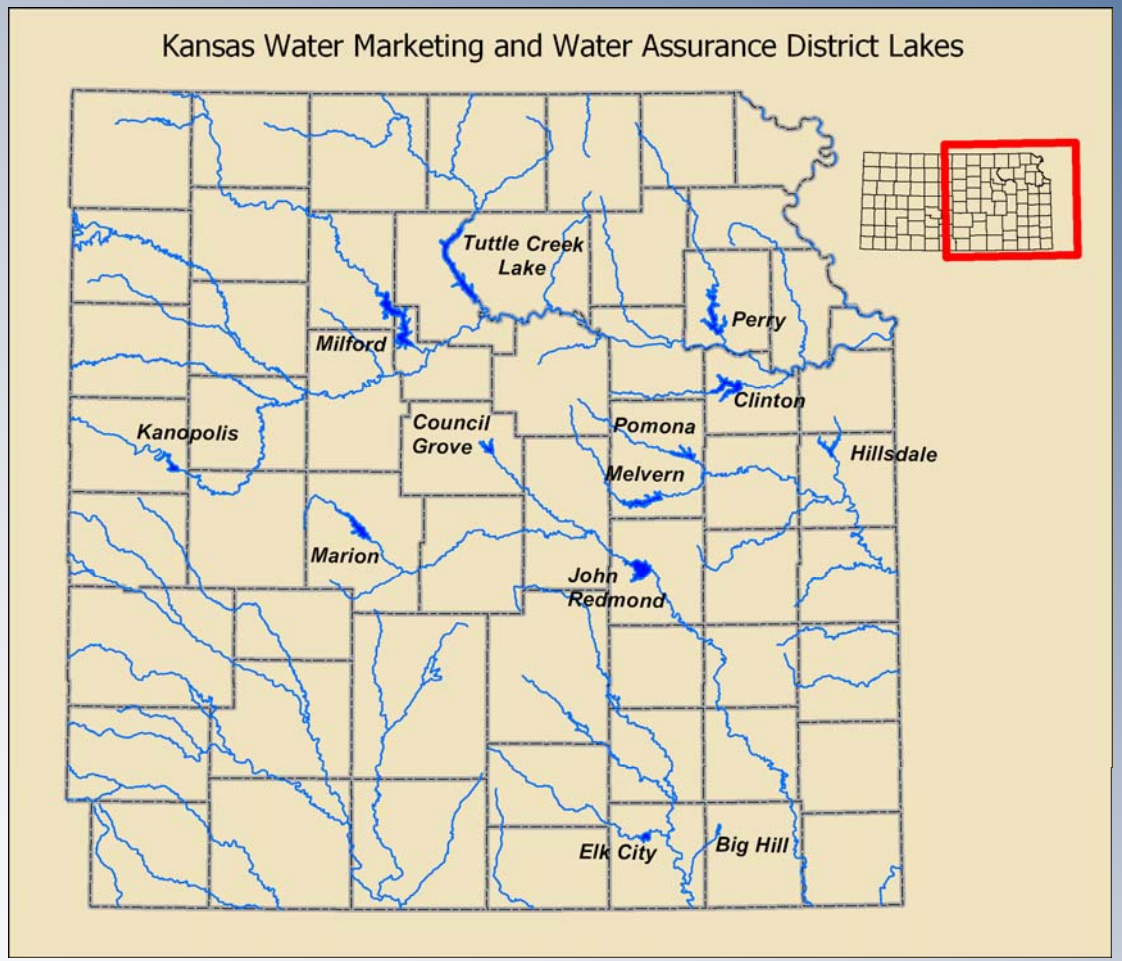
Water Marketing/Water Assurance Programs



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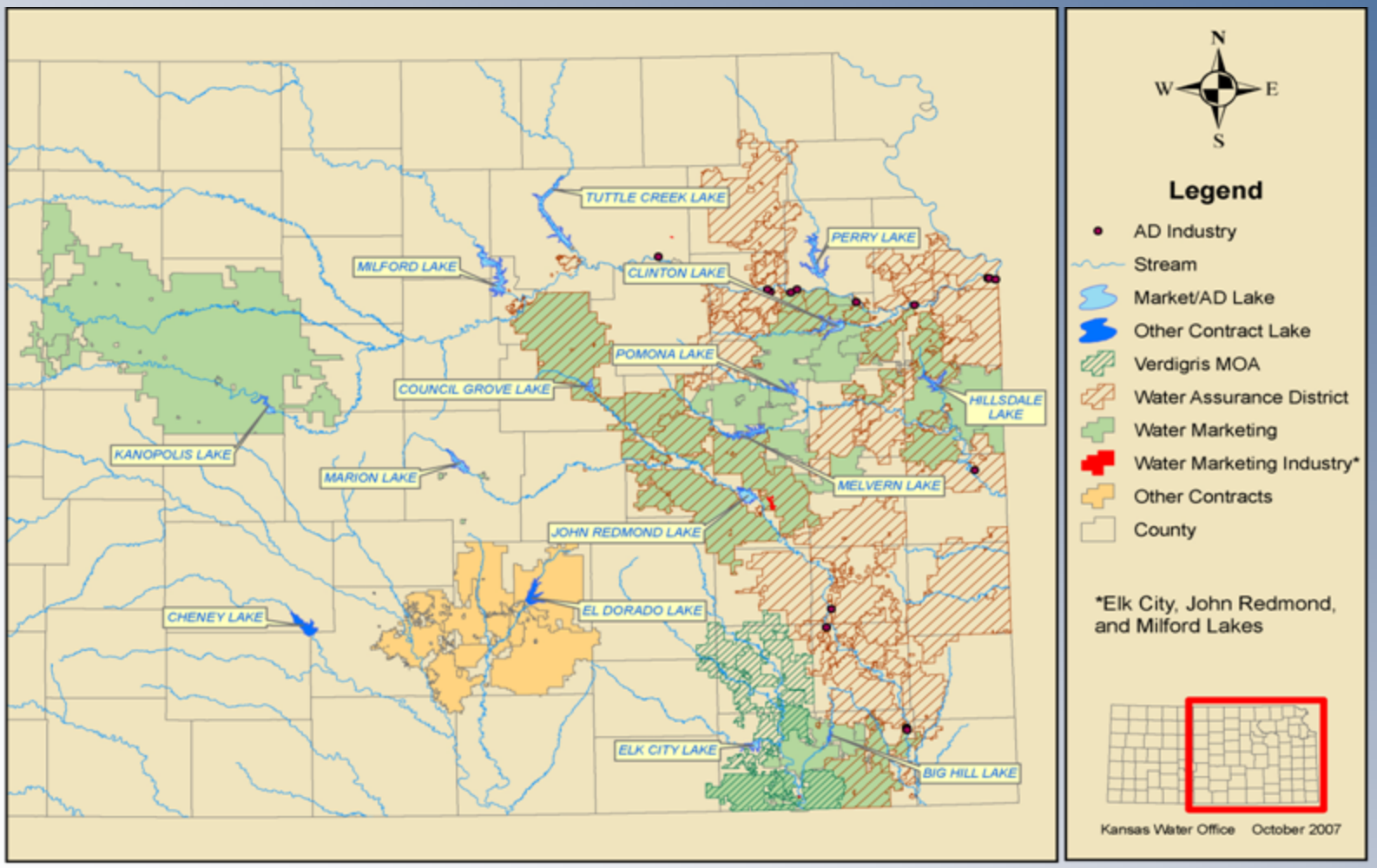
Federal Lake Water Supply Storage Customers



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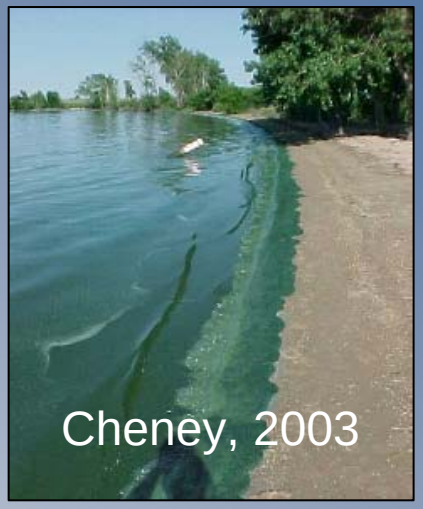
Sedimentation-related problems occur in nearly ever reservoir in the state


Kanopolis, 2006


Cheney, 2003


Lake Dabinawa

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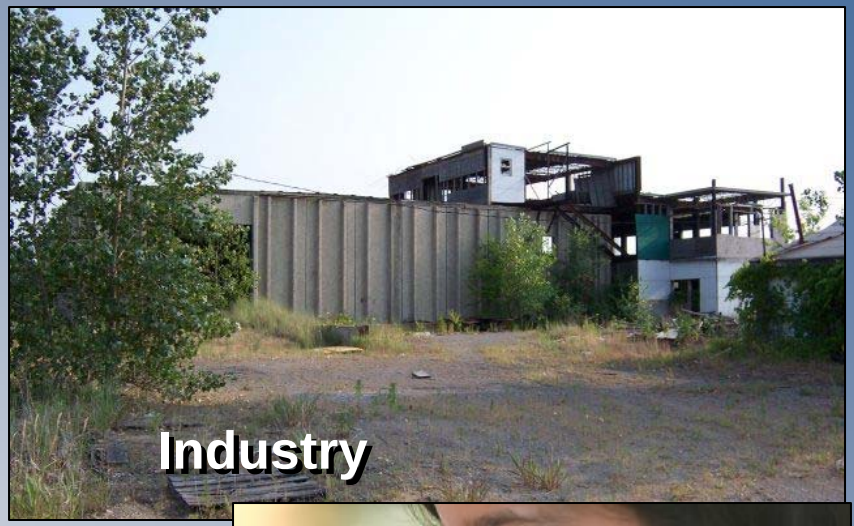
Direct and indirect economic consequences of siltation in our reservoirs may well exceed the flood control value



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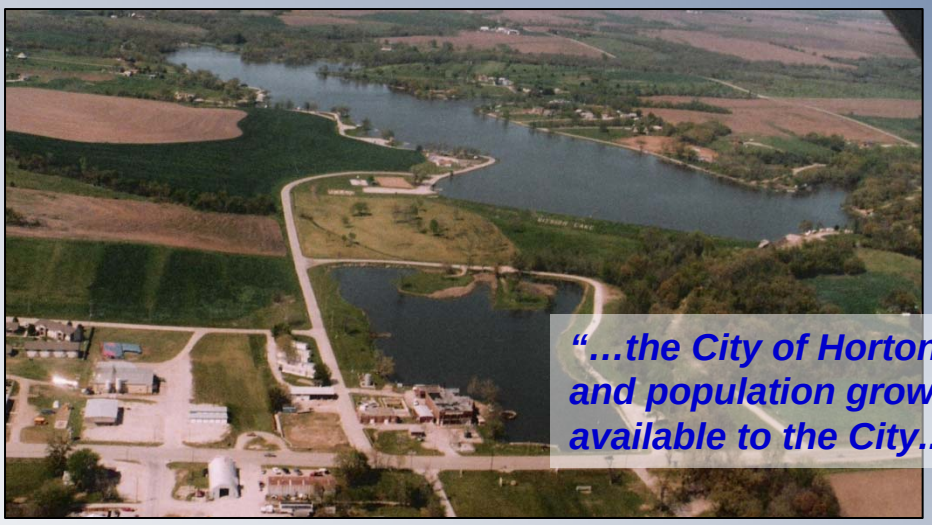
Reservoirs should be thought of as *critical economic infrastructure: a multi-billion dollar investment*



"…the City of Horton is going to be limited in economic and population growth by the amount of water that is available to the City…. (City of Horton, 2006)

By comparison:

"Area transportation planners have identified $732 million worth of road projects needed in Douglas County between now and 2030." (Lawrence Journal-World, 2/2/08)

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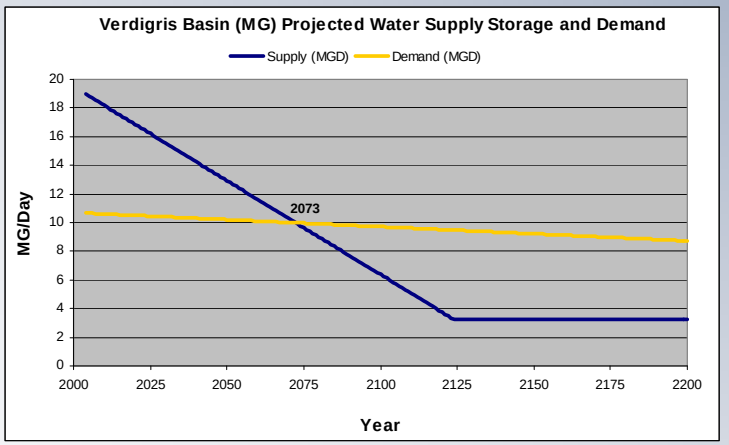
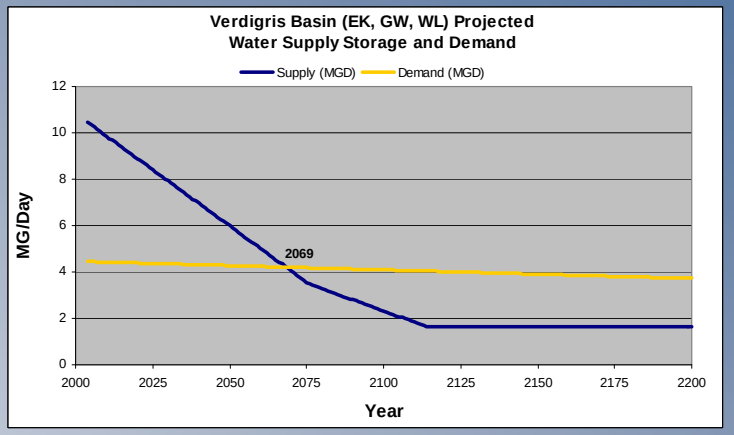
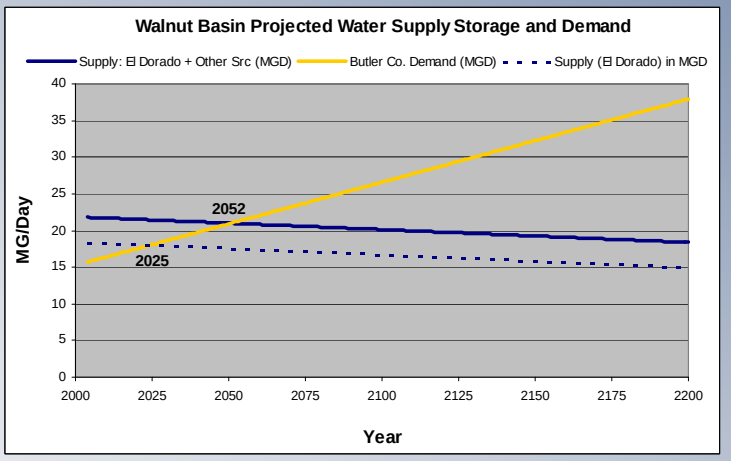
Supply vs. Demand







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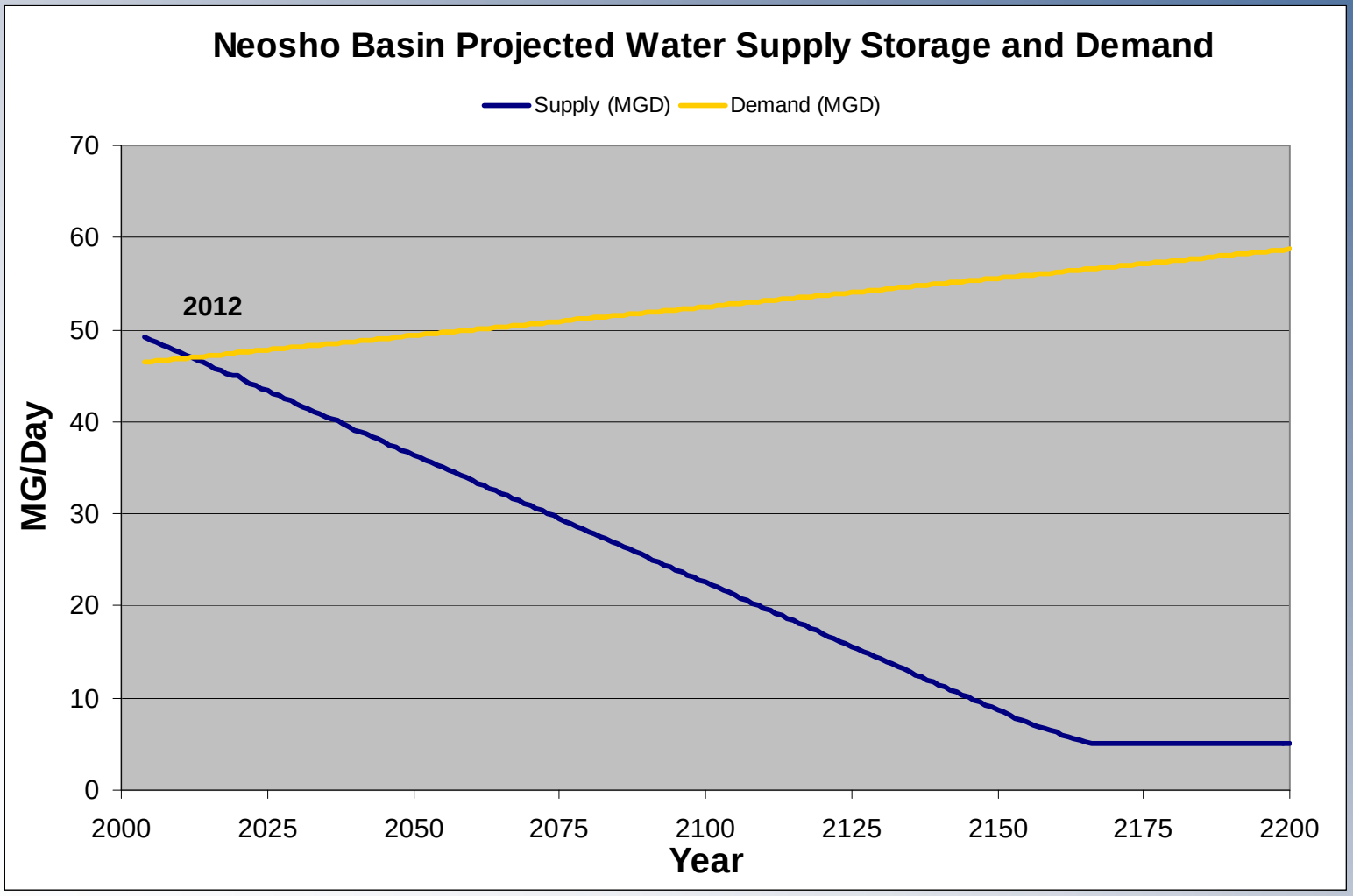
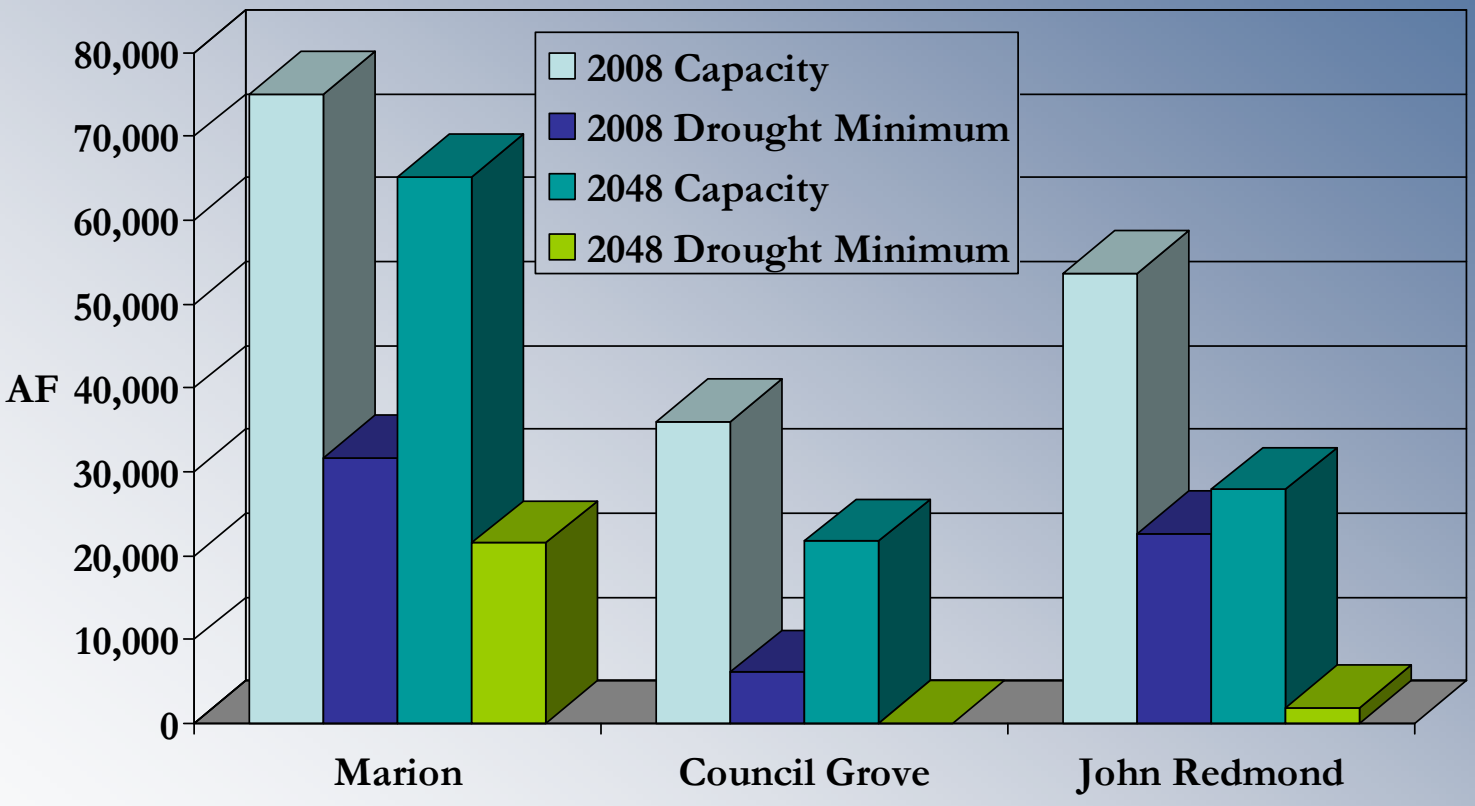
Supply vs. Demand



Effects of Sedimentation



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Paraphrasing Dr. Theodor Geisel,

renowned Pulitzer Prize winning author and political satirist

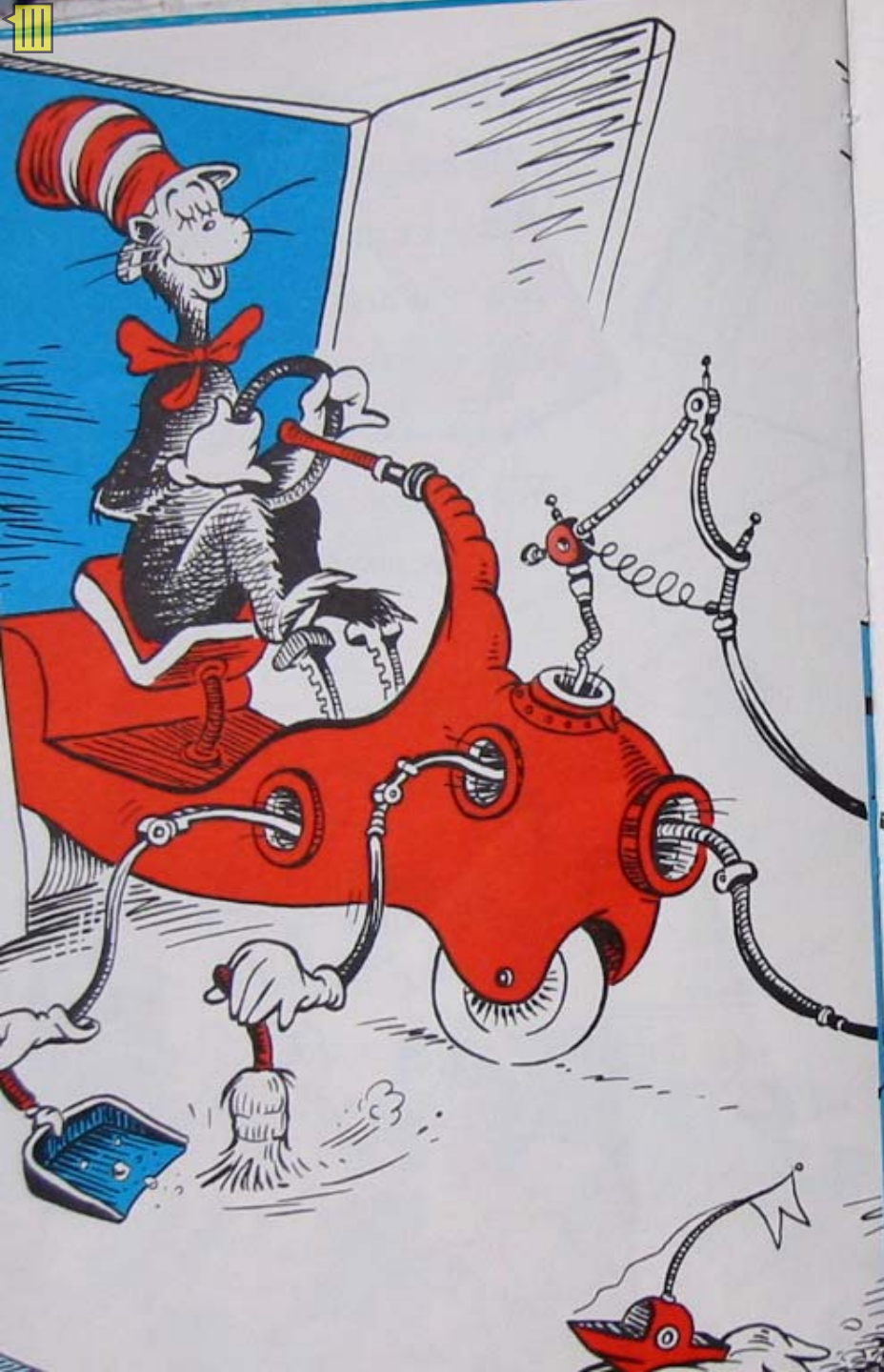
. . . sometimes the immensity of the problem is so great, that for that reason alone, we become incapable of addressing the issue.

Then he shut up the Things
In the box with the hook.
And the cat went away
With a sad kind of look.

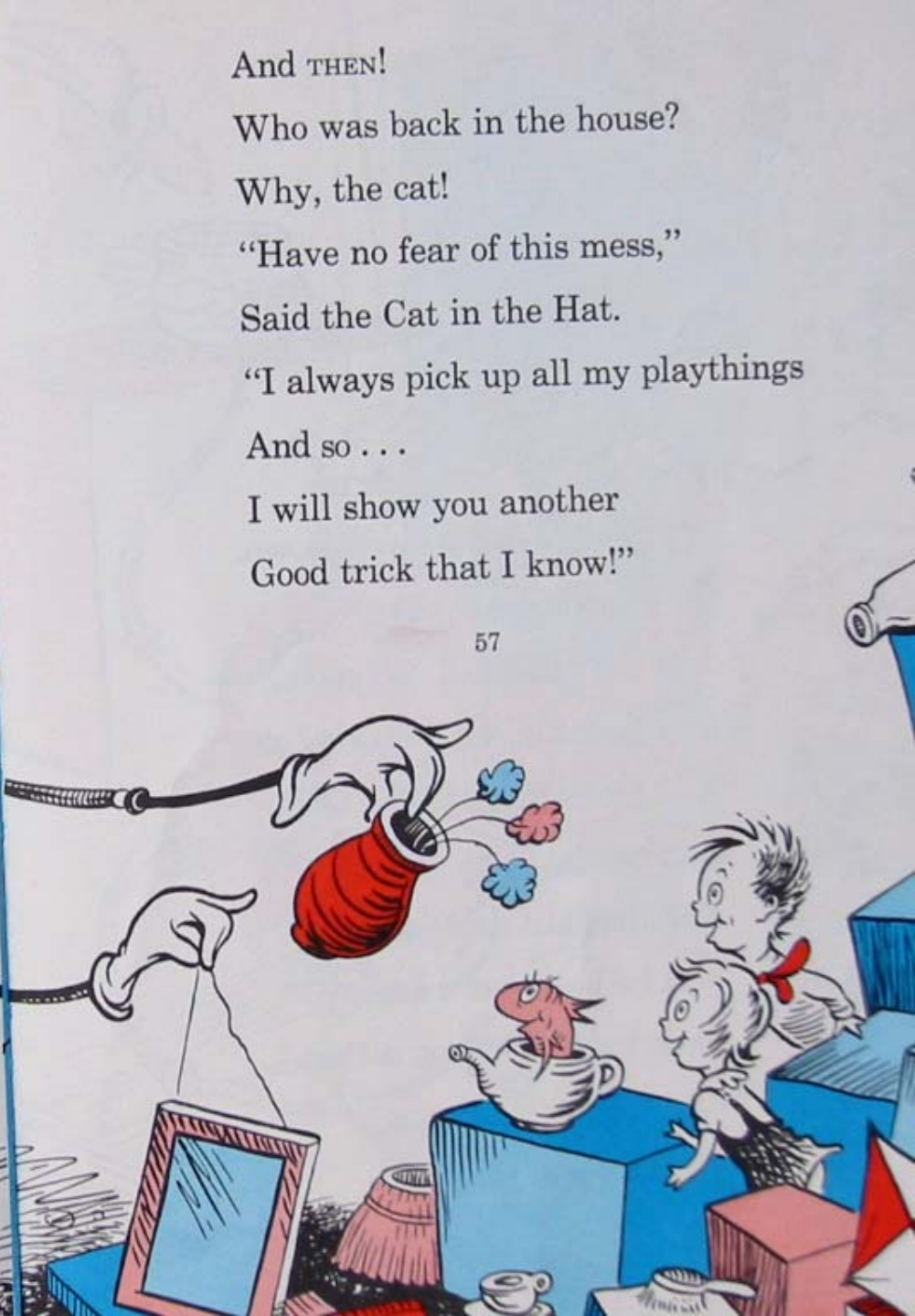
"Cat in the Hat" Syndrome

"That is good," said the fish.
"He has gone away. Yes.
But your mother will come.
She will find this big mess!

And this mess is so big
And so deep and so tall,
We can not pick it up.
There is no way at all!"



And THEN!
Who was back in the house?
Why, the cat!
"Have no fear of this mess,"
Said the Cat in the Hat.
"I always pick up all my playthings
And so . . .
I will show you another
Good trick that I know!"



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Reservoir Sustainability Initiative

Secure. Protect. Restore.

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Reservoir Sustainability Initiative

- **Secure** state owned storage in our federal reservoirs for use now and in the future.
- **Protect** our investment and maintain healthy watersheds through conservation easements and streambank planning.
- **Restore** impaired streams and riparian areas to extend the life of our reservoirs.

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Secure.

- Complete minimal pool agreement at Webster
- Increase State-owned storage
- Reallocate storage
- Commit additional revenue sources

Pool Raise

- Kansas Water Office has two contracts with the U.S. Army Corps of Engineers for purchase of storage in John Redmond Reservoir.
- Reallocation Study underway to raise pool from 1039 to 1041.

	John Redmond Reservoir Condition			
	No Pool Raise		***Pool Raise***	
	Current	2018	Current	2018
Number of Days When Marketing Capacity is Empty	55	85	0	8

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Protect.

- Riparian Conservation Easements
- Streambank Stabilization

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Streambank Stabilization

Restore.

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Restore.

- Streambank Planning
- Sediment Removal
- Dam Safety/Rehabilitation
- Neosho Logjam Removal

Sediment Removal

- Dredging of smaller lakes in Kansas has been successful
- Restore storage and recontour lake bottom to improve trapping efficiency

Restore.

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Dam Safety/Rehabilitation

- More than 6,000 dams in Kansas
- Average age greater than 40 years
- Some exhibiting structural deficiencies or changes in hazard class

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Neosho Logjam

- Extends 2.25 miles upstream of John Redmond
- Obstructs recreational access to river
- Option to remove logjam and dredge portion of reservoir

Restore.

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Conclusions

- Reservoirs hold more than water – they hold our future.
- We've learned a lot. We've taken positive action. We need to do more.
- Developing long-term funding and partnerships to assure reservoir sustainability is essential.

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Questions?

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