

SUBCOMMITTEE ON SEDIMENTATION

Report to the Advisory Committee on Water Information

July 14, 2010

John R. Gray, SOS Chair

jrgray@usgs.gov

USGS Office of Surface Water, Reston, VA



Subcommittee on Sedimentation

SOS MEMBERSHIP – 15 organizations

- Agricultural Research Service
- American Society of Civil Engineers
- Consortium of Universities for the Advancement of Hydrologic Science
- Bureau of Land Management
- Colorado Water Resources Research Institute
- Federal Highway Administration
- Forest Service
- National Center for Earth-surface Dynamics
- National Oceanic and Atmospheric Administration
- Office of Surface Mining
- Bureau of Reclamation
- University Councils on Water Resources
- Army Corps of Engineers
- U.S. Environmental Protection Agency
- U. S. Geological Survey

Subcommittee on Sedimentation

DAM REMOVAL/SEDIMENT MANAGEMENT

- Goal: Develop guidelines for managing sediments impounded by dams slated for removal
- Workshops held in 2008 (Portland, OR) and 2009 (State College, Pennsylvania)
- Guidelines written and evaluated via test cases
- ASCE might publish the guidelines
- Bureau of Reclamation Lead

Subcommittee on Sedimentation

- Goal: Render river morphology data accessible for scientific and management community.
- EPA, NRCS, NOAA, BR, CUAHSI, USGS
- Draft database elements identified (June 2010)
- Workgroup deliberating – progress slow

Workgroups

- Federal Interagency Sedimentation Conference
- Dam Removal Sediment Analysis
- National Geomorphic Database
- Reservoir Sedimentation Database

RESSED

What Is RESSED?

- Originally an SCS paper database
- Changes in capacities computed from surveyed bathymetric data (+/- acre feet/year)
- 1,824 reservoirs, 6,618 surveys, lower US, 1:PR
- Based on Soil Conservation Service Form 34 (1953)
- ?Presumed to be largest such database for US?
- From an unmarked cardboard box, 1993...



a...work...in...progress

Subcommittee on Sedimentation

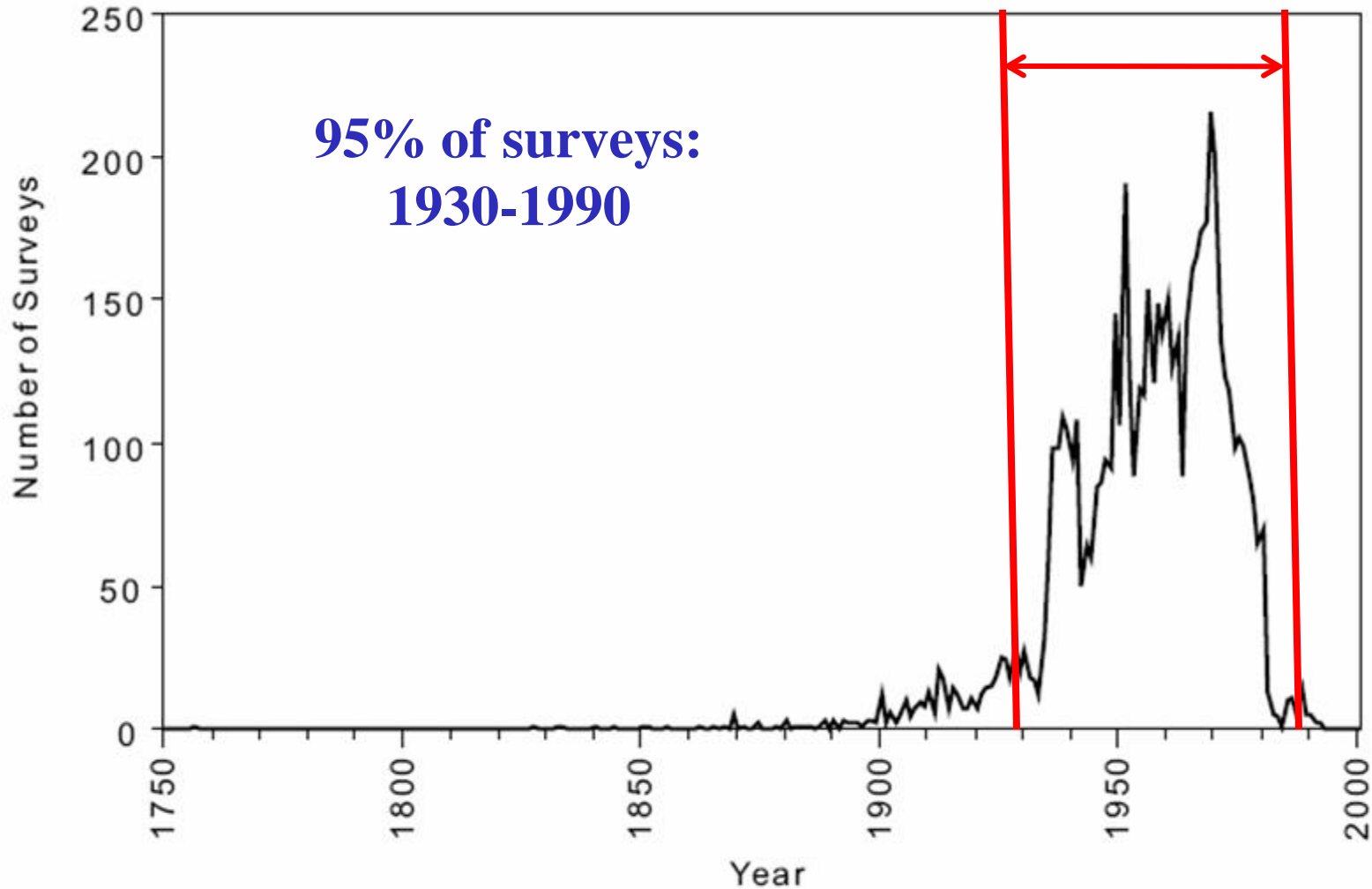
RESERVOIR SEDIMENTATION DATABASE

(RESSED: <http://ida.water.usgs.gov/ressed/>)

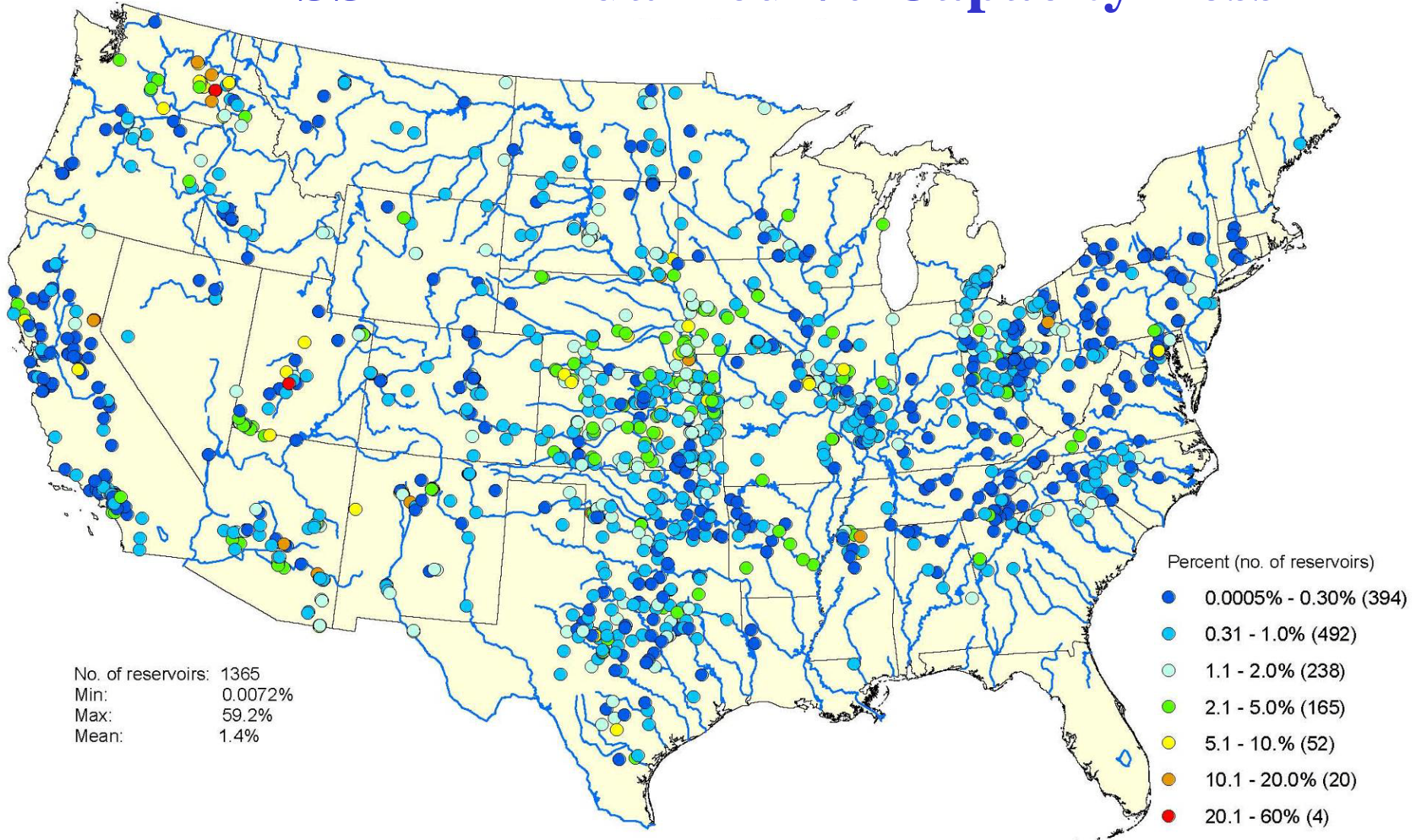
- Short-Term Goal: Render current static database dynamic (updatable and queryable).
- Long-Term Goal: Develop a truly national, robust, reservoir sedimentation database
- Status: On-line as static MS Access DB (4/2009)
- COE-USGS RESSED-Filemaker Pro project:
Render RESSED updatable/queryable, FY10
(COE-USGS project, COE funded – J. Webb)

**A QUICK (AND
INCOMPLETE) LOOK
AT RESERVOIR
SEDIMENTATION
RATES**

RESSED Reservoir Surveys by Year



RESSED Annualized % Capacity Loss



~82%: <2% capacity loss/year (1,124/1,365 reservoirs)

Extrapolated to 2010 Total % Capacity Loss

- **AND ~24% HAVE LOST >100% CAPACITY???**
- “I wouldn't bet a penny that this shows accurate current conditions” (data analyst Dave Stewart, USGS, 7/13/10).
- Unfortunately, *no one knows* (on a national scale).
- **EVEN IF REALITY IS SOMEWHERE IN BETWEEN
IF ‘WHISKEY’S FOR DRINKIN’, WATER’S
FOR FIGHTIN’” -- WHAT DOES THIS
PORTEND FOR THE FUTURE OF THE
NATION’S WATER SUPPLIES?**

~59% have lost > 60% capacity (535/1,365 reservoirs)

SOME MATH TO PUT RESSED IN PERSPECTIVE

- As of 7/2010,
 - 1,824 reservoirs in RESSED
 - ~80,000 dams (ergo reservoirs?) in the National Inventory of Dams
 - ~?6 million – 9 million impoundments in the U.S. (USGS National Hydrography Dataset; Renwick, Miami of Ohio)
- Hence, the number of reservoirs in RESSED are:
 - ~2% of number of dams in the NID (but not all cross-listed)
 - ~0.03% of U.S. impoundments

RESSED Reservoirs are much less than the “tip of the iceberg”



Ergo....

THE NATION NEEDS A CAREFULLY DESIGNED AND MAX-POPULATED NATIONAL “RESSED-FUTURE”

- **UNRESTRICTED ACCESS/USE**
- **LINKED TO OTHER DATABASES (NID, STREAMSTATS...)**
- **UPDATABLE AND QUERYABLE**
- **CAPABLE OF STORING ALL RELEVANT DATA**
- **ANALYZABLE LOCAL, REGIONAL, NATIONAL SCALES**

**A PERMANENT RESSED
PROGRAM IS NEEDED**

NATIONAL RESSED POST 2010

By September 2011, the SOS will have taken RESSED as far on “internal resources” as possible

- **RESOURCES REQUIRED**

 - **~\$250K/year for each of 4 years**

 - **~\$75K/year thereafter**

- **The SOS seeks the ACWI’s assistance toward RESSED program development.**



The ~~End~~ Beginning?

<http://ida.water.usgs.gov/ressed/>