Presentation to the Green River Basin Advisory Group

on the

Status of Wyoming's Colorado River Basin Issues

At the

May 22, 2008 Meeting

Presented by

Patrick T. Tyrrell
Wyoming State Engineer

Held at

Town Hall, Municipal Courtroom
110 East Sage Street
Lyman, WY

This evening's topics:

- ☑ Current Snowpack and Runoff Projections
- ☑ Equalization Releases to be made from Lake Powell pursuant to Interim Criteria
- ☑ Colorado River Basin Salinity Control Program
- ☑ Upper Colorado River Endangered Fish Recovery Program
- ☑ Colorado River Compact Administration Project – Update

Current Snowpack & Runoff Projections

May 15th Mid-month Forecast

by the Colorado Basin River Forecast Center, National Weather Service
Salt Lake City

	Observed				Apr	Forecast		Outlook		
	Jan	Feb	Mar	Apr	%Avg	May	Jun	Jul	Apr-Jul	%Avg
Lake Powell	336	414	589	1003	102%	2800	3800	1500	9200	116%
Fontenelle	24	25	32	53	57%	140	290	172	655	76%
Flaming Gorge	24	33	59	79	51%	220	340	181	820	69%

Precipitation Summary - Percent of Average By Month – Water Year 2008

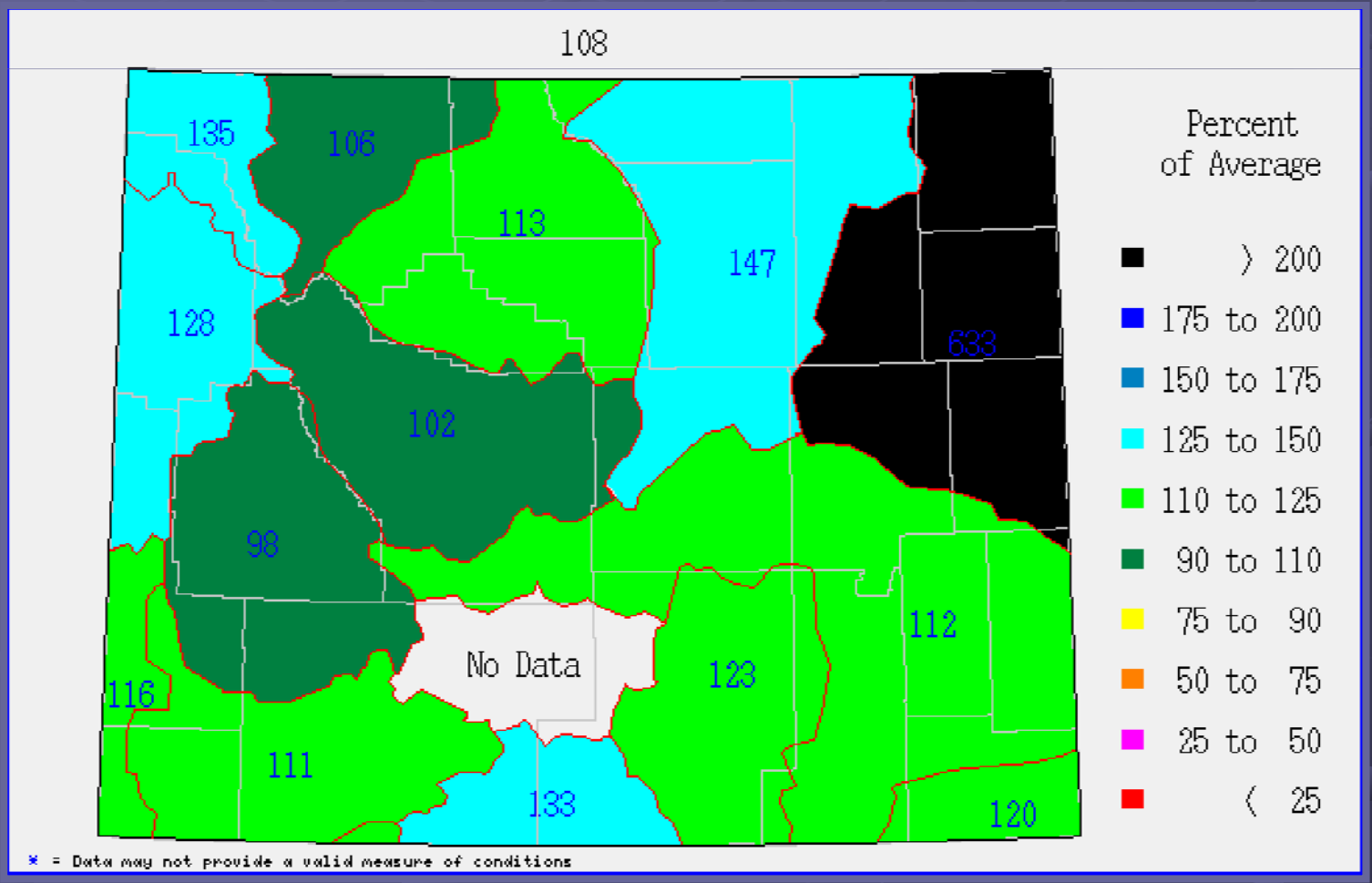
RIVER BASIN:	OCT	NOV	DEC	JAN	FEB	MAR	APR
GREEN							
ABV FLAMING GORGE	**120**	**30**	**110**	**120**	**30**	**85**	**35**
ABV GRN RVR,UT(TOTAL)	105	30	160	135	140	75	55
COLORADO							
ABV GRAND JUNCTION	115	30	180	170	150	85	90
GUNNISON BASIN	85	30	220	210	170	75	75
DOLORES BASIN	65	30	255	155	165	30	65
ABV CISCO (TOTAL)	90	30	210	180	160	70	80
SAN JUAN ABV BLUFF (TOTAL)	40	35	245	210	170	15	40
ABV LAKE POWELL (TOTAL)	**80**	**30**	**215**	**165**	**150**	**60**	**65**

Wyoming's Snowpack Situation

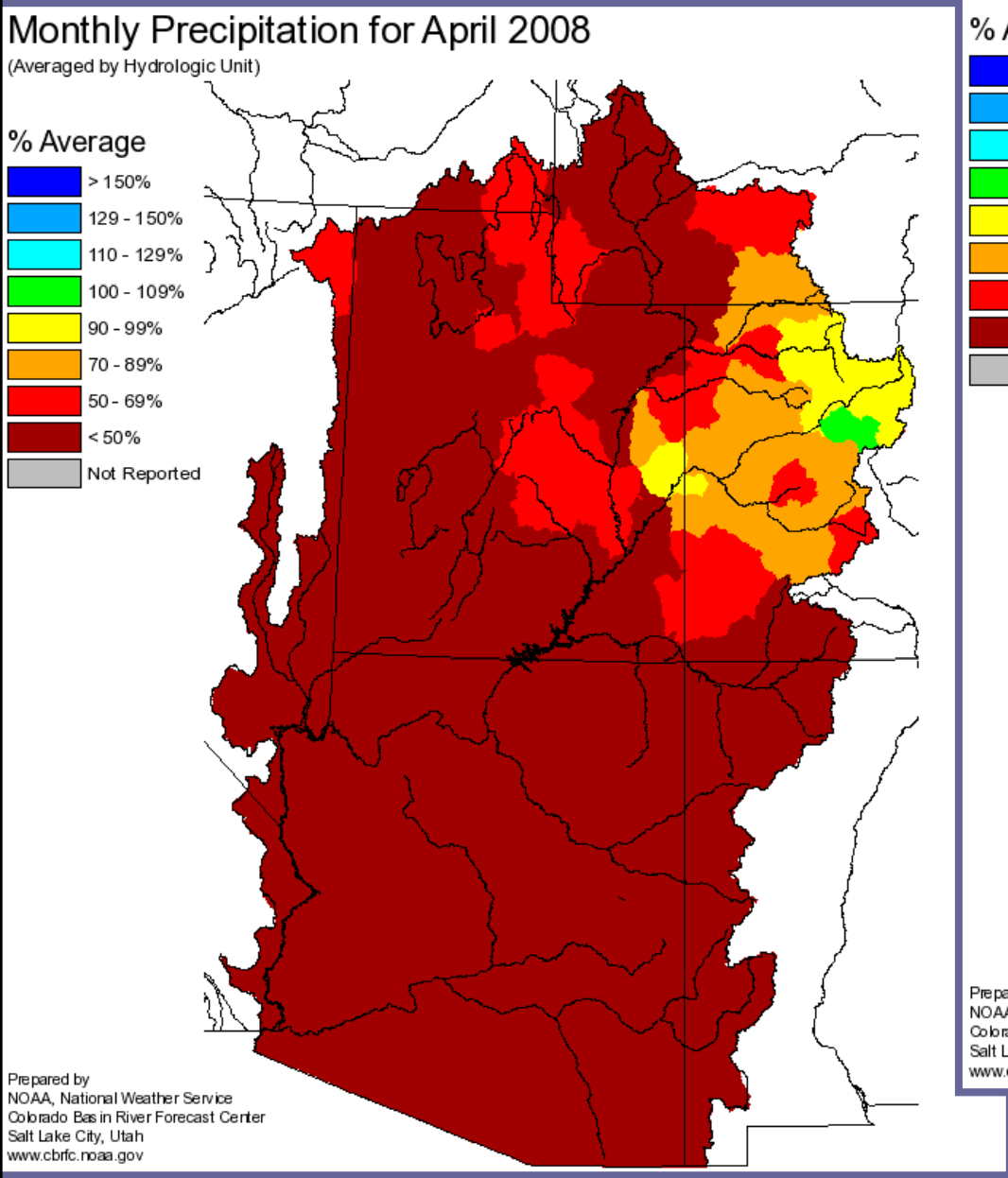
Snow Water Equivalent as of May 14, 2008

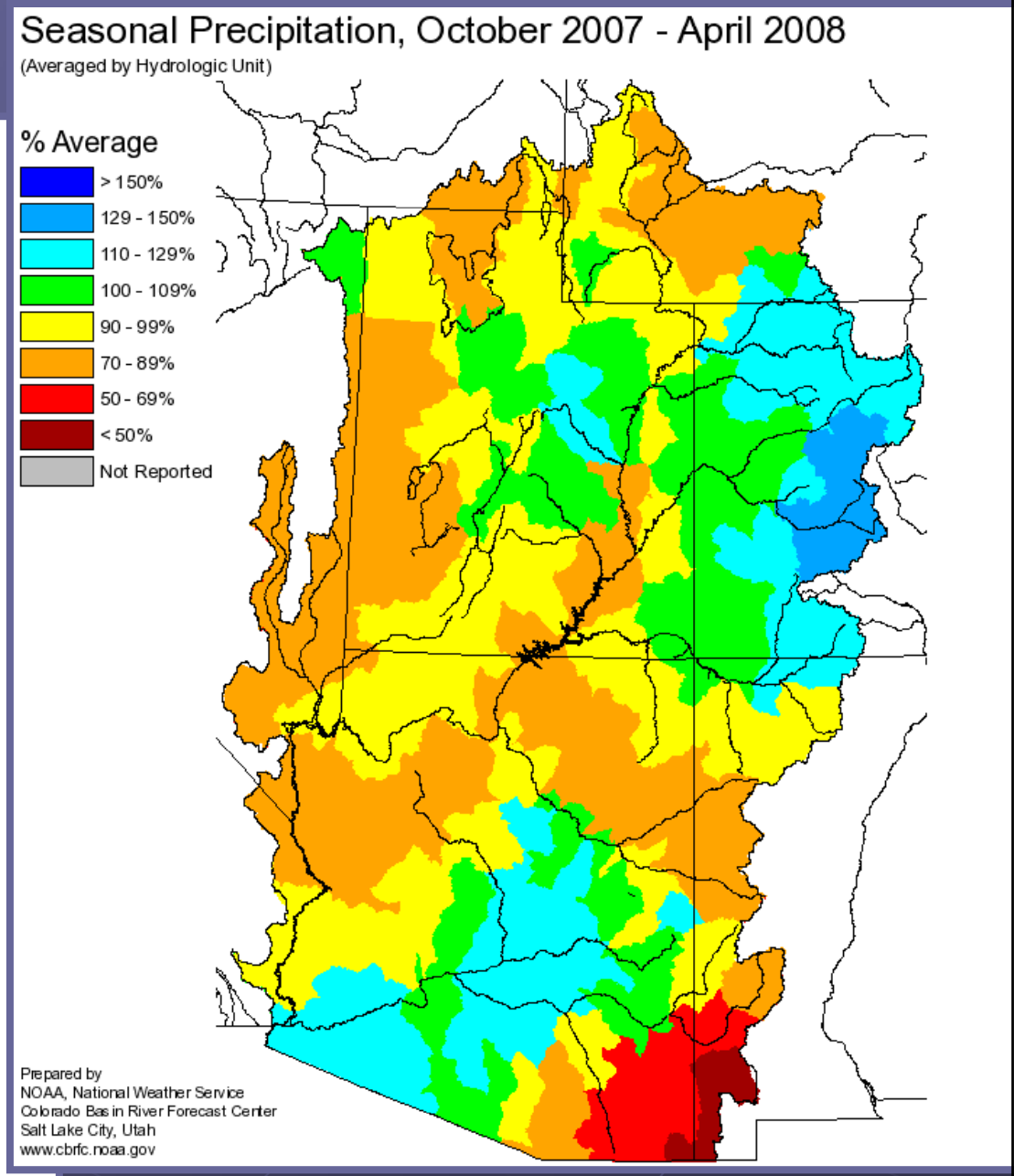
Data from the USDA Natural Resources Conservation Services (NRCS)

SWE as a Percent of the 1971 through 2000 period Average

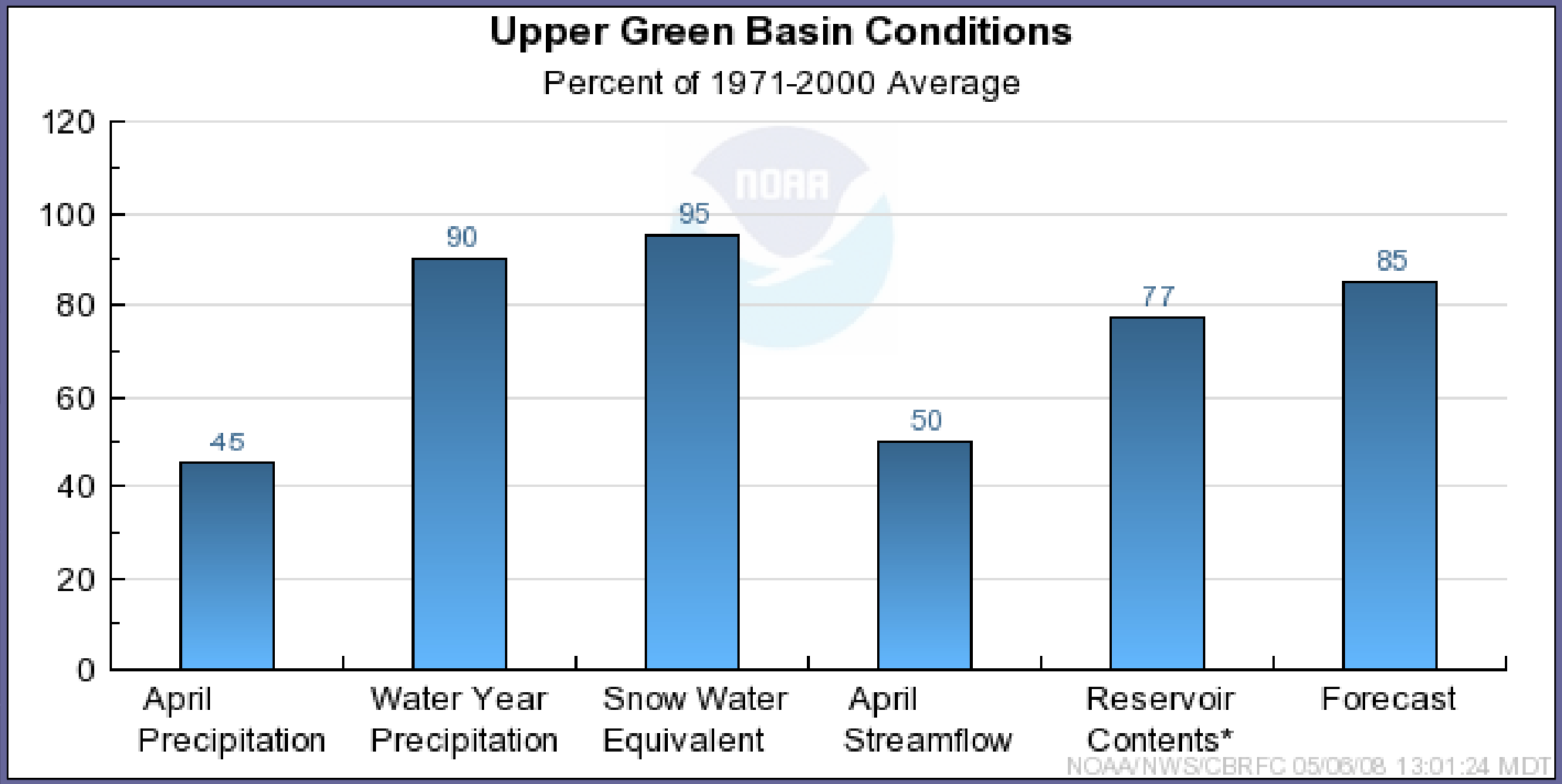


Monthly and Water Year to-date Precipitation Across the C.R.B.

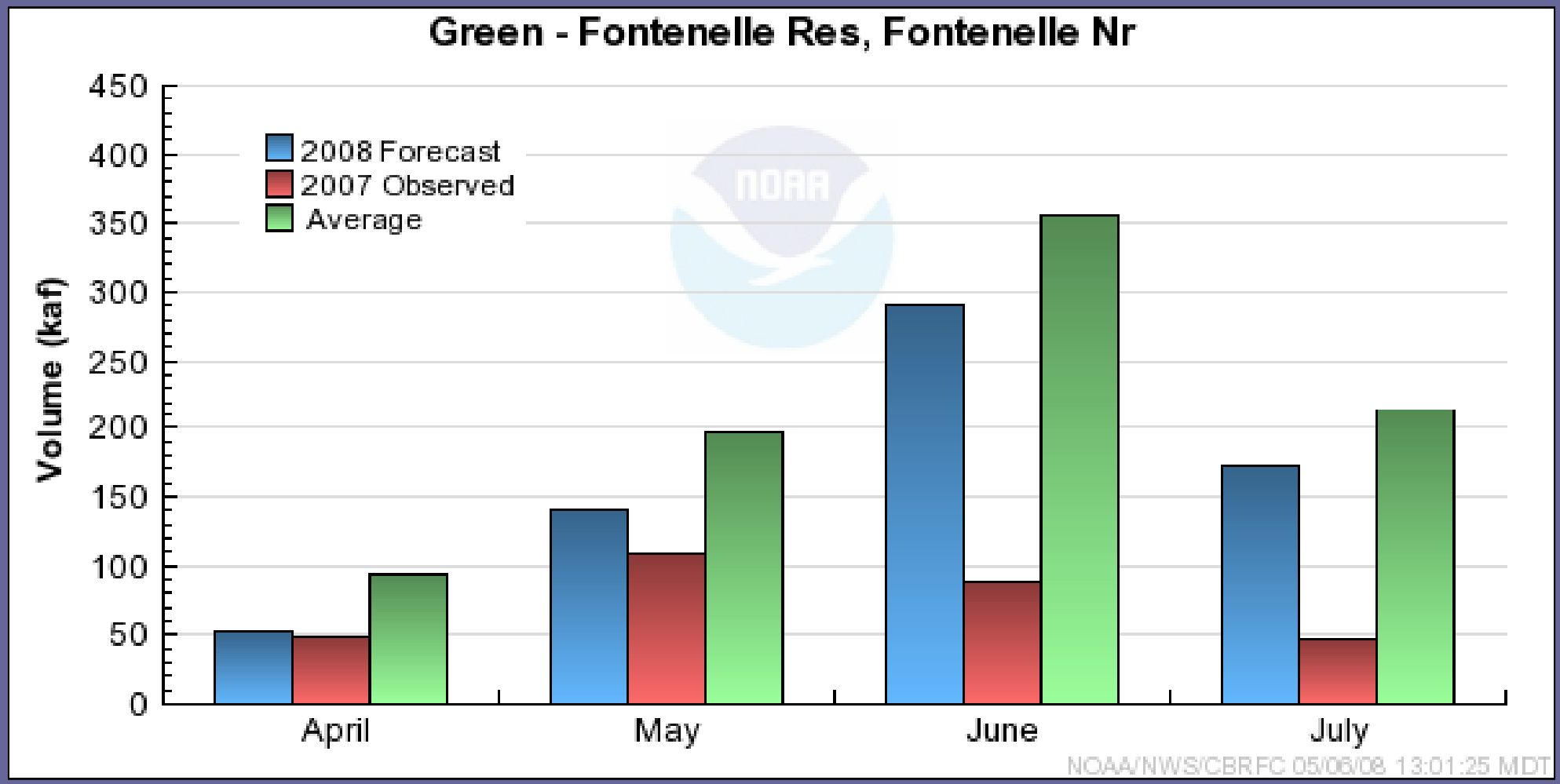




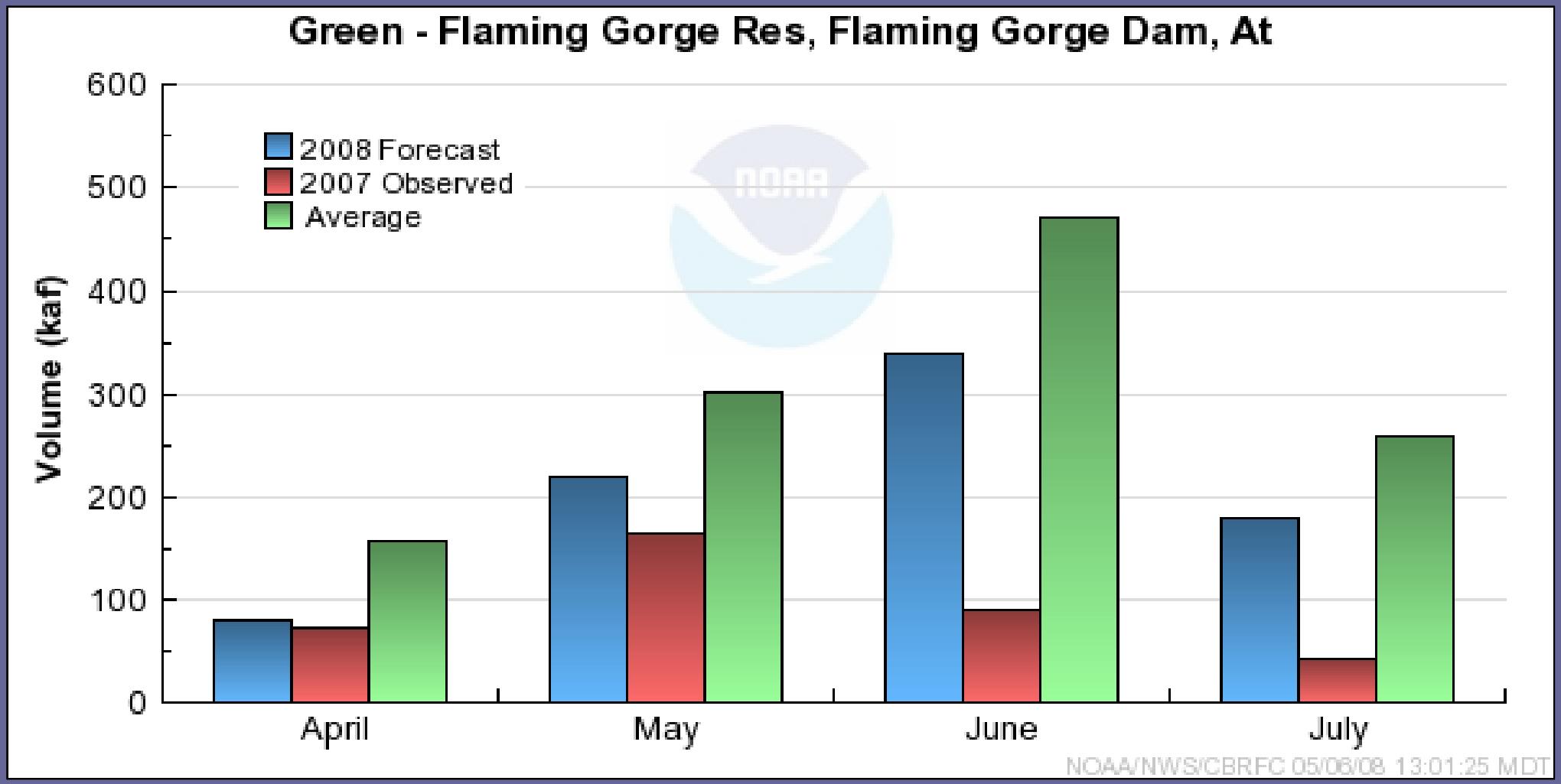
Upper Green River Basin Conditions
Percent of 1971-2000 Average as of May 1, 2008



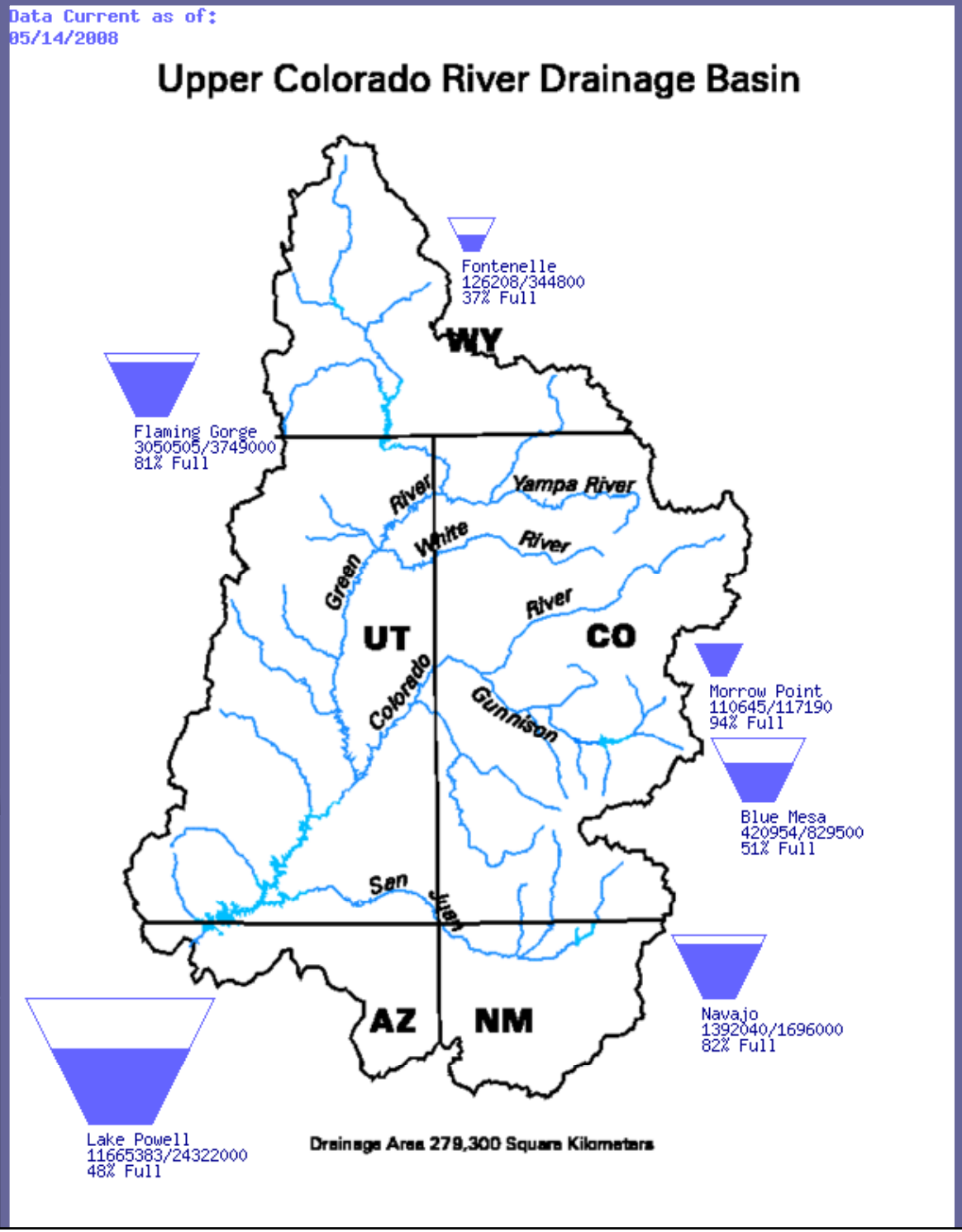
National Weather Service's
May 1, 2008 Water Supply Outlook Report
Monthly Reservoir Inflow Forecast

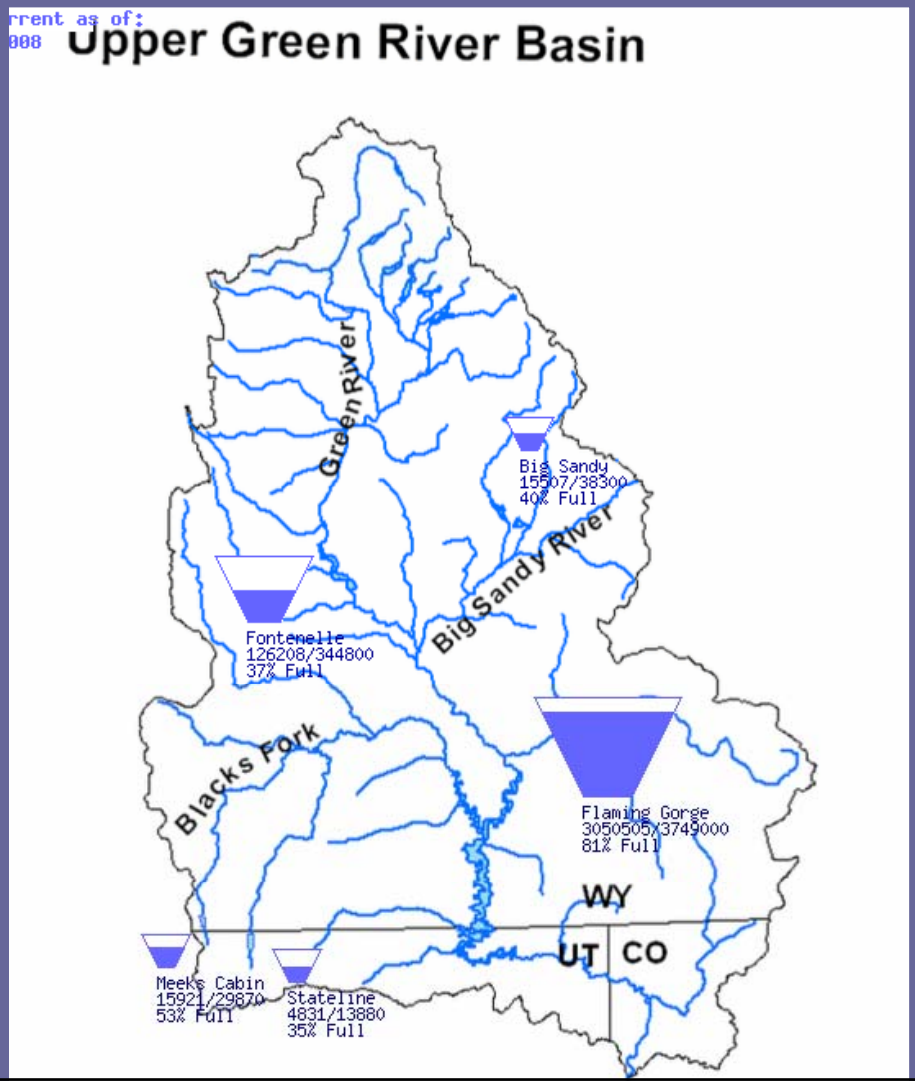


Colorado Basin River Forecast Center's May 1, 2008 Water Supply Outlook Report



Tea-cup Diagrams for USBR Storage in the Upper Green and Upper Colorado River Basins – as of May 14, 2008





Lake Powell Equalization releases to occur in 2008

Reclamation announced on April 11th that high snowpack triggers additional releases from Lake Powell to Lake Mead in accordance with new Interim Shortage Guidelines

- For the past seven years, the annual release from Lake Powell to Lake Mead has been 8.23 million acre-feet.
- Based on the April 1 inflow forecast, Reclamation projects by the end of September Lake Powell will rise above 3636 feet msl and Lake Mead would be below 1105 feet msl.
- In accordance with the interim guidelines, an additional amount of water will therefore be released from Lake Powell to Lake Mead for water year 2008 (Oct. 1, 2007 – Sept. 30, 2008).

Equalization releases to occur in 2008 - continued

- Releases from Glen Canyon Dam for the remainder of water year 2008 will be governed by the Equalization Tier of the Interim Guidelines.
- Under the Equalization Tier, water year annual releases can be above 8.23 million acre-feet (maf).
- For the May 2008 24-Month Study, the controlling Equalization objective for water year 2008 is an end of water year Lake Mead elevation of 1105 feet msl.
- To achieve this objective, the Glen Canyon Dam water year annual release is projected to be 8.954 maf with an equalization volume (volume in excess of 8.23 maf) projected to be 724,000 acre-feet.
- These projected values and the monthly release volumes will be adjusted monthly as conditions change.

Lake Powell Operational Tiers
(subject to April adjustments or mid-year review modifications)

Lake Powell Elevation (feet)	Lake Powell Operational Tier	Lake Powell Active Storage (maf)
3,700		24.32
	Equalization Tier Equalize, avoid spills or release 8.23 maf	
3,636 – 3,666		15.54 – 19.29
(see table below)	**Upper Elevation Balancing Tier** release 8.23 maf; if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf	(2008 – 2026)
3,575		9.52
	Mid-Elevation Release Tier release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf	
3,525		5.93
	Lower Elevation Balancing Tier balance contents with a min/max release of 7.0 and 9.5 maf	
3,370		0

April adjustments to Lake Powell operations in the Upper Elevation Balancing Tier (as specified in Sections 6.B.3. and 6.B.4.) shall be based on the April 24-Month Study projections of the September 30 system storage and reservoir water surface elevations for the current Water Year. Any such adjustments shall not require re-initiation of the AOP consultation process. In making these projections, the Secretary shall utilize the April 1 final forecast of the April through July runoff, currently provided by the National Weather Service's Colorado Basin River Forecast Center.

A. Equalization Tier

In each Water Year, the Lake Powell equalization elevation will be as follows:

LAKE POWELL EQUALIZATION ELEVATION TABLE

Water year	Elevation (feet)
2008	3,636
2009	3,639
2010	3,642
2011	3,643
2012	3,645
2013	3,646
2014	3,648
2015	3,649
2016	3,651
2017	3,652
2018	3,654
2019	3,655
2020	3,657
2021	3,659
2022	3,660
2023	3,662
2024	3,663

LAKE POWELL EQUALIZATION ELEVATION TABLE—Continued

Water year	Elevation (feet)
2025	3,664
2026	3,666

1. In Water Years when Lake Powell elevation is projected on January 1 to be at or above the elevation stated in the Lake Powell Equalization Elevation Table, an amount of water will be released from Lake Powell to Lake Mead at a rate greater than 8.23 maf per Water Year to the extent necessary to avoid spills, or equalize storage in the two reservoirs, or otherwise to release 8.23 maf from Lake Powell. The Secretary shall release at least 8.23 maf per Water Year and shall release additional water to the extent that the additional releases will not cause Lake Powell content to be below the elevation stated in the Lake Powell Equalization Elevation Table or cause Lake Mead content to exceed that of Lake Powell; provided, however, if Lake Powell reaches the elevation stated in the Lake Powell Equalization Elevation Table for that Water Year and the September 30 projected Lake Mead elevation is below elevation 1,105 feet, the Secretary shall release additional water from Lake Powell to Lake Mead until the first of the following conditions is projected to occur on September 30: (i) The reservoirs fully equalize; (ii) Lake Mead reaches elevation 1,105 feet; or (iii) Lake Powell reaches 20 feet below the elevation in the Lake Powell Equalization Elevation Table for that year.

Colorado River Basin Salinity Control Program -- A Few Details

- Farm Bill sent to the President from the Congress includes explicit authorization for the Basin States Salinity Control Program (Parallel Program)
  - Appears that conservation provisions of the bill would expand Environmental Quality Incentives Program (EQIP)
  - Presidential veto is anticipated – speculation abounds about the House and Senate overriding the veto.
- Colorado River Basin Salinity Control Forum and Advisory Council meetings to be held on May 29th and 30th in Montrose, Colorado.
  - Preparation of the triennial review of Water Quality Standards for Salinity in the Colorado River Basin ("the Triennial Review" report is underway)

Eden Valley Pipeline Salinity Control Project

- **Bid opening occurred on February 5th in Farson – and the contract was awarded to Johansen Construction Company of Mt. Pleasant, Utah for $2,406,666.66.**
- **Contractor started work on Monday April 14th**
  - **Plans on laying about 20,000 LF of pipe and constructing one diversion structure prior to water turn-in on May 15.**
  - **Once water is turned in, he will pull off and construct the Wildlife Habitat Mitigation Ponds.**
  - **Subsequently, he will pull off the project until about September 15th, and then move back into the job and proceed until winter shutdown.**
  - **Final work will be completed in the spring of 2009**
- **Eden Valley Irrigation and Drainage District obtained $1,508,000 from 2005 Wyoming Legislature for this project – 50% of project cost**
- **Colorado River Basin States Salinity Control Cost-sharing (Parallel) Program – Cooperative Agreement between USBR and WY SEO is providing the other 50% of project cost**
- **Will replace 11.2 miles of open ditch lateral with pipeline system**

Upper Colorado River Endangered Fish Recovery Program

- Dedication ceremony to be held on July 1st at the Price Stubb Diversion Dam Fish Passage Project near Palisade, CO.
  - Completion of the Price Stubb passage structure has removed last riverine impediment for endangered fish to migrate upstream to Rifle, CO.
  - Commissioner of Reclamation Robert Johnson will be dedicating the facility.

On April 21, 2008, the Upper Colorado River Endangered Fish Recovery Program and San Juan River Basin Recovery Implementation Program were the recipient of a Department of the Interior Cooperative Conservation Award presented by Secretary Dirk Kempthorne in Washington, DC.

Left to Right: USFWS Director Dale Hall, Tom Iseman of TNC, Asst. San Juan Program Director Sharon Whitmore, Deputy Asst. Secretary for Fish, Wildlife and Parks Lyle Laverty, Asst. Upper Basin Program Director Angela Kantola, Stanley Pollack of the Navajo Nation, John Shields of the WY SEO, the Honorable Dirk Kempthorne, Secretary of the Interior, and Upper Basin Program Director Robert Muth

U.S. DEPARTMENT OF THE INTERIOR

COOPERATIVE CONSERVATION AWARD

In recognition of outstanding conservation achievements attained through collaboration and partnership with others

Upper Colorado River Endangered Fish Recovery Program

Wyoming State Engineer's Office

is hereby awarded this certificate in the year 2008

Secretary of the Interior

A citation accompanies the Cooperative Conservation Award recognizing the Upper Colorado Recovery Program's extensive collaboration in managing water resources for wildlife conservation and human needs. A second citation was presented to the San Juan River Basin Recovery Implementation Program. These programs were 2 of 22 programs recognized from across the nation.

THE SECRETARY OF THE INTERIOR

WASHINGTON

CITATION

COOPERATIVE CONSERVATION AWARD

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

In recognition of extensive collaboration in management of water resources for wildlife conservation and human needs by the Upper Colorado River Endangered Fish Recovery Program.

In recent decades, development of water resources has been a subject of enormous conflict in the Upper Colorado River Basin. From 1977 through 1981, the U.S. Fish and Wildlife Service issued Endangered Species Act "jeopardy biological opinions" for all water projects in the Upper Basin, finding that any depletion of water would harm endangered fish species. In light of water conflicts, water users, the States of Colorado, Utah, and Wyoming and the U.S. Fish and Wildlife Service entered into a settlement process to identify means to recover endangered fish species and allow needed water development. This initial effort at working together precipitated an extensive collaborative undertaking, culminating in January 1988 with formation of the Upper Colorado River Endangered Fish Recovery Program. Actions to recover endangered fish species under the Program include: constructing fish passages, fish screens, and habitat improvements; enhancing instream flows; stocking; monitoring; and research. The Recovery Program reached a milestone in 2006 with completion of the Elkhead Dam and Reservoir Enlargement Project in northwest Colorado, which provides additional storage capacity for human and endangered species needs. These actions provide a reasonable and prudent alternative to "jeopardy biological opinions" for water depletions in the Upper Basin, while working in concert with interstate water compacts, State water and wildlife laws, and tribal rights. The Program is now a nationally recognized model for resolving endangered species and water resource conflicts. All parties, including water users, States, environmental organizations, and Federal agencies, have committed substantial resources into a basinwide, collaborative conservation partnership effectively working to recover endangered fish while meeting human water resource use and development needs. For its history of successful stakeholder collaboration resolving seemingly intractable water use conflicts, the Upper Colorado River Endangered Fish Recovery Program is granted the Cooperative Conservation Award of the Department of the Interior.

Secretary of the Interior

Colorado River Compact Administration Program

- Initiated in 2006
- Overall purpose of the program is to ensure the State of Wyoming is the leading authority on the allocation and use of water in the Colorado River Basin of Wyoming, and to protect Wyoming's apportionments as outlined in the two basin compacts
- Plan outlining project components and tasks was completed in 2007

Program Components

- Climate & Hydrology
- Diversions and Consumptive Use
- Water rights attribution
- Reservoir operation
- Groundwater
- Administration/Decision support tools
- Outreach

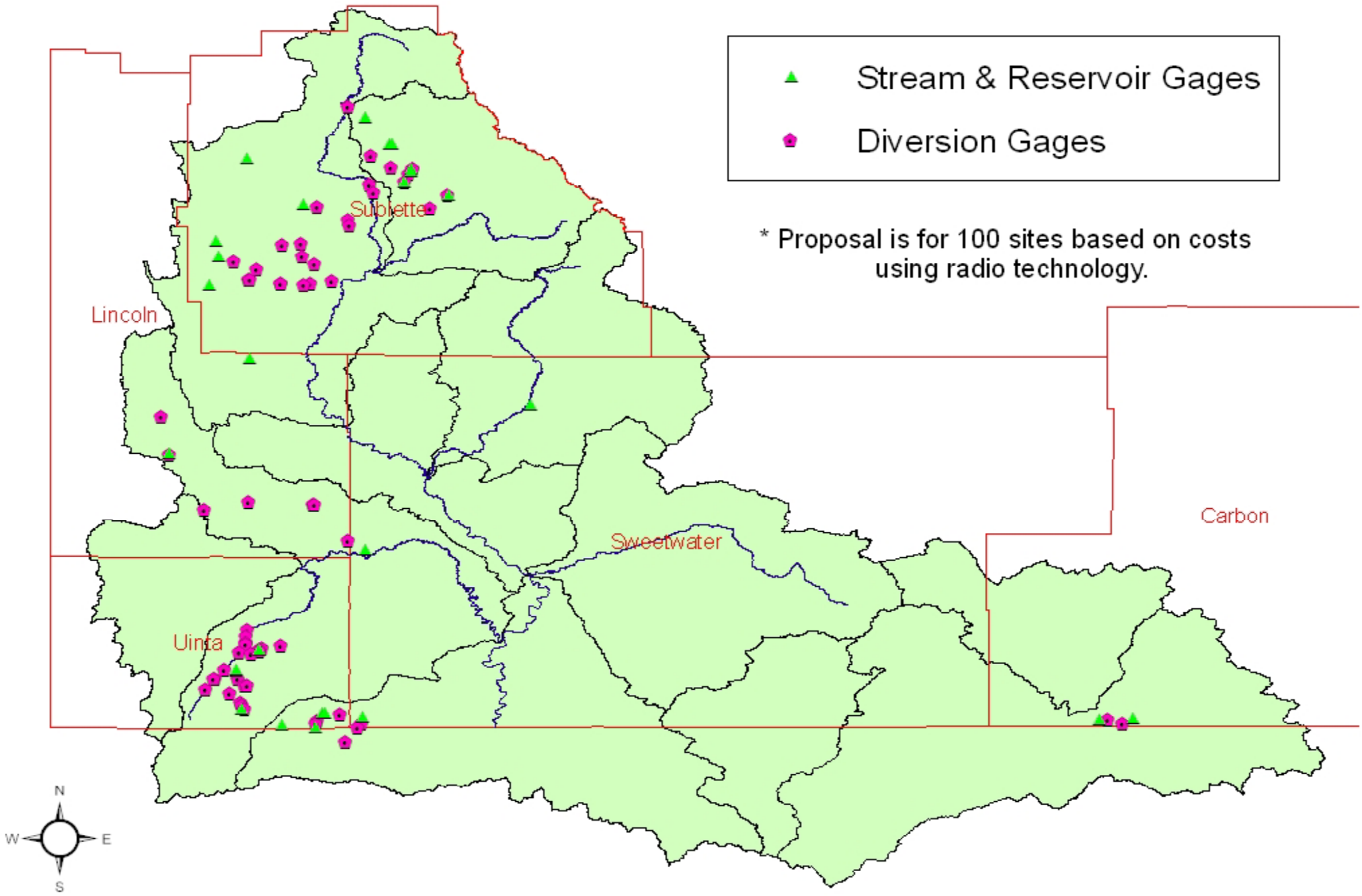
Climate & Hydrology

- Three small weather stations activated in 2007
- Five full AgriMet climate stations to be installed in 2008-09
- Data collection efforts needed for basin hydrology model applications
  - WWDC will be lead on model development

Diversions and Consumptive Use

- Installing additional measuring points at diversions, streams and reservoirs
  - Includes recording instrumentation and telemetry capabilities
  - 100 upgraded and new sites proposed under FY09-10 budget
    - *Figure on following slide*
- Compiling better data on M&I use in the basin

Hydrologic Stations Proposed for Telemetrization in the Green River Basin of Wyoming*



Diversions and Consumptive Use (continued)

- Application of Remote Sensing Technologies
  - Working with University of Wyoming (WYGISC)
  - Model Calibrated to Wyoming
  - Assessing basin-wide consumptive use during 2007 growing season
- Installation of energy flux instrumentation and scintillometers for precise ET data planned for 2008
  - Working with University of Wyoming (Department of Civil Engineering)
  - Sites selected near Pinedale

Water Rights Attribution

- Mapping and attributing all irrigated lands in the basin
- Field verification and checking work competed during summer/fall 2008
- Project completed in early 2009

Other Components

- Reservoir operation
  - Better data collection as part of instrumentation & telemetry project
- Groundwater
  - Inventory of groundwater data being compiled as part of WWDC's Green River Basin Plan update
- Administration/Decision support tools
  - Future work product
- Outreach
  - Ongoing efforts with basin water users

Colorado River Compact Program

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Questions?

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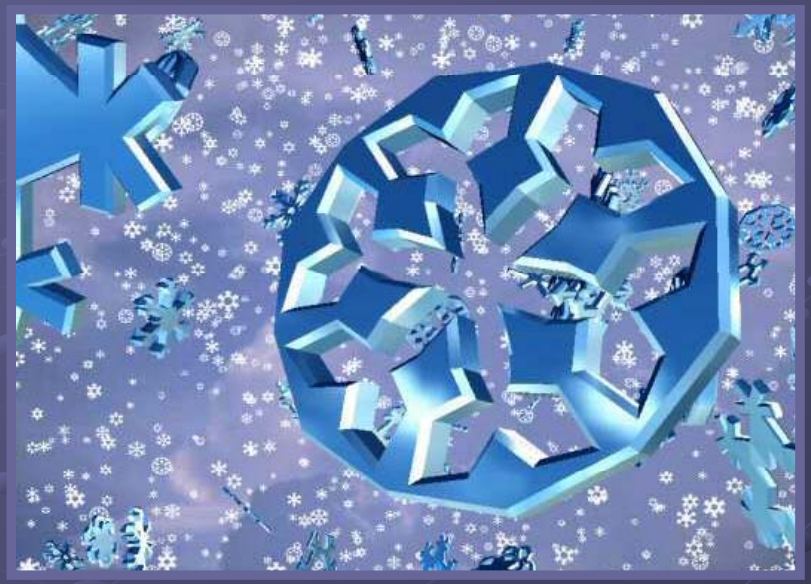

"The snowflakes of 2007 and 08,
Have been a blessing to our state;
Now we wonder whether those runoff flows,
Will stay in channel and if there that water will go --
Peaceably downstream and flow away;
Or if there will be flooding – and with it hell to pay.
Droughts or flooding, if not one then it's the other.
I guess that's why Nature is often called a Mother."

J.W.S.