

CBRFC Stakeholder Forum

July 31, 2012
SLC, UT

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Welcome!

Goals:

- (1) Two way discussion on CBRFC products and services
- (2) Critical discussion on Colorado and Great Basins **observing system** use for forecasting and analysis including strengths and weaknesses
- (3) Discussion on the evolution of **CBRFC water supply forecasts** slated for WY 2013

Agenda:

- ☑ **Two way discussion is critical (times are approximate; we will extend for discussion as required)**
- ☑ Water Supply Forecast Program Update
- ☑ Observing System of Today
- ☑ Data interaction at CBRFC
- ☑ Future of the Observing System Discussion



2010 Stakeholder Forum

- 3 Day Event at CBRFC in August 2010
- Participants from all over CO basin attended
- Main focus on water supply and peak flow forecast needs in the basin
- Key requirements from forum:
 - Simple ways to communicate forecasts relative to important thresholds
 - Post-mortems
 - More info on the 30 year average update
 - Objective water supply forecast system
 - Greater CBRFC participation in stakeholder meetings
 - 2 year forecast for Colorado
 - Greater transparency in forecast process
- Full report online (under papers and presentations -> reports)
 - Report has been used for driving both CBRFC development as well as NOAA and other research priorities

CBRFC 2010 Stakeholder Forum

Summary

The Colorado Basin River Forecast Center (CBRFC) held a stakeholder forum on August 17-19. The forum was organized around presentations from CBRFC staff on models, tools, and projects that the RFC uses to make forecasts. Presentations included a description and demonstration of most elements of the CBRFC forecast process, a review of the 2010 runoff and the forecasts for it, discussion on various CBRFC projects including improved evapotranspiration, peak flow forecasts, the community hydrologic prediction service, and an analysis of snow versus runoff for key basins. As part of NOAA, the CBRFC is a service organization and strives to be as relevant to its stakeholders as possible. To that end, active discussion and participation was facilitated throughout the forum. Participants included many of the major stakeholders in the Colorado Basin (see participant list in appendix 1). The forum generated significant ideas, actions, and requests for new and improved ways the CBRFC can meet stakeholder requirements in the basin. These are described below.

Feedback from both participants and NOAA staff was generally very positive. In particular, participants appreciated the openness of CBRFC to adjust to the stakeholder requirements and the service oriented mission of NOAA generally and the CBRFC in particular. The stakeholder forum model was largely endorsed as an appropriate mechanism for engaging with stakeholders on either an annual or bi-annual basis. Demonstrations of forecast tools and discussion of forecast skill and post-mortem event analyses were particularly well received. In the future, many of the stakeholders would appreciate any insight beyond the officially published forecasts that the CBRFC can provide. Complete, unedited feedback is in appendix 2.

The workshop agenda is in appendix 3. Full presentations are available on the CBRFC website (www.cbrfc.noaa.gov).

Follow up items

The following items were identified during the forum:

- Identify a simple way to communicate forecasts relative to specific thresholds – Bill Hasencamp requested participants and the RFC to think about ways to communicate forecasts relative to thresholds (e.g. equalization releases on Lake Powell) for more successful communication with boards and the general public.
- Post-mortems – A more refined event post-mortem for the 2010 runoff was requested by multiple participants



2011 Stakeholder Forum

- November 4, 2011 at Denver Water
- Special focus on upper basin but participants from all over CO basin attended
- Key requirements from forum:
 - Importance of forecast verification
 - Enhanced information about real-time CBRFC modeling
 - Improved consistency between RFCs
 - More frequent updates of all forecast products
 - More documentation on CBRFC website
 - Access to ESP traces for water management
- Full report online (under papers and presentations -> reports)
 - Report has been used for driving both CBRFC development as well as NOAA and other research priorities

CBRFC 2011 Stakeholder Forum

Summary

The Colorado Basin River Forecast Center (CBRFC) held a stakeholder forum on November 4, 2011 in Denver, CO. The forum was organized around presentations from CBRFC and Denver Water staff on models, tools, forecast application, and projects that the RFC uses to make forecasts. Presentations included short descriptions of many elements of the CBRFC forecast process, a review of the 2011 runoff and the forecasts for it, Denver Water's application of forecasts for decision making, and discussion on various CBRFC projects including webpage development, ESP forecast improvements, and snow covered area work. As part of NOAA, the CBRFC is a service organization and strives to be as relevant to its stakeholders as possible. To that end, active discussion and participation was facilitated throughout the forum. Participants included many of the major stakeholders in the Colorado Basin (see participant list in appendix 1). The forum generated significant ideas, actions, and requests for new and improved ways the CBRFC can meet stakeholder requirements in the basin. These are described below.

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The workshop agenda is in appendix 3. Full presentations are available on the CBRFC website (www.cbrfc.noaa.gov/present/2011/forum/2011forum.htm).

Discussion topics

Discussion in the meeting and in the follow up comments yielded several important areas for improving NOAA and CBRFC services.

Forecast verification is important for stakeholders to apply forecasts. One stakeholder requested CBRFC to "please don't ever sugarcoat the error associated with these forecasts... its important for us water managers to understand the uncertainties so that we can manage around them." Other stakeholders echoed similar sentiments. During the meeting, CBRFC described its forecast performance for 2011 highlighting times and places where forecasts were less skillful than others. CBRFC has extensive verification information on its water supply forecasts



Logistics

Lunch – Ordered in or on your own

Happy Hour possible?

Presentations – Online

(www.cbrfc.noaa.gov/present/2012/forum/2012forum.htm)

Lunchtime forecast operations “tours” by request

CBRFC staff – Sidebar meetings are encouraged

Who we are...

Mission: To understand and predict changes in the Earth's environment ... to meet our Nation's economic, social, and environmental needs



Mission: The NWS provides weather, hydrologic, and climate forecasts and warnings ... for the protection of life and property and the enhancement of the national economy



The Colorado Basin River Forecast Center generates streamflow forecasts and related datasets for the Colorado and eastern Great Basins



Colorado Basin River Forecast Center

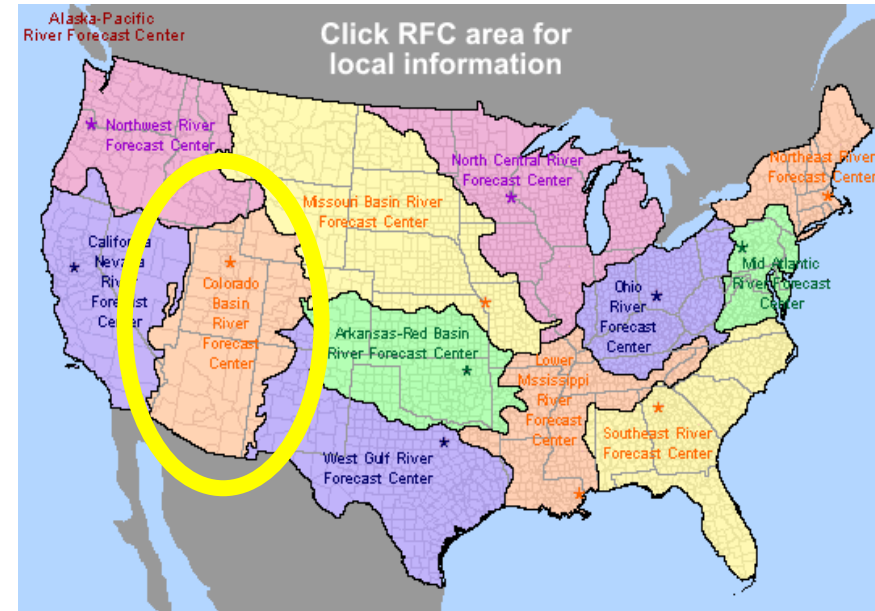


One of 13 River Forecast Centers

Established in the 1940s for water supply forecasting

Three primary missions:

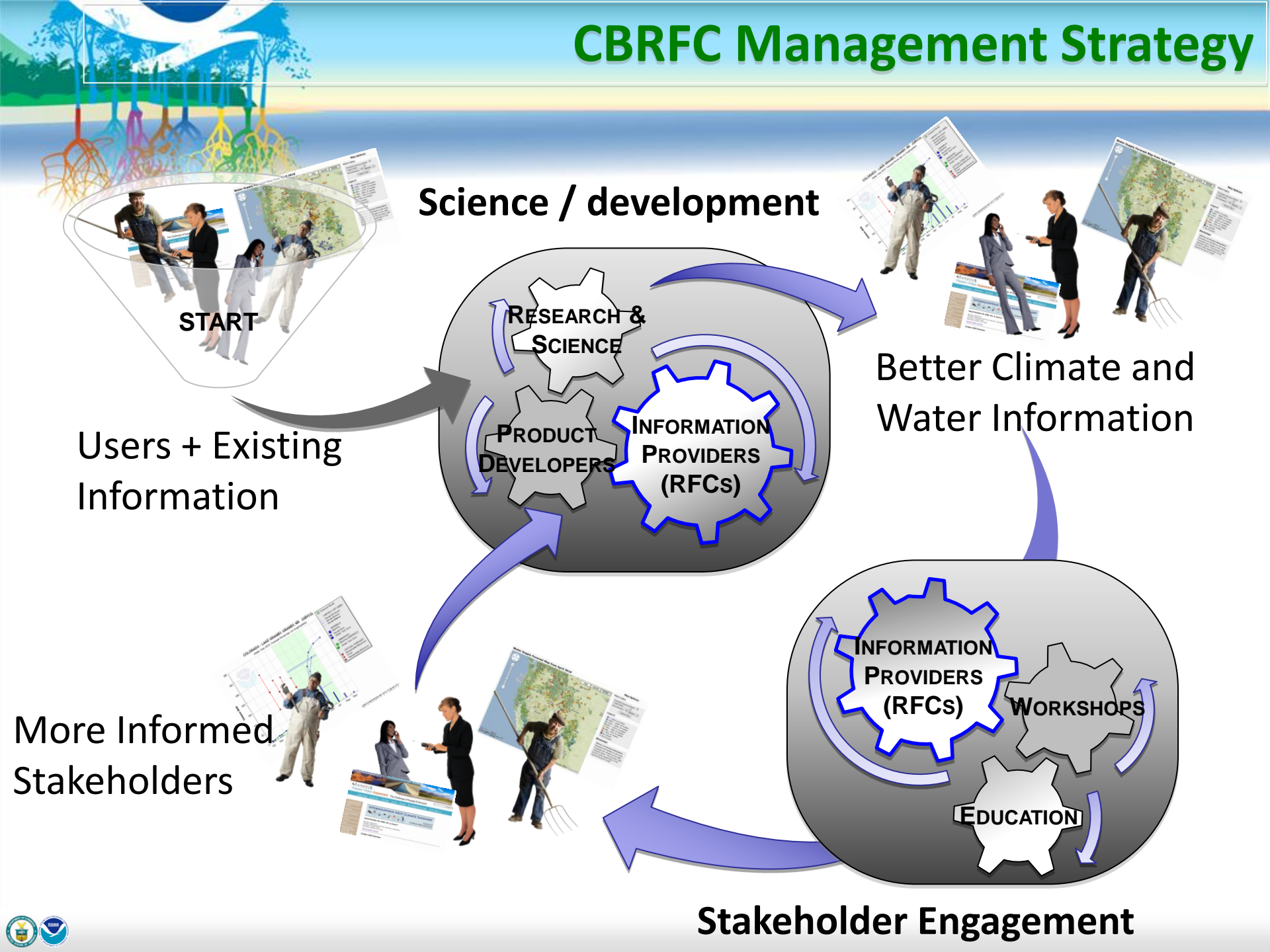
1. Seasonal **Water supply forecasts** for water management
2. **Daily forecasts** for flood, recreation, water management
3. **Flash flood warning support**



www.cbrfc.noaa.gov



CBRFC Management Strategy



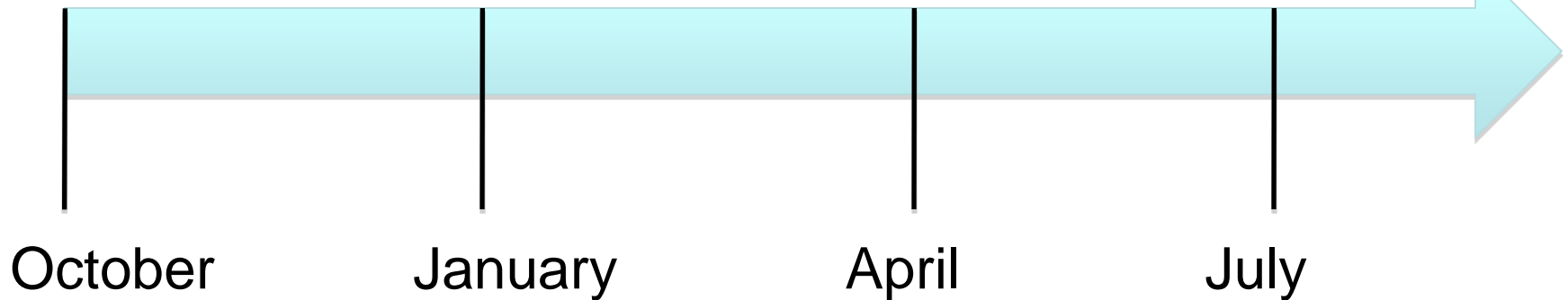
Typical CBRFC annual operations

Development work (focus in summer / fall)

Melt season

Water supply forecast season

Monsoon season



October

January

April

July



CBRFC Staff

- ✓ Michelle Stokes (Hydrologist In Charge)
- ✓ Kevin Werner (Service Coordination Hydrologist)

- ✓ Brenda Alcorn (Sr Hydrologist - Upper Colorado)
- ✓ Cass Goodman (IT Support, web development, etc)
- ✓ John Lhotak (Sr Hydrologist – Model development and support)
- ✓ Craig Peterson (Sr Hydrometeorologist – calibrations, forcings)
- ✓ Greg Smith (Sr Hydrologist – San Juan and Gunnison)

- ✓ Stacie Bender (Hydrologist - Sevier)
- ✓ Brent Bernard (Hydrologist - Great Basin)
- ✓ Tracy Cox (Hydrometeorologist - Lower Colorado)
- ✓ Ashley Nielson (Hydrologist - Green + Yampa / White)

- ✓ Mike Hobbins (post-doc)
- ✓ Tim Bardsley (Western Water Assessment)
- ✓ Valerie Offutt (administrative support)



Introductions

Please share your most critical forecast challenge(s) and what existing or future toolset would most effectively address it.



We need your input!

- ✔ Our mission mandates us to provide information and predictions that “meet our Nation’s ...environmental needs.”
- ✔ We want to ensure we’re providing sound science AND relevant services