

1) For Environmental purposes water supply project

## Decision Support System Needs

MOA

Environmental Requirements / Environmental Account

Transferability - Marketing - Banking

Groundwater Rights Administration

Replacement Water

Ease of Use for More Complicated System (Both Administrator & Water-Rights Holder)

Micromanagement of Water for greater Efficiency

Predictive

Model / Legal Construct for Water Rights Applicants

Needs to Incorporate Realtime DCPs and WISKI

Mid Range Predictive Model that will Predict Possible Flows up to a month in advance using a one-day time step

A Short Range Predictive Model that will predict Possible Flows up to 48 hours in advance using a one ~~step~~ hour time step

A Forum for Exchange of Info concerning river flows & diversions

A Place where current river flows and diversions, along with predicted flows are displayed

- ① Base Flow Changes Long Term
- ② Reach Gow fluctuation
- ③ Turb Account Releases

- ① Monthly model useful For Reservoir Operations Study and that can utilize COWHyst For Base Flows & show long term changes in Base flow
- ② Short Term 48 hour model that shows what water supply project will need to <sup>provide</sup> offset flows under wet, dry or normal Target flows (Given Inflows and current reach gain what should we release at NP to achieve given GI Target Flow)
- ③ Run Long Term models For Log Effect of Reach Gow & modify based on daily reach gain

\* In last 3 days reach gain - this much <sup>temp weather</sup> assuming ~~the~~ conditions  
what will water be at GI + do we need release  
FWS EIS Account - Interactive with Decision makers  
Releases for Target Flows + SW diversion

\* Run long term models for log effect + reach gains + modify  
based on daily reach gain

Change in Reach Gain From Mound - use COLYST

DP Study interacting with Potential Reach Gain long term  
changes + short term fluctuations

(Environmentalist) (Resource users)

Trust us vs Prove it (100%)

Sophisticated Biddaid - A huge accomplishment

Flows on River  
Figure out 48 hrs ahead on monthly Basis

Primarily SW Decision Support

GW can do depletions

Costly monthly can't give daily depletions

2 Purpose - 1 Reservoir Operations Model monthly Basis (OP Study)

If you keep this this will be outflow

Given these inflows optimize how much to

Keep in Lake For EVU

Link to COST monthly modeling

Costly OPs Study  
one model

\* This Pumping These Scenarios This River Roles what does it look like

Coop agree will have water supply project

Range of studies that integrate SW & GW for

Long Range no shorter than month -

Reservoir Op & general level of SW & GW Division

Important to operating reservoirs designing SW

project impacts of SW GW use

OP Study had fixed reach gain - But when you change reach gain changes

Party

48 hr more like Jeff on Lower Platte - Rogers thought was LP

ANN - We've probably got LP pretty much figured out

For now Problem - Power Scheduling - insufficient gages

\*

Platte itself - water supply projects will need to offset flows wet dry or normal target flows - Releasing water to support flows

Amy Lieb

Agenda  
Logistics  
Invitees

\* Frank Kwapowski  
USFWS  
GPC  
Lawson  
Cities Jack Daniel

Recommendation for Preferred model  
on Platte River

Small Steps

Let John Lawson know about

Lower Platte Corridor Alliance  
Rodney Verhoef

April 26 Mtg.

Amy Lieb - Red Run Valley Process Relied on People Involved - Public  
Involvement - Don't Go into Model Selection Criteria at this point

~~Define more~~ Red Involved Public Participation

Mark - Iterative Process - Goal to do in one shot but  
will need to make a few shots

10 AM

I send letter to all non-Federal Invitees

Discussion of Selection Process  
Discussion of  
Criteria ~~of~~ For Selection

~~Proposed~~ Prioritization / Public Process / Participation  
Participation / Public Participation

Email Mike  
to Jack  
on USFWS  
to Lawson

STATE Sends letter to Non Fed Participants  
Get ~~back~~ back to Mike on whether to do USFWS  
Also

Cum Impact Study Surgeon  
LP Alliance has money

Consider Typing into GIS database - just  
beginning consideration starting to look  
at geolocation for objects  
Annual 2 day users mtg in Boulder

AWP - How do we regulate water rights when we  
have days of travel time - It takes a  
day to shut canal off - NEMA NOT here  
but interest in flood flows  
Also responding to head of irrigation districts  
Cooperative Agreement  
Colorado, Wyoming + USFWS

Subash - W Quality Side  
Effect of Surface Runoff on Quality of GW Wells

JEFF - Account Balancing a major step  
Would also like sediment / spatial data  
Changes of Timing changes sediment transport  
channel morphology. Mike Petrelli Denver  
on San Juan said this could be applied to  
Central Platte on Channel Morphology

Arnaud - Some sediment studies done with Riverware, but  
Not part of standard model

JEFF - then use Riverware Outputs as inputs for  
geomorphology studies.

FRANK - Major Models OP Study, N Platte River  
model for Wyoming, Colorado for S Platte  
Good for Learning & Teaching of Operators  
As well as for simulation of system.  
Public Simulation Modeling at Interpretive Center  
NEED some form of Graphical Input-Output  
Better Simulate Surface water side  
S Platte model available in last few months

JEREMY - Long Term  
Instream flows & FWS Target flows affected by their  
operations. Anything allowing more accurate and  
release is better

ANN - There will be an Env. Agreement in Wyoming - A new dynamic  
on S Platte Tamarack will provide flows in S Platte  
in exchange for McCoumby

FRANK - mechanism to when target flows will and would  
be met Do need to remember this is a  
model & keep in mind precision versus accuracy

FRANK - COTHYST is good model of what to look at  
spread cost & puts tech expertise

FRANK - what were costs for other Basins? For recent  
Basins in range of low \$200,000 - per year  
for 2 to 3 years



Probably \$100<sup>000</sup> per year for Research  
~~Sub~~ <sup>plus</sup> \$100<sup>000</sup> for \$125,000 from general investigation

MIKE - General Investigations - state would need to be \$50,000 of GI

Don't know

Anticipates much of our input would be in-kind

No limitation on in-kind vs cash

ANN - If we did a daily flow model with one remain what type of \$ ARE we talking about

FRANK - Substantially less, the \$200,000

MIKE - His GI program could stand a request for \$200,000 for a few years

FRANK - Bureau could have interest in this too

MIKE - Take comments & make general study cost estimate & make a stab at it. Would state partners be potential cost share partners

ANN - Can Bureau contact Corps?

\*\* Touch Base with UEMA

ANN - If you get cost estimates we will do our homework & respond by letter back to them on study request. Letter would say we are interested - not saying we will.

Sub ask how about EPA & USDA

MIKE

Research \$100,000

GI 100000

Non Fed 100000

SO \$600,000 over 2 years

AND - we will make sure we get back to  
MIKE in next week or so.

~~Gauging~~

NO Equipment replacement

Replacement / Equipment Schedule

Training Book / Quality Assurance for Gauging Stations

Review Gauging Stations once every 5 years

Need for gauges water down, Pwg, flood prediction, GIScience

Prioritize all gauges

Need partially help on some gauges

IF we can justify for our program it gets high priority

Hydrographic Conference in connection with Departmental  
Conference - 1 to 1 1/2 days looking at gauging problems

IE Ice jams

Plan for Equipment replacement | Bridgeport the 2nd lumped

ASK <sup>DEB</sup> ~~DEB~~ what Expenditures were on stream gauging in  
last fiscal year - Budget Request Justification  
is that we got 30 new gauges 8 years ago.

Do still cost share with USGS.

No Level 3 Triggers

Tasks for the Decision Support System Implementation.

1. Get streamflow data online.
2. Get hydrographic database established.
  - Streamflow records.
  - Well record database.
  - Surface Water Right Database.
  - Stream database.
3. Get Predictive Model.
4. Get Tracking Program online.
5. Expand to other basins.
6. Evaluate Gage locations.
7. Complete USBR proposal.
8. Evaluate other DSS's
- 9.
- 10.
- 11.
- 12.

Kube-

Study proposal deadline is August 4

Would prefer 1 State entity as lead partner and other cooperating partners

Accounting, General Reservoir Operations/management  
Running on Sunspark - may do overview for Canada for run on NT

ANN - Users in Irrig Districts & Outstate NEED to be able to use to make decisions

Current Sun work station cost down in \$4000 range  
ANN internet access etc.

Arnold - data centered model - we develop software not data

Powerware strong on modeling physical processes

Data management into: File

Category is using with Access Database

ANN - Co Hyst data

\* Check on DataBank use of Access database - IS it large enough for purposes used

MIKE - Proposal letter - NO need to sign agreements now

Ann - mesh with SW/CW Interaction of Co Hyst  
Paper Accounting

Storage, Flow, Division rights

Exchanges Loans Rents Carryover Accrual

Licensing includes 3 day course  
20 hrs of Tech support course

## MEMORANDUM

from the Division of Water Resources

On March 17, 2004, Representative Young and Senator Reeves of the Joint Budget Committee introduced House Bill 04-1402, calling for the repeal of the Water Administration Fee Program.

On April 7, Governor Owens signed HB 1402, thus repealing the Water Administration Fee Program, effective immediately. The legislation abolishes the program and requires the State Engineer to cease collection of Water Administration Fees and to refund those fees already collected no later than June 30, 2004.

This proposal was developed with two primary considerations:

1. The legislative economic forecast indicates that the amount of revenue received from the water administration fees would be equal to the amount refunded by TABOR in fiscal year 2004-2005.
2. The general concept that water resources are a life-sustaining necessity and of comprehensive value to all of Colorado's citizens is a benchmark that pre-dates statehood – thereby, it is appropriate to fund water administration through general funds.

We thank the water users and the general public for the input and patience they have provided during this time.

### **Chronology of House Bill 04-1402**

- March 19 – The House Ag Committee voted unanimously to repeal the program.
- March 22 – The House Appropriations Committee voted unanimously to repeal.
- March 25 – The House of Representatives voted unanimously to repeal.
- March 26 – Senate Appropriations Committee voted unanimously to repeal.
- March 30 – The Senate voted unanimously to repeal.
- April 7 – Governor Owens signed HB 1402, repealing the program.
- June 7 – last mailing of returns and refunds.

USES	Long TERM BASE FLOW	Monthly Model
Goals	Short Term Reach GAINS	48 hr Model
Objectives	ENVIRONMENTAL RELEASES	Coordination with CONYST
Control Pkts	Upper / Lower Pkts	

## Goal -

Optimizing both short and long term  
 TO ASSIST MANAGERS IN OPERATION OF STORAGE RELEASES  
 IN THE PLATE RIVER IN NEBRASKA  
 SO THAT ENVIRONMENTAL RELEASES, IRRIGATION RELEASES, AND POWER RELEASES  
 AND ANY OTHER RELEASES PROVIDE THE LEGALLY REQUIRED OR REQUESTED  
 FLOWS AT <sup>THOSE TIMES</sup> ~~NEEDED~~ BUT STORAGE RELEASES ARE NOT MADE  
 IN EXCESS OF ~~EXISTING~~ DOWNSTREAM REQUIREMENTS

## Special Uses Parameters

Model(s) will ~~not~~ accurately account for

- ① Long term depletions to <sup>SW</sup> Flow From Groundwater Development or Other means
- ② Short Term Fluctuations in REACH GAIN
- ~~③ Short term~~ ③ Model should be capable of incorporating input from other efforts such as CONYST
- ④ Model should be especially attuned to SW-GW Interaction and changing GW Conditions.
- ⑤ Model should be especially attuned to determining needed environmental releases

## Scenarios

Model should be capable of being run for various water availability

## Scenarios

Model should be able to show water availability under wet dry or normal target flows given changing conditions  
 Ideally model would be able to incorporate special weather conditions into scenarios

## Objectives / Results

- 1) A mid range predictive model that will predict possible flows up to 4 months in advance using a one-day time step. The model should be useful for Reservoir Operations and able to utilize Conyst input on Base flows
- 2) A short range predictive model that will predict possible flows up to 48 hours in advance using a one-hour time step  
 (IE given inflows and projected reach gain and weather what should we release at NP to achieve a given flow at GE at a specified time period)
- 3) A forum for exchange of information concerning river flows and diversions  
 48) A place where current river flows & diversions along with predictive flows are displayed (perhaps on web site)