North Branch Operations Study: ICPRB's Gameplan

North Branch Meeting

October 29, 2007

Luke, Maryland

Overview of Tonight's Meeting

- Intro
- Minutes, letter, other
- Presentation on current operations
- Preliminary modeling results
- Discuss next steps

Overall Goal

Develop and implement new operational rules and communication procedures to better meet objectives for recreation, water quality, and water supply.

Overview of ICPRB's Plan

1. Get your buy-in
2. More detailed objectives and metrics and new data
3. Work with Corps to validate PRRISM
4. Develop and test operational ideas
5. Develop new communication mechanisms

Overall Goal for this Meeting

Begin to improve the tools we have for developing new operational rules and procedures. Tools include objectives, metrics, data, models, communication procedures and more.

Specific Objectives for this Meeting

- Get familiar with current operations and PRRISM
- Examine a little of what we've got so far—objectives, release schedule, model, data, ideas.
- Agree on next steps for improving objectives, metrics, model, data

WHY?
What will this do for you?

- Work with us to learn about your objectives
- Tools to show how and when your objectives might be impacted
- You can make choices about what you prefer
- We can eventually design rules that all can understand and accept, given the science and limitations of the system
- You'll end up with more certainty

Things that are unlikely in this meeting

- Adopt new operational rules
- Finalize objectives
- Reach agreement on current operations
- ***Extensive Debate about 2007 operations***

But first…

- Meeting minutes
- Latest draft of the letter
- And other pending issues

Issues, Objectives and the Model

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Overview

- Status of the major issues (if there's time)
- North Branch Objectives
- PRRISM and the "Viewer"
- Using PRRISM

General Issues
(in no particular order)

Issue#1: Water Quality

- Making progress on:
  - Temperature on North Branch Below Luke
  - TSS on North Branch Below Luke
- Remaining needs:
  - Temperature on North Branch between JRR and Luke
  - Temperature in Savage Reservoir and impacts on Savage River

Issue#2: Fisheries

- Making progress on:
  - Flow needs for habitat on the Savage River
  - Temperature impacts on North Branch below Luke
- Remaining needs:
  - Flow needs for habitat on North Branch above and below Luke
  - Temperature impacts on the Savage River

Issue#3: Whitewater

- We know the flow needs
- Looking for more info on broad objectives
- Tracking down usage numbers
- Looking for data/information on economic impact

Issue#4: Recreational Fishing

- Need to fine tune the flow needs for float and wade fishing
- Need usage numbers
- Data/information on economic impacts
- Separate impacts to fish from impacts to fishermen

Issue#5: Lake Recreation

- Boat ramps and beach at Jennings Randolph
- We know the lake elevation targets
- The Corps has general usage numbers

Issue#6: Other environmental needs

- Just beginning to think about this
- TNC is interested in doing some research

Using PRRISM

- PRRISM can be modified to test changes in operations
- Simulation results (daily flows, levels, metrics) are viewed in Excel
- Alternative operations can be compared for their performance
- Objectives and metrics are the key

North Branch Advisory Group Reservoir Management Objectives

- Maximize opportunities for fishing and boating in the region.
- Maximize opportunities for all types of fishing (float, bank, wading).
- Maximize opportunities for lake swimming and lake boating.
- Provide opportunities for whitewater paddling at different skill levels.
- Provide opportunities for two-day weekends of paddling.
- Maintain optimum habitat for fish populations.

Recommended Release Schedule #1

Jennings Randolph Reservoir: Four weekends of whitewater releases between late April and the first weekend in June. On each of the four weekends, there should be an approximate 6-hour release on Saturday and an approximate 6-hour release on Sunday. Whitewater releases should not be scheduled on consecutive (back-to-back) weekends. Whitewater releases on Memorial Day weekend should be scheduled to occur in odd numbered years. Optimal discharge rates should be 800 to 1000 cfs if possible.

Recommended Release Schedule #2

Jennings Randolph Reservoir: Two weekend releases, either Artificially Varied Flow (AVF) events or whitewater events, between early Sept and late October. On each of the two wee here should be, as a minimum, an appro hour release on Saturday and an appro hour release on Sunday. The Ra elease should be coordinated with the reg cational release schedule. Optim ge rates should be 800 to 1000 cfs if po

NOT MODELED YET

Recommended Release Schedule #3

Savage River Reservoir: Three whitewater releases - one the first Sunday in July, one the first Sunday in August, and one on either the first or second Sunday in September. The September release will occur on the Sunday of Labor Day weekend in even numbered years. On each of the three Sundays, there should be an approximate 6-hour release. Optimum discharge rates should be 800 to 1000 cfs if possible. Lower discharge rates, fewer hours for releases, or event cancellation may be considered if there is an insufficient volume of cold water remaining in storage to maintain a desired minimum flow target of 55 cfs in Savage River throughout the remainder of the season.

Recommended Release Schedule #4

On non-whitewater weekends in April through October, maintain a minimum flow of 300 cfs at the Luke gauge on Friday-Saturday-Sunday-Monday. The release shall begin Friday morning and continue to Monday morning. This will create four days of various float fishing and paddling opportunities.

Recommended Release Schedule #5

In moderately dry years, it may be necessary to conserve water storage to satisfy other authorized project purposes. If so, the first options should be to reduce the Jennings Randolph AVF/ whitewater release to 800 cfs and/or suspend the Friday 300 cfs flow target at Luke before cancelling the events entirely.

Recommendation #1 JRR Whitewater releases

PRRISM Implementation:

- Releases are made as recommended
- There is a storage trigger for canceling releases
- Releases are assumed to be 1000 cfs for 8 hours
- Can be cut back by drought triggers
- ***Results…***

Do we need more?

Now we have:

- Maximize opportunities for boating
- Provide opportunities for whitewater paddling at different skill levels

Release recommendation #1: WW releases on four weekends between late April and Early June

But what about…

- April vs May vs June releases?
- Size of the releases
- Lead time for notice
- More full weekends vs more days
- Releases later in the year?
- Can weather play a role?

Do we need more?

Now we have:

- Maximize opportunities for all types of fishing (float, bank, wading).

Release recommendation #4: On non-whitewater weekends, maintain 300 cfs at Luke Fri-Sat-Sun-Mon

But what about…

- When 300 cfs can't be met through the year
  - Is is better to meet it for part of the year and then drop way down?
  - Is it better to meet it just on Sat-Sun
  - Is it better to meet earlier in the year or later in the year?
  - Does weather play a role?
  - Is more okay? How much more?

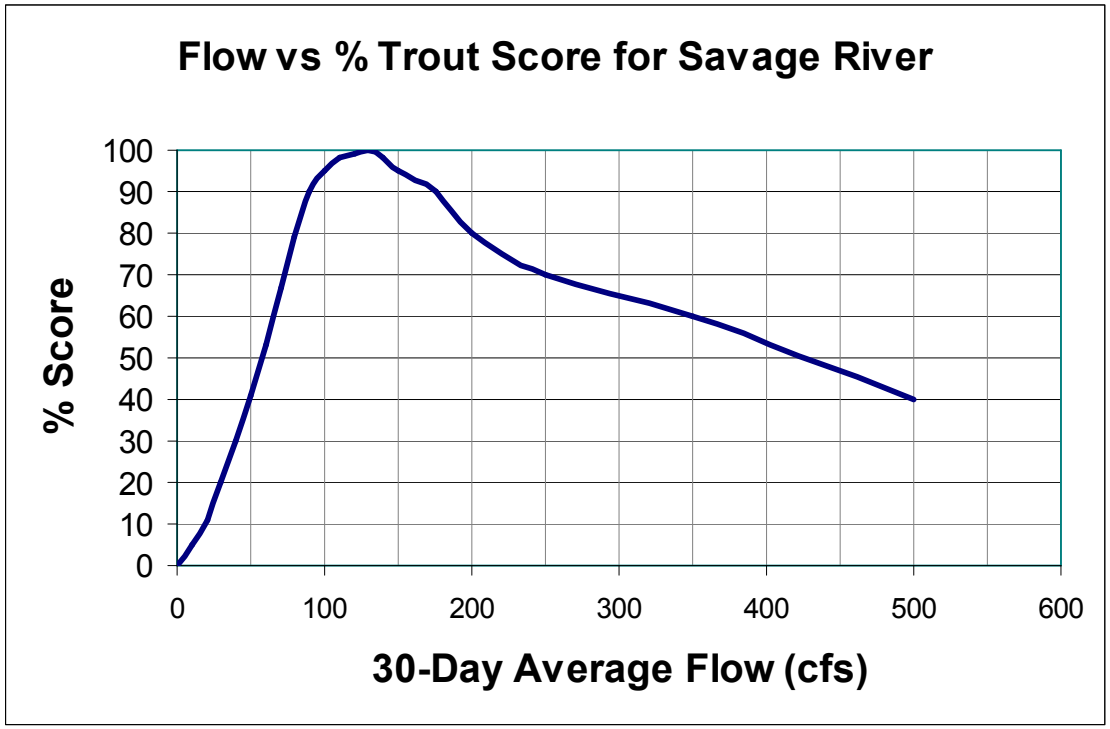
Improving the objectives & metrics

- Add detail to the objectives and make them more complete
- Develop more metrics that describe performance against the objectives
- An example

Fish habitat on the Savage

Maintain optimum habitat for fish populations

- Maintain 55 cfs releases from Savage Reservoir



Bottom Line

- Why do this?
  - The Corps and ICPRB cannot help meet your objectives unless we know the details
  - The details may be fuzzy right now, but it'll become clearer if we use the model
  - This will probably take several rounds
- More technical work is possible later

Next Steps

1. *ICPRB will spend more time with the Corps to make sure that PRRISM captures how they conduct operations.*

   - We know certain details are missing and some things have changed

Next Steps

2. *More meetings with stakeholders to discuss detailed descriptions of objectives and potential metrics.*
   - Organize by user group (Whitewater, fishing guides etc.)
   - One meeting with each group before next Advisory Group meeting

Next Steps

3. *ICPRB will continue to analyze available data (temperature, other water quality)*
   - May have new models within the next few months
   - Is there a need/opportunity to collect new data and produce new models?