

Supply and Demand Committee

November 12, 2009

CropSyst Model

Mike Barber completed an overview of the CropSyst model that was begun at the September 9 meeting. CropSyst is a user-friendly model designed for management rather than research purposes. The outputs of the model include crop growth, water/nitrogen balance, salinity, soil erosion, carbon sequestration, and greenhouse gas emissions. When combined with the VIC (Variable Infiltration Capacity) hydrological model, CropSyst will provide the committee with ample outputs to assist with a supply and demand analysis.

Committee members raised the following questions and observations:

- With climate change, will we be able to see a change in the types of crops? [*Yes*]
- What scale will we see the results? [*Both on a broad scale landscape basis and to a sixteenth of a degree*]
- What are the units of output? [*Crop yield and water demand.*]
- Will economists help you decide on substitute crops? [*We are looking for reasonable scenarios, e.g. fruit trees coming out and wine grapes coming in. Something more scientific than supposition.*]
- Could hops be added? [*Yes, it's easy to add crops. We'll look into it.*]
- Will these scenarios and trends be documented? [*Yes*]
- Does CTED play a role in municipal demand? [*No. Municipal demand will be based on watershed plan data, DOH water system planning data, and USGS data.*]
- Some cities have good projections and others don't.
- With an unlimited number of scenarios, what is the process for cost effective runs? [*We will do a minimum number, then come back and make decisions on where we need refinements, depending on what the initial runs show.*]
- What happens if it is not possible to meet demand or if it is economically impossible to meet demand? [*There are two way to control costs: water availability and tiered costs.*]
- Have you looked at changes in dam operations? [*Not really. There are a lot of unknowns, e.g. with Judge Redden, Canadian storage.*]
- The biggest variables are the Canadian Treaty and flood control curves.
- The simplest way to look at climate change is that it is a change in demand. But it is a less important variable before 2030.

Dry, Normal, and Wet Years

Dan Haller led a discussion of how the Supply and Demand Report should deal with dry, normal, and wet years. Ecology would like the Report to provide a comparative hydrograph versus Instream Flow for each WRIA to see where there are water deficits that need to be dealt with. This goal is difficult because there is no common definition of drought across the Columbia River Basin. For example, the Columbia River Rule bases interruptible permits on the expectancy that there will be a drought every 26 years. The Colville Agreement identifies the driest 20% of years as “dry years”, a designation that governs the release of water in April-August for fish. In the Yakima Basin, less than 75% of normal flow measured at the Parker gage indicates drought conditions; so does the lowest 20th percentile year, April-August, measured at The Dalles.

Having definitions for dry/wet/average conditions helps us understand how much water is needed to meet demand. Ecology will follow the criteria where it’s already defined (Columbia River Rule, Colville Agreement). However, to make appropriate policy choices, we need definitions for the entire Basin.

Committee members offered these observations and questions:

- Isn’t a drought the point at which it upsets the permit process? This should be known in most basins.
- I think this issue is really about what the consequences of a dry year are for fish. I would like to know the breakpoint for fish survival.
- Will a drought definition vary by watershed?
- Don’t define a drought by the driest 20% of years, because all the years will be getting drier.
- I am more comfortable with the Columbia River rule, i.e., 60 maf.
- Drought should be defined by the minimum expectation of users.
- We need to look at a time period for: the impact on fish, the impact on users, the 10% driest years, and apply to a particular watershed.
- What are we using this for in the report – to manage flows for fish?
- Why do we need to define each of the three scenarios (wet/dry/normal)? Can’t we just have a continuum?
- What is the relationship of adjudication to this question? It would be easier to define drought if a basin was already adjudicated.
- I have some concern over how the Supply and Demand Report will be applied. For example, by law it is supposed to help with interruptibles on the Columbia River but this discussion would seem to apply it to tributaries.

- I still don't understand what this tool [defining a drought] will be used for. This seems more to be about Ecology's anxiety.

Project Overview

Rick Roeder distributed a detailed project overview and timeline broken into quarters. The 4th Q 2009 focuses on the CropSyst/VIC model, reservoir operations and dry/wet/average years. The 1st Q 2010 will focus on WRIAs, climate change, public and government outreach, and instream flow needs. The 2nd Q 2010 will focus on agriculture land, conservation incentives, municipal demands, and tributary and mainstem supply. The 3rd Q 2010 will focus on data gaps, hydropower and instream flows, and drafting of the report.

In general the committee felt comfortable with the progression and pace laid out in the Workplan. Meetings of the Supply and Demand Committee have thus far been appended to CRPAG meetings. It might be necessary to call special meetings of the Supply and Demand Committee, once the initial model runs are completed. Rick will ask Derek when he needs the Yakima Basin models to be run.

The Committee agreed that it would be useful to brief county commissioners on the Supply and Demand Report at one of their regular meetings.

Attendees:

Michael Barber, Washington State University
Dave Burdick, Department of Ecology
Carolyn Comeau, Department of Ecology
Jon Culp, Washington Conservation Commission
Bill Eller, Washington Conservation Commission
Michael Garrity, American Rivers
Al Josephy, Department of Ecology
Dan Haller, Department of Ecology
Bob Hammond, City of Kennewick
Dave McClure, Kittitas County
Philip Ridgon, Yakama Nation
Rick Roeder, Department of Ecology
Teresa Scott, Washington Department of Fish and Wildlife
Dan Silver, facilitator
Paul Stoker, Groundwater Management Area