

**WATER ALLOCATION PROGRAM DEVELOPMENT
IMPACT SUBCOMMITTEE MEETING**

MINUTES OF MEETING

4-4-03 10 AM at the Offices of the RI Economic Policy Council

Present:

Kathleen Crawley, Beth Collins, Rich Blodgett, Judy Benedict, Ana Semedo, Jay Coia, Tim Tyrrell, Katherine Wallace, Caroline Karp.

1. Tim Tyrrell -Economic Values and Water Allocation

(PowerPoint file attached as a separate document)

- How you do economic valuation of water as a resource? How would I model deficiencies of water?
- Carolyn asked, why value ecological resources? To show policy makers the real trade-offs for modifying ecological resources.
- Among the common concepts for measuring the value of natural resources are the income concept and the gains from trade concept. They measure different things.
 - Income Concept: $wages + profits = value\ added$
 - Gains from Trade: $consumer\ surplus + producer\ surplus = economic\ welfare$. This provides a dollar measure of satisfaction received from natural resources, but is not necessarily finite and is difficult to measure.
- What you want to know, isn't always easy to know, so compromises are made.
- Quality of life values are much greater than income generation and we would like policy decisions to take quality of life into account.
- There are many methods used to monetize the federal penalty for the oil spill for example, replacement cost, lost revenue, and lost taxes.
- Costanza's work uses a mix of concepts. Applying Costanza's method to Narragansett Bay gives us \$2.1 billion in 1994 dollars for ecosystem services. Tim does not know if Costanza's numbers are under or over estimates. They do illustrate a number of interesting things, like the range of services provided by wetlands and the high economic value assigned to those services.
- Tim reviewed past studies of ecosystem services in RI and Narragansett Bay and found that, in contrast to Costanza's work, they only study the ecosystem services directly linked to economic activities: raw materials, food production, recreation, cultural services, commercial services, and industrial services.

- Block Island vs. other districts experience with rates tells us something about how much water has to cost before it becomes relevant to consumer decisions.
- Tim presented a flow chart of how he could approach measuring the economic losses associated with water shortages.
- We could compare cost-benefits of alternatives like conservation vs. developing new supply.
- Rhode Island has experience with the loss of a local water supply, forcing districts to find new supply. On the East Bay, local water supplies became contaminated so they turned to Providence Water until they can build treatment. Lincoln and Harrisville also has issues.
- Matching water quality to use is a central concept in state water guide plans.

2. Katherine Wallace – Quenching Growth Demands: Policies to Avoid regional Water Supply Shortages as Residential Development Increases

Katherine focused in on South Kingstown and Narragansett.

2002 was a low precipitation year, but many other years have been as low.

October –September water year tells a different story than calendar years. The water year is the most hydraulically relevant unit of time. Growing season has least groundwater recharge.

Summary of supply:

- It comes ultimately from precipitation
- Groundwater is impacted faster during drought:
 - surface becomes impermeable
 - less storage capacity
 - trouble pumping shows up within a day
- Interbasin transfer generally equals a net loss of water, in other words, a decrease in available supply.

In North Kingston per capita water use is rising over time. Calculating per capita water use in many towns in the region is complicated by the of summer population. Carolyn mentioned work at Brown that found a gradient of increasing per capita water use moving out from urban centers. (follow up to get paper)

In Rhode Island residential water use is an especially big issue. 40% of water use in RI is residential compared to 17% residential nationally.

Private well users use more water than residents on public water. This could be because of watering larger lots.

The reasons for increased residential water use include:

- more appliances
- more lots (more households for same population)

- larger lots

Is shortage an issue, and if so, what should we be doing about it?

South Kingstown has a 160 homes per year building cap that should make growth in water use linear.

Until the mid-nineties you cannot see a divergence between precipitation and stream flow at the Kingston and Chipuxet gauges. Is there a threshold after which withdrawal impacts stream flow? 85%-100% of water pumped from the ground near rivers is drawn from surface water.

Katherine did calculations of water availability for the United Water service area for a few different scenarios. Katherine liked the DEM map delineating recharge areas better than other maps. Katherine calculated potential water availability and compared it to demand figures and concluded that there is a water shortage in the United Water service area. It becomes evident only when you look at all the areas that expect to be supplied by United Water.

United is negotiating new contracts without identifying sources of the new supply they will be using.

Are regulatory and or growth management measures necessary to avoid regional water supply shortages as residential development increases?

Recommendations:

- Supply management – further delineation of groundwater flow to get better yield estimates; improve definition of safe yield and future demand; greater coordination among water districts, municipalities, and state agencies; interbasin transfer regulations
- Demand management – conservation

Are marginal improvements in safe yield estimates worth the time and money or do we know enough to act? Stream gauging is first priority, it tells you a lot of very important information to guide resource management.

3. Updates on Tasks

- Rich Blodgett will email his task group.
- Judy Benedict gave a very brief overview of the work of the priority environmental assets group and promised a full report at our May meeting.