ALTERNATIVE	TAX STATUS	FUNDING OPTIONS
		General Obligation Funds: • Securities backed by the full faith and credit of the issuing unit of government. • Secured by an unconditional pledge of the issuing government to levy unlimited ad valorem taxes to pay principal and interest. • Used to finance capital projects.
State Water Management Project	Tax-Exempt (General Fund Appropriations from kwh Franchise Fee, a States Sales or Property Tax, Special Product or Service Tax, etc.)	**Tax Exempt Bond:** Bonds exempt from federal income, state income, or state and local personal property taxes. "MUNICIPALS" are exempt from federal income taxation at present and may or may not be exempt from state income or personal property taxation in the state where originally issued or held.
		Revenue Bonds: Principal and interest are payable entirely from the revenue received. In this case revenue would be received from the Idaho State Legislature from one or more sources as determined by the Legislature

E. Technical Document - Summary of CAMP Modeling Results

Introduction

The Idaho Department of Water Resources (Department) and Idaho Power worked cooperatively to model various scenarios for the CAMP process. The modeling effort was initiated at the request of the CAMP Advisory Committee, through the Environmental Sub-Committee, in an effort to determine the impacts resulting from the implementation of various CAMP alternatives on fish, wildlife and water quality. This summary focused on the modeling conducted for the medium alternatives package, which is the long-term vision of the Board. Specifically the modeling was performed to:

- Determine changes to Snake River flows and reservoir storage as a result of implementation
- Help identify key stream reaches and issues that may impact fish and wildlife during CAMP implementation
- Help identify potential benefits to fish and wildlife or opportunities to improve fish and wildlife resources through the CAMP process

The modeling results do not address the feasibility of any of the modeled measures or scenarios. The alternatives and measures modeled were included in a range of alternatives developed by the full CAMP Advisory Committee and refined by the Department. The modeling was completed to assist the Committee in assessing the impact of various alternatives and measures on fish, wildlife and water quality. The component measures of the selected alternative will likely change depending on available financial and technical resources.

Modeled Scenarios

The CAMP Advisory Committee focused on incrementally achieving a 600,000 acre-foot (acft) average annual adjustment to the overall water budget of the ESPA. Two conceptual alternatives were developed intended to result in a 600 kaf annual adjustment. One alternative emphasized aquifer recharge and the other demand reduction. Each alternative contained varying combinations of recharge, demand reduction and soft conversions.

Soft conversions are those ground water irrigated acreages that can easily be converted to surface supplied systems. Water for conversions may be available from two different sources; 1) water that is considered excess natural flow, 2) high-lift pump water purchased and exchanged for salmon augmentation flows from reservoirs above Milner Dam. (The availability of water from this latter source is dependent on the availability of funds for the purchase and state and federal approval of the exchange.)

In addition to the two scenarios, three additional variations of each scenario were modeled. The variations modeled focused on demand reductions in the lower basin, mid basin or upper basin of the ESPA. These scenarios were conducted to determine if demand reduction strategies could be targeted to specific stream reaches or springs.

Modeling Approach

Currently there are no models for the ESPA that incorporate interactions between ground water and surface water. The ESPA ground water model can simulate the effects of stress on the aquifer and subsequent reach responses and reach gains. However, it cannot simulate river flows, diversions and reservoir storage. Conversely, the Snake River Planning Model (SRPM) can simulate the effects of increased reach gains and diversions on river flows and reservoir storage but it cannot determine new reach gains. Linking these two models together was necessary in order to perform the desired analysis for CAMP deliberations. As such, the ESPA ground water model and the SRPM were linked together using Excel spreadsheets and VBA (Excel macros).

The selected scenarios all have impacts to reach gains of the Snake River. Key in the modeling process was to account for these reach gains and insure they were made available for diversion for recharge or system conversion in subsequent years. Accounting for those gains and making them available for subsequent diversion necessitated the use of an iterative modeling process. In other words, each year was modeled separately, accounting for increased reach gains accruing from actions in the previous years available for diversion for recharge, soft conversions and irrigation shortages in subsequent years. With each iteration, wherever applicable, the recharge diversions were reduced to make sure that no additional irrigation shortages are created.

The two models were linked together to run in an iterative manner allowing for this accounting and subsequent diversions of reach gains (Figure 1).

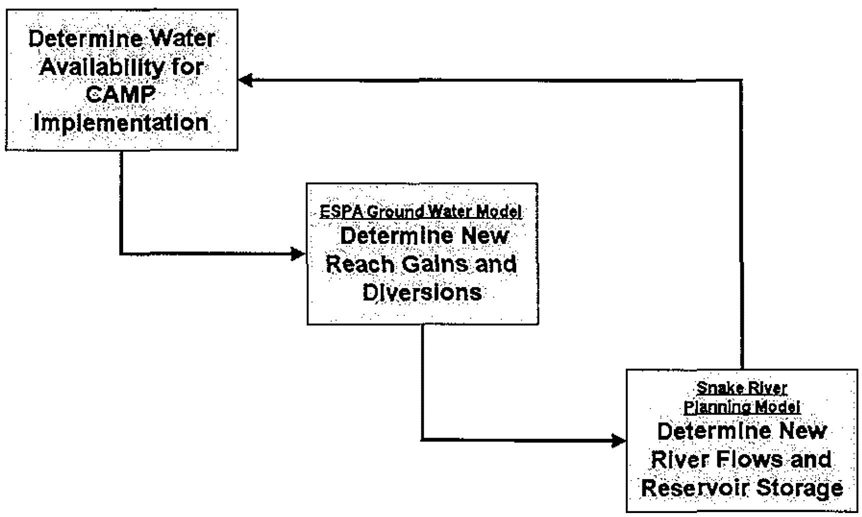

Figure 1: Schematic of CAMP scenario modeling.

The selected modeling period was 1980 through 2005. The practices were not incrementally phased-in but rather were considered to be fully implemented in year one. This was done to provide a longer modeling period of the fully implemented practices to provide more uniform results for comparison.

Neither the ESPA ground water model nor the SRPM can predict actual numbers for stream flows, reservoir storage, reach gains or aquifer response. Therefore the modeling is best understood by comparing model results to a base case scenario. The base case scenario is the calibrated SRPM with no changes to reach gains or diversions.

Model Results

Tables 1 and 2 show the average annual yield for each of the modeled scenarios as well as the required yearly recharge capacity. Each scenario exceeded the 600,000 acre feet yearly adjustment in the water balance of the ESPA. The recharge emphasis scenarios exceeded the target amount by 50,000 to 85,000 acre feet. The demand reduction scenarios exceeded the target amount by 85,000 to 118,000 acre feet.

Table 1: Results of the demand reduction emphasis scenario.

		Demand Reduction Target			
	Planned	None	Upper	Mid	Lower
Demand Emphasis Practices	Acre-Feet				
Recharge	150,000	286,291	277,479	259,123	268,093
Soft Conversion	100,000	61,088	59,867	56,496	57,937
Wood River Recharge	*22,565	22,565	22,565	22,565	22,565
Demand Reduction	350,000	348,715	348,715	348,715	348,715
Total	600,000	718,659	708,626	686,899	697,310
Required Yearly Recharge Capacity - 528,710 Acft					

* Not included in 600,000 KAF total

Table 2: Results of the recharge emphasis scenario.

		Demand Reduction Target			
	Planned	None	Upper	Mid	Lower
Recharge Emphasis Practices	Acre-Feet				
Recharge	400,000	507,011	512,141	506,271	479,038
Soft Conversion	100,000	51,606	51,416	51,081	51,066
Wood River Recharge	*22,565	22,565	22,565	22,565	22,565
Demand Reduction	100,000	99,633	99,633	99,633	99,633
Total	600,000	680,512	685,802	679,550	652,302
Required Yearly Recharge Capacity - 1,117,407 Acft					

* Not included in 600,000 KAF total

Figures 2 and 3 are cumulative discharge graphs for the Milner and King Hill gages. Each graph shows the cumulative discharge for the base case scenario, recharge scenario and demand reduction scenario. Figure 2 indicates that over the modeled 26 year period, cumulative flow at Milner is reduced by approximately 6.8 million acft for upstream diversion for recharge and system conversion under the recharge scenario. Figure 3 indicates that the total cumulative flow at King Hill is essentially restored after 26 years under the recharge scenario. Under the demand reduction scenario, Figure 2 indicates that the total cumulative flow at Milner is essentially restored after 26 years and Figure 3 indicates that the total cumulative flow at King Hill increases by approximately 4.0 million acft as a result of increased reach gains.

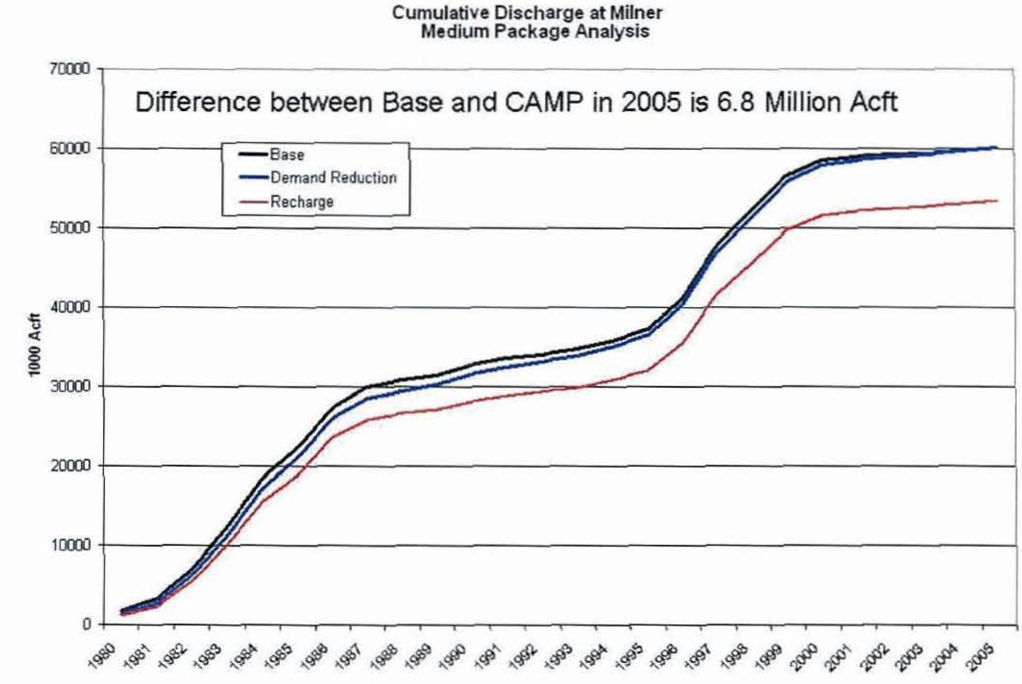

Figure 2: Cumulative discharge graph for modeled base, recharge and demand reduction scenarios at the Milner Gage

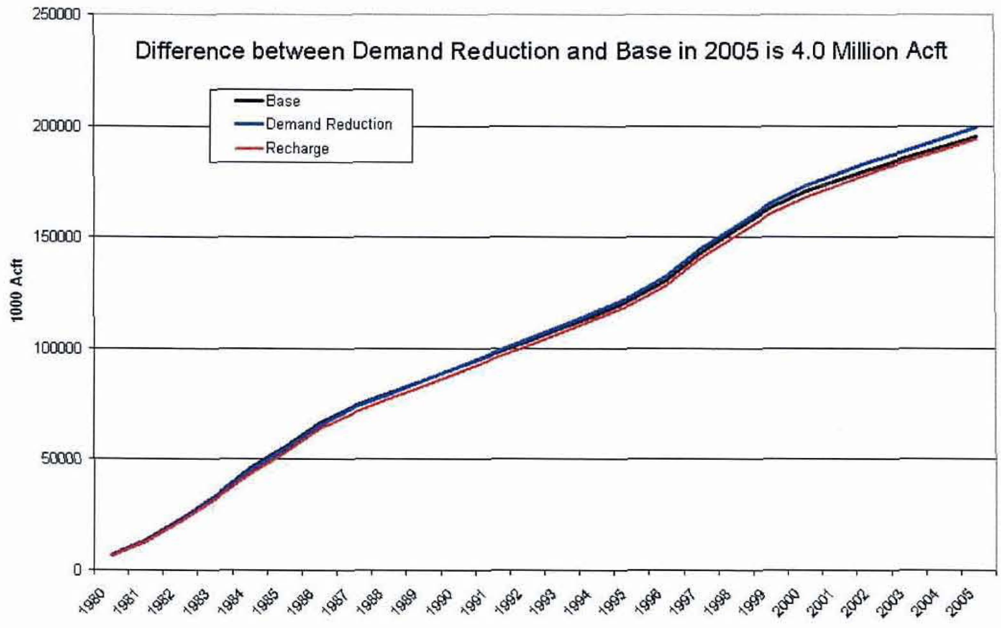

Figure 3: Cumulative discharge graph for modeled base, recharge, and demand reduction scenarios at the King Hill gage.

The targeting of demand reduction had a noticeable impact on reach gains in various parts of the Snake River. As expected, those reaches in closest proximity to the location of demand reduction had the largest response. Targeting of demand reduction may provide assistance if there is a desire to direct reach gains either above or below American Falls. The ESPA ground water model is not of sufficient refinement to locate demand reduction to benefit specific springs in those stream reaches below Milner Dam. Figure 4 shows the impacts to targeted demand reduction in the Buhl to Thousand Spring reach.

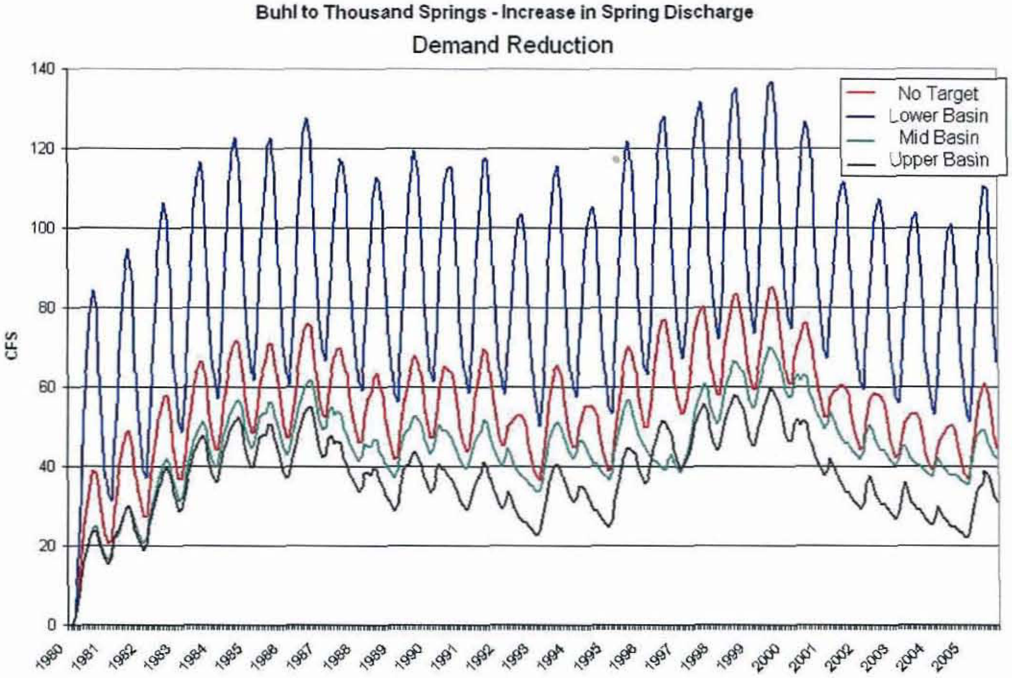

Figure 4: Increase in spring discharge in the Buhl to Thousand Springs reach in response to targeted demand reduction.

F. Technical Document - Summary of Cloud Seeding Feasibility/Design Study

See www.espaplan.idaho.gov for the Cloud Seeding Feasibility/Design Study