ESPA CAMP ANALYSIS
Different Size of Water Budget Changes

GOAL

- Develop Alternative Water Budget Changes as Follows:
  - Small (300 KAF); least expensive and quickest to implement
  - Medium (600 KAF); more expensive and takes more time to fully implement
  - Large (900 KAF); most expensive and will take several decades to fully implement.

Management Options

Components	Estimated Average Supply (best information)	Estimated Cost (best information)	Hydrologic Impacts	Timeline for implementation
Weather Modification (Idaho only)	170,000 AF/yr (increase by 7% the estimated yield from Idaho part of Snake abv. Heise and Henrys Fork)	$1.7M/yr	Potential supply increase in headwater snowpack. Increased natural flow, and increased reservoir storage.	1-to-2 years
Aquifer Recharge (no construction option – use excess natural flow for supply) – requires resolution of Milner Hydro permit	70,000 AF/yr (50 KAF from Snake and 20KAF from Wood)	$3/AF wheeling fee ($210,000/yr) No capital cost	Above American Falls – improved natural flow later in season. Some improvement to reaches above and below Milner with current facilities at NSCC and Wood River system	1 year
Salmon flow exchange	102,000 AF/yr (varies from 0-to-205KAF based on water supplies)	$185M up-front cost (need to acquire 205KAF+20%, assume $750/AF)	Increase in storage availability for conversion or recharge projects. Reduces releases past Milner.	5 years due to water right purchases

Management Options

Components	Estimated Average Supply (best information)	Estimated Cost (best information)	Hydrologic Impacts	Timeline for implementation
Minidoka Enlargement	50,000 AF/yr	$250M capital cost Annual O&M at 1% of capital cost ($2.5M/yr)	Reliable Storage supply for conversion, recharge or other projects	10 years
New Storage above American Falls	10,000 AF/yr	$500M capital cost Annual O&M at 1% of capital cost ($5M/yr)	Reliable Storage supply for conversion, recharge or other projects	30 years
Aquifer Recharge - Infrastructure required - using excess natural flow – requires resolution of Milner Hydro permit	400,000 AF/yr	$50M Annual O&M at 1% of capital cost ($500K/yr) Annual wheeling costs of $3/AF ($1.2M/yr) The majority of the capital cost would have to be spent below American Falls	Recharge spread over broader area, longer term improvement to reach gains/aquifer levels above and below Milner	20 years due to construction
A&B Conversion	Requires Minidoka enlargement and Salmon Flow Exchange to provide water supply Partial conversion of District may be an option	$250M capital cost Annual O&M at 1% of capital cost ($2.5M) Also see costs under Minidoka Enlargement and Salmon Flow Exchange Cost of partial conversion would be proportional.	Reduces pumping stress in a key location; **long term improvement to reach gains/aquifer levels evenly distributed above and below American Falls**	10 years

Management Options

Components	Estimated Average Supply (best information)	Estimated Cost (best information)	Hydrologic Impacts	Timeline for implementation
Other Hard Conversions (Hazelton Butte)	20 KAF (10,000 acres+/) Requires Salmon flow exchange and/or Minidoka for water supply	$20M capital cost Annual O&M at 1% of capital cost ($200K) Also see costs under Minidoka Enlargement and Salmon Flow Exchange	Improvements in reach gains below Milner, however results could be intermittent depending on surface supply	10 years
Soft Conversions	Requires Salmon flow exchange and/or Minidoka for water supply – Full implementation requires salmon flow exchange	$15M capital cost Assume annual O&M cost is borne by landowners	Long term improvements in reach gains above Milner, however results are not immediate and could be intermittent depending on surface supply	5 years
Demand Reduction - dry year lease - fallowing - buy outs - crop mix changes	160 KAF (have already achieved 40 KAF thru CREP)	$1,250/AF for acquisition of ground water rights Other options should be less	Buy-outs would have a permanent impact to water budget through reduced depletions – other options depend on configuration of programs	2-10 years depending on options and amounts

Weather Modification is a stand-alone option to be considered independently of packages

Option	Estimated Average Supply (best information)	Estimated Cost (best information)	Timeline for implementation
Weather Modification	170,000 AF/yr	$1.7M/yr	1-to-2 years

Small Package

Option	Estimated Average Supply (best information)	Estimated Cost (best information)	Timeline for implementation
Soft Conversions	50,000 AF/yr	Need 120KAF of below-Milner water - $90M $8M for delivery systems	5 years to full implementation
Aquifer Recharge (some construction)	200,000 AF/yr	$20M for infrastructure $600,000/yr wheeling costs	10 years to full implementation
Demand Reduction	40 KAF (this has already been accomplished through CREP) 10KAF new demand reduction	Excluding CREP $1,250/AF $12.5M	5 years to full implementation
TOTAL	300 KAF/yr	$131M $600,000/yr wheeling costs $1.4M/yr O&M and administration	10 years to full implementation

Medium Package

Option	Estimated Average Supply (best information)	Estimated Cost (best information)	Timeline for implementation
Soft Conversions	100,000 AF/yr – from salmon flow exchange	$15M for delivery systems $185M up-front cost (need to acquire 205KAF+20%, assume $750/AF	10 years to full implementation
Aquifer Recharge – using excess natural flow, requires resolution of Milner hydro permit	400,000 AF/yr	$50M Annual wheeling costs of $3/AF ($1.2M/yr)	20 years for full implementation
Demand Reduction	40 KAF (this has already been accomplished through CREP) 60 KAF of additional demand reduction.	Excluding CREP $1,250/AF $75M	5 years to full implementation
TOTAL	600 KAF/yr	$325M $1.2 M/yr wheeling costs $3.3M/yr O&M and administration	20 years for full implementation

Large Package

Option	Estimated Average Supply (best information)	Estimated Cost (best information)	Timeline for implementation
Soft Conversions	132 KAF/yr Assumes new storage above American Falls with 100KAF average annual yield and Salmon Flow Exchange water not allocated to A&B	$15M capital cost $500M capital cost for new storage	30 years
A&B (Hard) Conversions – Needs Minidoka and Salmon Flow Exchange	120 KAF	$250M capital cost Minidoka Enlargement at $250M capital cost Salmon Flow Exchange at $185M up-front cost (need to acquire 205KAF+20%, assume $750/AF)	10 years
Aquifer Recharge	400 KAF/yr	$50M capital cost Annual wheeling costs of $3/AF ($1.2M/yr)	20 years to full implementation
Demand Reduction (including other: dry-land leases, crop-mix, etc.)	40 KAF (this has already been accomplished through CREP) 208 KAF additional demand reduction	Excluding CREP $1,250/AF $260M	20 years to full implementation
TOTAL	900 KAF/yr	$1.51B capital cost $1.2M/yr wheeling costs $15.1M/yr O&M and administration	30 years