

Date: April 1, 2011 (DRAFT)

Table A. Attribute and Information Summary of Water Supply Alternatives, Henrys Fork Basin Study

Literature Information Summary													
Site #	Surface Storage Site	Published Storage Potential (AF)	On-stream	Off-stream <sup>a</sup>	Existing	Impounded Drainage(s)	Off-stream Water Source(s)	Published Hydrology Potential (average annual)	Published Hydropower Potential <sup>f</sup>	Published Impoundment Impacts	Location Unknown	Literature Source <sup>b</sup>	Notes
1	Ashton Dam Enlargement	29,000 <sup>1</sup> ; 40,000 <sup>2</sup>	•		•	Henrys Fork Snake River	Teton River, Falls River, Conant Creek	75,000 AF (Bitch Creek)	6.2 MW (additional)	agricultural development, roads, habitation		IWRRI 1981, IWRB 1992	
2	Bitch Creek	142,000 <sup>1,2</sup> ; 210,000 <sup>2</sup>		•		Bitch Creek	Teton River, Falls River, Conant Creek	75,000 AF (Bitch Creek)	5 MW	limited development and habitation, highway/roads, Union Pacific Railroad Bridge		IWRRI 1981, IWRB 1992	
3	Boone Creek	83,000 <sup>1</sup> ; 80,000 <sup>2</sup>		•		Boone Creek	Falls River	30,000 AF (Boone Creek)	3 MW	Targhee National Forest, diversion would be located in Yellowstone National Park		IWRRI 1981, IWRB 1992	
4	Conant Creek	40,000 <sup>1,2</sup> ; 20,100 <sup>3</sup>		•		Conant Creek	Bitch Creek, Squirrel Creek, Falls River, Boone Creek	20,000-30,000 AF (Conant); 20,000-30,000 AF (Boone/Squirrel)		roads and habitation		IWRRI 1981, IWRB 1992, Reclamation	
5	Driggs	50,000 <sup>2</sup>	•			Teton River						IWRB 1992	
6	Generic Reservoir in Flat Land	NA		•							•	NA	Presented by Reclamation at January 11, 2011 Workgroup meeting
7	Grassy Lake	NA			•								Existing storage is 15,000 AF. Upstream Falls River.
8	Harrops Bridge/Tetonia	590,000 <sup>2</sup>	•			Teton River			4 MW			IWRB 1992	
9	Horseshoe Creek	60,000 <sup>f</sup>		• <sup>d</sup>		Horseshoe Creek <sup>d</sup>	Teton River <sup>d</sup>				• <sup>d</sup>	NA	Limited information available. Noted in Carey Act literature but most recent info found is from 1911.
10	Howell Ranch	32,000 <sup>1</sup> ; 30,000 <sup>2</sup>		•		Rock Creek, Porcupine Creek	Falls River, Robinson Creek	10,000 AF (Robinson Creek); 30,000 AF (Falls River)	✓	uninhabited Howell Ranch and some roads		IWRRI 1981, IWRB 1992	
11	Island Park Enlargement	6,000 <sup>d</sup>			•							NA	Existing storage is 15,000 AF. Presented as enlargement option by Reclamation at 01/11/11 Workgroup meeting.
12	JY Ranch	49,000 <sup>1</sup> ; 50,000 <sup>2</sup> ; 80,000 <sup>2</sup>		•		Rock Creek, Shaefer Creek	Falls River, Porcupine Creek, Robinson Creek			inundation of habitation (J Y Ranch), roads, Targhee National Forest		IWRRI 1981	
13	Lane Lake/Teton Lake	69,000 <sup>1</sup> ; 70,000 <sup>2</sup>		•		dry basin north of Teton River	Bitch Creek, Conant Creek	75,000 AF (Bitch Creek); 32,000 AF (Conant Creek)	✓	some roads, agricultural development, limited habitation		IWRRI 1981, IWRB 1992	
14	Lower Badger Creek	73,000 <sup>1</sup> ; 70,000 <sup>2</sup>		•		Badger Creek	Teton River, Bitch Creek		✓	very little development		IWRRI 1981, IWRB 1992	
15	Marysville Headworks	38,000 - 56,000	•			Falls River						IWRB 1992	
16	Moody Creek (Webster Dam)	46,000 <sup>1</sup> ; 50,000 <sup>2</sup>		•		Moody Creek	Teton River, Canyon Creek	6,000 AF (Moody Creek); 9,000 AF (Canyon Creek)		Unknown		IWRRI 1981, IWRB 1992	Webster Dam identified by Workgroup member but no specific location given.
17	Moose Creek	60,000		•		Moose Creek	Henrys Fork Snake River					IWRB 1992	Minimal water-storage benefits b/c diversion location is above Island Park.
18	Park Lake	37,000 <sup>1</sup> ; 40,000 <sup>2</sup>		•		Upper Rock Creek	Falls River, Belcher River			Cave Falls Road, canal diversions would be in Yellowstone National Park		IWRRI 1981	
19	Robinson Creek	70,000		•		Robinson Creek, Bear Creek	Falls River, Fish Creek	20,000 AF (Robinson Creek); 5,000 AF (Fish Creek)	✓	Targhee National Forest		IWRRI 1981	
20	Spring Creek (Canyon Creek)	32,000 <sup>1</sup> ; 30,000 <sup>2</sup>		•		Spring Creek (tributary to Canyon Creek)	Bitch Creek, Canyon Creek, Teton River	9,000 AF (Canyon Creek)	✓	Unknown		IWRRI 1981, IWRB 1992	Potential Canyon Creek site iden. by Workgroup memb. but no specific loc.
21	Squirrel Creek	126,000 <sup>1</sup> ; 130,000 <sup>2</sup>		•		Squirrel Creek	Conant Creek, Boone Creek, Falls River	30,000 AF (Boone Creek)		Targhee National Forest		IWRRI 1981, IWRB 1992	
22	Squirrel Meadows (Wyoming)	10,000		•		tributary to Squirrel Creek	Boone Creek					IWRB 1992	
23	Teton (rebuild or new site)	200,000 (active)	•			Teton River		31,670 AF (Reclamation 1994)	8 MW			IWRB 1992, Reclamation 1994	
24	Teton Creek (Wyoming)	115,000 <sup>f</sup>		• <sup>d</sup>		Teton Creek <sup>d</sup>	Teton River <sup>d</sup>				• <sup>d</sup>	NA	Potential site identified by Workgroup member, no specific location provided.
25	Upper Badger Creek	49,000 <sup>1</sup> ; 50,000 <sup>2</sup>		•		Badger Creek	Teton River	87,000 AF (Teton River, Reclamation 1994)	2 MW	limited farmstead development		IWRRI 1981, IWRB 1992	
26	Warm River	75,000 (active)	•			Henrys Fork Snake River, Warm River, Robinson Creek			22 MW			IWRB 1992	
<b>Managed Groundwater Recharge (and potential recovery) Site</b>													
27	Egin Lake Enlargement <sup>e</sup>	5,000 (fall) <sup>1</sup>		•	•	N/A							Egin Lakes is a dedicated, constructed recharge site and is part of FMID. Egin Lakes is part of the IWRB Managed Recharge Program.
28	FMID Recharge Program (Egin Bench) <sup>e</sup>	18,000-30,000 (spring) <sup>2</sup>		•	•								"Egin Bench" includes five different canal companies who participate in recharge efforts under FMID's contract in the IWRB's Managed Recharge Program.
29	FMID Recharge Program (all other FMID)	13,000-19,000 (spring) <sup>3</sup>		•	•								Multiple canal companies within FMID participate in the IWRB's Managed Recharge Program under a contract between FMID and the IWRB.
30	Teton Valley Recharge Program	Not Identified											Individual recharge sites are encouraged to participate in the IWRB's Managed Recharge Program.
<b>Water Market Alternative</b>													
31	Credit System												Potential credits for mitigation or to offset potential injury through a water right transfer is provided for through IDWR administered programs.
32	Utilize and/or Expand Existing Banking Program												The State Water Supply Bank (IWRB's Bank and Water District 1 Rental Pool) active programs administered by the State.
<b>Conservation, Water Management and Demand Reduction Alternatives</b>													
33	Teton Valley Water Conservation <sup>6</sup>												
34	North Fremont Water Conservation <sup>6</sup>												
35	Lower Bench Water Conservation <sup>6</sup>												
36	Egin Bench Water Conservation <sup>6</sup>												
37	Increase Capacity of Cross-Cut Canal												
38	General Demand Reduction Alternatives												Several programs are offered through the IWRB's AWEP and encouraged through the ESPA CAMP process.
39	Weather Modification												A pilot program in the Upper Snake River is in operation through the ESPA CAMP process.
40	Consolidation (e.g., Lemhi)												

<sup>a</sup>Primary water source is offstream

<sup>b</sup>Literature Sources

<sup>1</sup>A Preliminary Appraisal of Offstream Reservoir Sites for Meeting Water Storage Requirements (IWRRI 1981)

<sup>2</sup>Comprehensive State Water Plan - Henrys Fork Basin (IWRB 1992)

<sup>3</sup>Snake River Basin Storage Appraisal Study (Reclamation 1994)

<sup>f</sup>Some sites were identified as having hydropower potential and are therefore noted with a checkmark, however, a specific quantity (MW) was not provided.

<sup>d</sup>No published information available, however, estimates/assumptions have been made based on best professional judgment and/or Workgroup member estimates.

<sup>6</sup>Historical recharge volume data has been provided by IDWR. New incremental storage volumes to be determined.

<sup>1</sup>Historical recharge volumes for Egin Lakes recharge site: 4,860 AF (fall) in 2008; and 5,000 AF (fall) in 2009.

<sup>2</sup>Historical recharge volumes for Egin Bench area: 18,528 AF (spring) in 2009; and 30,532 AF (spring) in 2010.

<sup>3</sup>Historical recharge volumes for all other areas of FMID (which includes part of the Sand Creek Wildlife Management Area: 13,227 AF (spring) in 2009; and 18,934 AF (spring) in 2010.

<sup>f</sup>Storage potential volume estimates are not published information, however, volume estimates were made based on topography and an assumed location/elevation.

<sup>6</sup>Evaluation of each water conservation alternatives within a major irrigated region will include two scenarios. The first scenario will analyze complete conversion of all canals to pipeline. The second scenario will analyze complete conversion from flood irrigation to sprinkler irrigation.

Table B. Attribute and Information Summary of Water Supply Alternatives, Henrys Fork Basin Study (Water Supply)

		Water Supply (WS)						
Site #	Surface Storage Site	Rating	Hydrology Potential (average annual AF) <sup>b</sup>	Rating	Hydropower Protections <sup>c</sup>	Rating	Flood Control <sup>d,e</sup>	Additional Notes
1	Ashton Dam Enlargement	Moderate	poor	Good		Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup>	
2	Bitch Creek	Moderate	75,000	Protected	Protected (IWRB) & Protected (NPCC)	Moderate	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	Potential for flood control considered due to off-stream water source.
3	Boone Creek	Moderate	30,000	Protected	Protected (IWRB) & Protected (NPCC)	None		
4	Conant Creek	Moderate	40,000-60,000	Protected	Protected (NPCC)	None		
5	Driggs	Good	good	Protected	Protected (IWRB) & Protected (NPCC)	Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	
6	Generic Reservoir in Flat Land	TBD	TBD	TBD	TBD	TBD	TBD	
7	Grassy Lake	Poor	poor	Possible		None		
8	Harrops Bridge/Tetonia	Good	good	Protected	Protected (IWRB) & Protected (NPCC)	Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	
9	Horseshoe Creek	Good	poor as onstream, good as off-stream	Protected	Protected (NPCC)	None		
10	Howell Ranch	Moderate	40,000	Protected	Protected (IWRB)	None		
11	Island Park Enlargement	Poor	poor	Good		Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup>	
12	JY Ranch	Moderate	40,000	Protected	Protected (IWRB)	None		
13	Lane Lake/Teton Lake	Good	100,000+	Good		Moderate	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	Potential for flood control considered due to off-stream water source.
14	Lower Badger Creek	Good	100,000+	Protected	Protected (IWRB)	Moderate	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	Potential for flood control considered due to off-stream water source.
15	Marysville Headworks	Moderate	30,000	Protected	Protected (IWRB) & Protected (NPCC)	None		
16	Moody Creek (Webster Dam)	Moderate	45,000	Protected	Protected (NPCC)	None		
17	Moose Creek	Poor	poor	Possible		None		
18	Park Lake	Moderate	30,000	Protected	Protected (IWRB)	None		
19	Robinson Creek	Poor	25,000	Protected	Protected (IWRB) & Protected (NPCC)	None		
20	Spring Creek (Canyon Creek)	Poor	9,000	Protected	Protected (NPCC)	None		
21	Squirrel Creek	Moderate	92,000	Protected	Protected (NPCC)	None		
22	Squirrel Meadows (Wyoming)	Moderate	30,000	Possible		None		
23	Teton (rebuild or new site)	Good	100,000+	Protected	Protected (NPCC)	Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	
24	Teton Creek (Wyoming)	Good	poor as onstream, good as off-stream	Protected	Protected (NPCC)	None		
25	Upper Badger Creek	Good	100,000+	Protected	Protected (NPCC)	Moderate	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup> , Lower Teton River <sup>2</sup>	Potential for flood control considered due to off-stream water source.
26	Warm River	Good	good	Protected	Protected (IWRB) & Protected (NPCC)	Good	Lower Henrys Fork <sup>1</sup> , Henrys Fork <sup>1</sup>	
<b>Managed Groundwater Recharge (and potential recovery) Site</b>								
27	Egin Lake Enlargement	Poor		Good		None		
28	FMID Recharge Program (Egin Bench)	Moderate		Good		None		
29	FMID Recharge Program (all other FMID)	Poor		Good		None		
30	Teton Valley Recharge Program	Moderate		Good		None		
<b>Water Market Alternative</b>								
31	Credit System	TBD		Good		None		
32	Utilize and/or Expand Existing Banking Program	TBD		Good		None		
<b>Conservation, Water Management and Demand Reduction Alternatives</b>								
33	Teton Valley Water Conservation	TBD		Good		None		
34	North Fremont Water Conservation	TBD		Good		None		
35	Lower Bench Water Conservation	TBD		Good		None		
36	Egin Bench Water Conservation	TBD		Good		None		
37	Increase Capacity of Cross-Cut Canal	TBD		Good		None		
38	General Demand Reduction Alternatives	TBD		Good		None		
39	Weather Modification	TBD		Good		None		
40	Consolidation (e.g., Lemhi)	TBD		Good		None		

Qualitative Color Codes to "Rank" Each Attribute

Hydrology Potential (average annual)

Poor	<30,000 AF
Moderate	30,000-100,000 AF
Good	>100,000 AF

Hydropower Productions Potential

Protected/None	NPCC or IWRB protected from hydropower development <u>or</u> none
Possible	No protections, no published hydropower potential.
Good	No protections and/or published hydropower potential.

Flood Control

None	Potential to provide significant flood control unlikely
Moderate	Potential to provide flood control due to pumping from off-stream water source
Good	Potential to provide flood control

<sup>a</sup>Specific site location data is not available, however, assumptions have been made based on best professional judgment.

<sup>b</sup>Hydrology potential is based on best available published information and reflects new incremental storage opportunities. Where no information is available a qualitative assessment (good, moderate, poor) of hydrologic potential has been made based on best professional judgment. Hydrology potential does not include a review of water rights or water availability after other commitments; the hydrology potential may be refined during more detailed hydrologic and basin yield analysis as part of the reconnaissance evaluation.

<sup>c</sup>Northwest Power and Conservation Council (NPCC) protects segment from further hydropower development due to unacceptable risks of irreversible loss to fish and wildlife. Construction of dams or impoundments prohibited pursuant to Idaho Code 42-1734A(5) (IWRB 1992).

<sup>d</sup>Per the Operations Description for Bureau of Reclamation Project in the Snake River Basin above Brownlee Reservoir (February 2004)

<sup>e</sup>Lower Henrys Fork - Primary flood control operations is to limit outflow when damaging flows are occurring downstream in the St. Anthony and Rexburg areas. Releases are reduced, if possible, when flows at the Rexburg gauge approach 12,000 cfs.

<sup>f</sup>Identified river segments with flooding per the Resource Evaluation (IWRB 1992)

<sup>1</sup>Henrys Fork - Ashton Dam to mouth

<sup>2</sup>Lower Teton River - North Branch Teton River and South Branch Teton River to Henrys Fork confluence

Table C. Attribute and Information Summary of Water Supply Alternatives, Henrys Fork Basin Study (Natural Environment)

Site #	Surface Storage Site	Wildlife Habitat <sup>d</sup>			Federally Listed Species		Wetland/Habitat Value		State Species of Special Concern (aquatic)		Special Designation					
		Rating	Large Game Winter Range	Large Game Migration Corridors	Rating	At-Risk (USFS & BLM sensitive species, and Idaho Species of Greatest Conservation Need) <sup>e</sup>	Rating	NWI Wetlands	Rating	Yellowstone cutthroat trout (YCT) presence	YCT Conservation and Management Tier <sup>b</sup>	Rating	BLM/USFS Eligible Stream	State Natural River	State Recreational River	Designated Wilderness <sup>a</sup>
1	Ashton Dam Enlargement	Migration		• <sup>1</sup>	Sensitive	bald eagle, sandhill crane, trumpeter swan	grizzly bear, gray wolf, Canada lynx, wolverine, sage grouse	None		None		None				
2	Bitch Creek	Winter Range	• <sup>1,2</sup>	• <sup>2</sup>	Sensitive	trumpeter swan, bald eagle	grizzly bear, gray wolf, Canada lynx, wolverine	Moderate	•	Core	•	Core Conservation	State/eligible Federal	•	•	•
3	Boone Creek	None			Federal	common loon, trumpeter swan	grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine	Extensive	•	Conservation	•	Conservation	Federal		•	•
4	Conant Creek	Migration		• <sup>2</sup>	Sensitive		grizzly bear, gray wolf, Canada lynx, wolverine	Moderate	•	Conservation	•	Conservation	None			
5	Driggs	None			Sensitive	bald eagle, long-billed curlew, peregrine falcon, sandhill crane, trumpeter swan, western burrowing owl		Extensive	•	Conservation	•	Conservation	State			•
6	Generic Reservoir in Flat Land	TBD			TBD			TBD		TBD			None <sup>a</sup>			
7	Grassy Lake	None			None			None		None			None			
8	Harrops Bridge/Tetonia	Winter Range	• <sup>2</sup>		Sensitive	bald eagle, long-billed curlew, peregrine falcon, sandhill crane, trumpeter swan, western burrowing owl		Extensive	•	Conservation	• <sup>a</sup>	Conservation	State			•
9	Horseshoe Creek	Winter Range	• <sup>3</sup>		None			None		Conservation	• <sup>a</sup>	Conservation	None			
10	Howell Ranch	Migration		• <sup>1,2</sup>	Federal	trumpeter swan	grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine	None		Core	•	Core Conservation/Conservation	State			•
11	Island Park Enlargement	None			Sensitive	american avocet, american white pelican, bald eagle, black-crowned night-heron, galifornia gull, caspian tern, common loon, foster's tern, franklin's gull, sandhill crane, trumpeter swan, western grebe, white-faced ibis, wyoming ground squirrel	grizzly bear, gray wolf, Canada lynx, sage grouse, wolverine	None		None			None			
12	JY Ranch	Migration		• <sup>1,2</sup>	Sensitive	california gull, trumpeter swan	wolverine <sup>e</sup>	None		Core	•	Core Conservation/Conservation	State			•
13	Lane Lake/Teton Lake	Winter Range	• <sup>1</sup>	• <sup>2</sup>	Sensitive	trumpeter swan	grizzly bear, gray wolf, wolverine <sup>e</sup>	Minimal	•	Core <sup>c</sup>		Core Conservation <sup>c</sup>	None			
14	Lower Badger Creek	Winter Range	• <sup>1,2</sup>	• <sup>2</sup>	Sensitive	bald eagle, trumpeter swan	grizzly bear, gray wolf, Canada lynx, wolverine	None		Core	•	Core Conservation	State/eligible Federal	•		•
15	Marysville Headworks	Migration		• <sup>2</sup>	None			None		Conservation	•	Conservation	State/eligible Federal	•		•
16	Moody Creek (Webster Dam)	None			None			Moderate	•	Conservation	•	Conservation	None			
17	Moose Creek	None			None			None		None			eligible Federal	•		
18	Park Lake	Migration		• <sup>1,2</sup>	Federal	northern leopard frog, trumpeter swan	grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine	Moderate	•	Conservation	•	Conservation	State			•
19	Robinson Creek	Migration		• <sup>1,2</sup>	Federal	boreal owl, merlin, trumpeter swan	grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine, sage grouse	None		Core	•	Core Conservation/Conservation	State/eligible Federal	•	•	
20	Spring Creek (Canyon Creek)	Winter Range	• <sup>1,2</sup>		Sensitive		gray wolf, wolverine	None		Core <sup>c</sup>		Core Conservation <sup>c</sup>	None			
21	Squirrel Creek	None			Federal	common loon, northern pintail, sandhill crane, trumpeter swan	grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine	Moderate	•	Conservation	•	Conservation	None			
22	Squirrel Meadows (Wyoming)	None			Federal		grizzly bear (primary conservation area), gray wolf, Canada lynx, wolverine	Moderate	•	Conservation		Conservation <sup>c</sup>	None			
23	Teton (rebuild or new site)	Winter Range	• <sup>1,2</sup>	• <sup>2</sup>	Sensitive	bald eagle, trumpeter swan, wyoming ground squirrel	gray wolf, wolverine	Extensive	•	Conservation	•	Conservation	eligible Federal	•		
24	Teton Creek (Wyoming)	Winter Range	• <sup>3</sup>		Sensitive	harlequin duck		None		Conservation	• <sup>a</sup>	Conservation	None			
25	Upper Badger Creek	Winter Range	• <sup>1,2</sup>	• <sup>2</sup>	Sensitive		grizzly bear, gray wolf, Canada lynx, wolverine	Moderate	•	Core	•	Core Conservation	None			
26	Warm River	Migration		• <sup>2</sup>	Sensitive	bald eagle, black tern, boreal owl, common loon, lesser scaup, sandhill crane, trumpeter swan, upland sandpiper, western grebe		None		Core	•	Core Conservation/Conservation	State/eligible Federal	•	•	•
<b>Managed Groundwater Recharge (and potential recovery) Site</b>																
27	Egin Lake Enlargement	None			None			None		None			None			
28	FMID Recharge Program (Egin Bench)	None			None			None		None			None			
29	FMID Recharge Program (other)	None			None			None		None			None			
30	Teton Valley Recharge Program	None			None			None		None			None			
<b>Water Market Alternative</b>																
31	Credit System	None			None			None		None			None			
32	Utilize/Expand Exst Banking Program	None			None			None		None			None			
<b>Conservation, Water Management and Demand Reduction Alternatives</b>																
33	Teton Valley Water Conservation	None			None			None		None			None			
34	North Fremont Water Conservation	None			None			None		None			None			
35	Lower Bench Water Conservation	None			None			None		None			None			
36	Egin Bench Water Conservation	None			None			None		None			None			
37	Increase Capacity of Cross-Cut Canal	None			None			None		None			None			
38	General Demand Reduction Alts	None			None			None		None			None			
39	Weather Modification	None			None			None		None			None			
40	Consolidation (e.g., Lemhi)	None			None			None		None			None			

Qualitative Color Codes to "Rank" Each Attribute

**Wildlife Habitat**

- Winter Range: Winter Range Habitat
- Migration: Migration Corridor
- None: None

**Federally Listed Species**

- Federal: Federally Listed Aquatic Species and Prime Conservation Area<sup>h</sup>
- Sensitive: Federally Listed Terrestrial Species and State Species of Greatest Conservation Need
- None: None

**Wetland and Habitat Values**

- Extensive: Extensive wetland impacts (> 200 Acres)
- Moderate: Moderate wetland impacts (>1 - 200 Acres)
- None/Minimal: <1 Acre

**State Species of Special Concern**

- Core Conservation: Core Conservation Population (YCT)
- Conservation: Conservation Population (YCT)
- Sport/None: None or Sport Population (YCT)

**Special Designation**

- Federal: Federal Wild and Scenic River or Wilderness Area
- State/eligible Federal: State Protected (Natural and Recreational) or eligible Federal WSR
- None: None

<sup>a</sup>Specific site location data is not available, however, assumptions have been made based on best professional judgment.

<sup>b</sup>Three tiers for prioritizing conservation and management options per Montana Fish Wildlife & Parks database (2009) supplemented with anticipated data revisions per personal communications with IDFG.

1) **core conservation** populations composed of > 99 percent cutthroat trout genes;

2) **conservation** populations that generally "have less than 10 percent introgression, but in which introgression may extend to a greater amount depending upon circumstances and the values and attributes to be preserved"; and

3) cutthroat trout **sport** fish populations that, "at a minimum, meet the species (e.g., YCT) phenotypic expression defined by morphological and meristic characters of cutthroat trout."

4) **core conservation/conservation** designation is likely **conservation** - unless there is an isolated, pure population of YCT - then it would be **core conservation**; dual designation has been retained until better information is available

<sup>c</sup>Physical location of site is not located on crucial YCT habitat, rather modifications to the hydrology of the water supply source (Bitch Creek) would impact a core conservation population of YCT habitat.

<sup>d</sup>Sources of Wildlife Habitat data

<sup>1</sup>Per feedback from Trout Unlimited, Friends of the Teton River, and American Rivers.

<sup>2</sup>Per personal communications with IDFG on the Sand Creek and Teton Canyon winter ranges.

<sup>3</sup>Per the USFS 1997 Revised Forest Plan - Targhee National Forest.

<sup>4</sup>Per IDFG special species February 2011 GIS dataset (1-mile buffer area).

<sup>5</sup>Threatened and Endangered and Candidate species list obtained from USFWS; however, location specific information based on data compiled by Trout Unlimited, Friends of the Teton River, and American Rivers (unless otherwise specified, some identified in the IDFG February 2011 dataset).

<sup>6</sup>Per the 1997 Revised Forest Plan - Targhee National Forest.

<sup>h</sup>Prime Conservation Area contains the minimum seasonal habitat components needed to support the recovered grizzly bear population (per the Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area, 2007).

Table D. Attribute and Information Summary of Water Supply Alternatives, Henrys Fork Basin Study (Socioeconomic Environment)

Site #	Surface Storage Site	Socioeconomic Environment (SE)																		
		Land Management Data <sup>b</sup>					Recreation/Economic Value							Infrastructure					Additional Infrastructure Notes	
Rating	Private	Federal	State	Conservation Easements <sup>c</sup>	Rating	Boating	Fishing	Yellowstone National Park	Guiding/ Outfitting	Scenic/ Natural Features <sup>d</sup>	Cultural/ Historic Resources <sup>d</sup>	Land Recreation <sup>d</sup>	Rating	Roads	Structures	Habitation				
1	Ashton Dam Enlargement	Federal/ Conservation	•	•	•	Low	• <sup>c</sup>	• <sup>c,d</sup>					High	• <sup>f</sup>		• <sup>f</sup>				
2	Bitch Creek	Federal/ Conservation	•		•	High	• <sup>c,d</sup>	• <sup>c,d</sup>		canyon	archeologic site		High	• <sup>f</sup>	• <sup>f</sup>	• <sup>f</sup>	SH32, UPRR Bridge			
3	Boone Creek	Federal/ Conservation		•	•	High	• <sup>c</sup>	• <sup>c</sup>	• <sup>c</sup>				Few							
4	Conant Creek	Private	•			High	• <sup>c</sup>	• <sup>c</sup>					Moderate	• <sup>f</sup>		• <sup>f</sup>				
5	Driggs	State	•		•	High				• <sup>d</sup>	archeologic site		High	•		•				
6	Generic Reservoir in Flat Land	TBD				TBD							TBD							
7	Grassy Lake	TBD				TBD							Few	•						
8	Harrops Bridge/Tetonia	Federal	•	•	•	High				• <sup>d</sup>	archeologic site		High	•		•	SH33			
9	Horseshoe Creek	Federal	• <sup>a</sup>	• <sup>a</sup>		Moderate					archeologic site		Few	•						
10	Howell Ranch	Federal	•	•		Moderate		• <sup>c,d</sup>			archeologic, historic sites	camping	Few	• <sup>f</sup>						
11	Island Park Enlargement	Federal	•	•	•	Low		• <sup>c</sup>					High	•						
12	JY Ranch	Federal	•	•		Moderate					archeologic site		Few	• <sup>f</sup>		• <sup>f</sup>				
13	Lane Lake/Teton Lake	Private	•			Low							Few	• <sup>f</sup>		• <sup>f</sup>				
14	Lower Badger Creek	Federal	•	•		High	• <sup>c,d</sup>	• <sup>c,d</sup>				camping, trails	Few							
15	Marysville Headworks	Federal	•	•		High	• <sup>d</sup>	• <sup>d</sup>				trails, hunting	Moderate	•		•				
16	Moody Creek (Webster Dam)	Private	•			Low							Few	•		•				
17	Moose Creek	Federal		•		Moderate					archeologic site		Few							
18	Park Lake	Federal		•		Moderate		• <sup>c</sup>					Few							
19	Robinson Creek	Federal		•		High		• <sup>c,d</sup>			hot springs, canyon	camping, trails	Few							
20	Spring Creek (Canyon Creek)	State	•		•	Low							Few							
21	Squirrel Creek	Federal		•		Moderate		• <sup>c</sup>					Few							
22	Squirrel Meadows (Wyoming)	Federal		•		Low							Few							
23	Teton (rebuild or new site)	Federal	•	•		High	• <sup>c,d</sup>	• <sup>d</sup>		• <sup>d</sup>		camping	Few							
24	Teton Creek (Wyoming)	Private	• <sup>a</sup>			Low							Few							
25	Upper Badger Creek	Federal/ Conservation	•		•	High	• <sup>c,d</sup>	• <sup>c,d</sup>				camping, trails	Few							
26	Warm River	Federal	•	•		High	• <sup>d</sup>	• <sup>d</sup>		• <sup>d</sup>	hot springs, canyon	archeologic, historic sites	High	•			SH47			
<b>Managed Groundwater Recharge (and potential recovery) Site</b>																				
27	Egin Lake Enlargement	Private				Low							Few							
28	FMID Recharge Program (Egin Bench)	Private				Low							Few							
29	FMID Recharge Program (all other FMID)	Private				Low							Few							
30	Teton Valley Recharge Program	Federal				Low							Few							
<b>Water Market Alternative</b>																				
31	Credit System	NA				Low							Low							
32	Utilize and/or Expand Existing Banking Program	NA				Low							Low							
<b>Conservation, Water Management and Demand Reduction Alternatives</b>																				
33	Teton Valley Water Conservation	Private				Low							Low							
34	North Fremont Water Conservation	Private				Low							Low							
35	Lower Bench Water Conservation	Private				Low							Low							
36	Egin Bench Water Conservation	Private				Low							Low							
37	Increase Capacity of Cross-Cut Canal	Private				Low							Low							
38	General Demand Reduction Alternatives	Private				Low							Low							
39	Weather Modification	NA				Low							Low							
40	Consolidation (e.g., Lemhi)	Private				Low							Low							

Qualitative Color Codes to "Rank" Each Attribute

Land Management

Federal/ Conservation Federal, Conservation Easement

State State

Private Private

Recreation/Economic Value

High Significant Impacts to Recreation/ Economic Values

Moderate Moderate Impacts to Recreation/ Economic Values

Low Minimal Impacts to Recreation/ Economic Values

Infrastructure

High Impacts to major infrastructure/development

Moderate Moderate impacts to human environment

Few Few impacts to human environment

<sup>a</sup>Specific site location data is not available, however, assumptions have been made based on best professional judgment.

<sup>b</sup>Land management data per the BLM Idaho Surface Management Agency (2010). For federal government lands, the data displays the managing agency which may or may not be the same as the agency that "owns" the land.

<sup>c</sup>Per feedback from Trout Unlimited, Friends of the Teton River, and American Rivers.

<sup>d</sup>Per the Resource Evaluation (IWRB 1992)

<sup>e</sup>Based on published information (see Table A).

Date: April 1, 2011 (DRAFT)

Table E. Attribute and Information Summary of Water Supply Alternatives, Henrys Fork Basin Study (Water Supply, Natural Environment, Socioeconomic Environment Parameters Summary)

Site #	Surface Storage Site	Storage Potential (AF)	Screening Criteria Summary											Numeric Ranking Based on Screening Criteria Summary & DRAFT Alternatives Prioritization										Notes <sup>c</sup>			
			Water Supply (WS)			Natural Environment (NE)					Socioeconomic Environment (SE)			Water Supply (WS)			Natural Environment (NE)			Socioeconomic Environment (SE)							
			Potential (average annual AF)	Hydropower Protections	Flood Control	Wildlife Habitat	Federally Listed Species	Wetland and Habitat Values	State Species of Special Concern (aquatic)	Special Designation	Land Management	Recreation/Economic Value	Infrastructure	WS	WS	WS	NE	NE	NE	SE	SE	SE	SUM		RANK		
1	Ashton Dam Enlargement	29,000-40,000	Moderate	Good	Good	Migration	Sensitive	None	None	None	Federal/Conservation	Low	High	2	1	1	2	2	1	1	1	3	1	3	18	2	
2	Bitch Creek	142,000-210,000	Moderate	Protected	Moderate	Winter Range	Sensitive	Moderate	Core	State/eligible Federal	Federal/Conservation	High	High	2	3	2	3	2	2	3	2	3	3	3	28	12	
3	Boone Creek	80,000-83,000	Moderate	Protected	None	None	Federal	Extensive	Conservation	Federal	Federal/Conservation	High	Few	2	3	3	1	3	3	2	3	3	3	1	27	11	
4	Conant Creek	20,100-40,000	Moderate	Protected	None	Migration	Sensitive	Moderate	Conservation	None	Private	High	Moderate	2	3	3	2	2	2	2	1	1	3	2	23	7	
5	Driggs	50,000	Good	Protected	Good	None	Sensitive	Extensive	Conservation	State	State	High	High	1	3	1	1	2	3	2	2	2	3	3	23	7	
6	Generic Reservoir in Flat Land	NA	TBD	TBD	TBD	TBD	TBD	TBD	TBD	None	TBD	TBD	TBD	4	4	4	4	4	4	4	1	4	4	4	41	13	
7	Grassy Lake	NA	Poor	Possible	None	None	None	None	None	None	TBD	TBD	Few	3	2	3	1	1	1	1	1	4	4	1	22	6	
8	Harrops Bridge/Tetonia	590,000	Good	Protected	Good	Winter Range	Sensitive	Extensive	Conservation	State	Federal	High	High	1	3	1	3	2	3	2	2	3	3	3	26	10	
9	Horseshoe Creek	60,000 <sup>b</sup>	Good	Protected	None	Winter Range	None	None	Conservation	None	Federal	Moderate	Few	1	3	3	3	1	1	2	1	3	2	1	21	5	
10	Howell Ranch	30,000-32,000	Moderate	Protected	None	Migration	Federal	None	Core	State	Federal	Moderate	Few	2	3	3	2	3	1	3	2	3	2	1	25	9	
11	Island Park Enlargement	NA	Poor	Good	Good	None	Sensitive	None	None	None	Federal	Low	High	3	1	1	1	2	1	1	1	3	1	3	18	2	
12	JY Ranch	49,000-80,000	Moderate	Protected	None	Migration	Sensitive	None	Core	State	Federal	Moderate	Few	2	3	3	2	2	1	3	2	3	2	1	24	8	
13	Lane Lake/Teton Lake	69,000-70,000	Good	Good	Moderate	Winter Range	Sensitive	Minimal	Core	None	Private	Low	Few	1	1	2	3	2	1	3	1	1	1	1	17	1	
14	Lower Badger Creek	70,000-73,000	Good	Protected	Moderate	Winter Range	Sensitive	None	Core	State/eligible Federal	Federal	High	Few	1	3	2	3	2	1	3	2	3	3	1	24	8	
15	Marysville Headworks	38,000-56,000	Moderate	Protected	None	Migration	None	None	Conservation	State/eligible Federal	Federal	High	Moderate	2	3	3	2	1	1	2	2	3	3	2	24	8	
16	Moody Creek (Webster Dam)	46,000-50,000	Moderate	Protected	None	None	None	Moderate	Conservation	None	Private	Low	Few	2	3	3	1	1	2	2	1	1	1	1	18	2	
17	Moose Creek	60,000	Poor	Possible	None	None	None	None	None	eligible Federal	Federal	Moderate	Few	3	2	3	1	1	1	1	2	3	2	1	20	4	
18	Park Lake	37,000-40,000	Moderate	Protected	None	Migration	Federal	Moderate	Conservation	State	Federal	Moderate	Few	2	3	3	2	3	2	2	2	3	2	1	25	9	
19	Robinson Creek	70,000	Poor	Protected	None	Migration	Federal	None	Core	State/eligible Federal	Federal	High	Few	3	3	3	2	3	1	3	2	3	3	1	27	11	
20	Spring Creek (Canyon Creek)	30,000-32,000	Poor	Protected	None	Winter Range	Sensitive	None	Core	None	State	Low	Few	3	3	3	3	2	1	3	1	2	1	1	23	7	
21	Squirrel Creek	126,000-130,000	Moderate	Protected	None	None	Federal	Moderate	Conservation	None	Federal	Moderate	Few	2	3	3	1	3	2	2	1	3	2	1	23	7	
22	Squirrel Meadows (Wyoming)	10,000	Moderate	Possible	None	None	Federal	Moderate	Conservation	None	Federal	Low	Few	2	2	3	1	3	2	2	1	3	1	1	21	5	
23	Teton (rebuild or new site)	200,000 (active)	Good	Protected	Good	Winter Range	Sensitive	Extensive	Conservation	eligible Federal	Federal	High	Few	1	3	1	3	2	3	2	2	3	3	1	24	8	
24	Teton Creek (Wyoming)	115,000 <sup>b</sup>	Good	Protected	None	Winter Range	Sensitive	None	Conservation	None	Private	Low	Few	1	3	3	3	2	1	2	1	1	1	1	19	3	
25	Upper Badger Creek	49,000-50,000	Good	Protected	Moderate	Winter Range	Sensitive	Moderate	Core	None	Federal/Conservation	High	Few	1	3	2	3	2	2	3	1	3	3	1	24	8	
26	Warm River	75,000 (active)	Good	Protected	Good	Migration	Sensitive	None	Core	State/eligible Federal	Federal	High	High	1	3	1	2	2	1	3	2	3	3	3	24	8	
<b>Managed Groundwater Recharge (and potential recovery) Site</b>																											
27	Egin Lake Enlargement	5,000 (fall)	Poor	Good	None	None	None	None	None	None	Private	Low	Few	3	1	3	1	1	1	1	1	1	1	1	15	2	Egin Lakes is part of the IWRB Managed Recharge Program.
28	FMID Recharge Program (Egin Bench)	18,000-30,000 (spring)	Moderate	Good	None	None	None	None	None	None	Private	Low	Few	2	1	3	1	1	1	1	1	1	1	1	14	1	"Egin Bench" includes five different canal companies who participate in recharge efforts under FMID's contract in the IWRB's Managed Recharge Program.
29	FMID Recharge Program (other)	13K-19K (spring)	Poor	Good	None	None	None	None	None	None	Private	Low	Few	3	1	3	1	1	1	1	1	1	1	1	15	2	Multiple canal companies within FMID participate in the IWRB's Managed Recharge Program under a contract between FMID and the IWRB.
30	Teton Valley Recharge Program	Not identified	Moderate	Good	None	None	None	None	None	None	Federal	Low	Few	2	1	3	1	1	1	1	1	3	1	1	16	3	Individual recharge sites are encouraged to participate in the IWRB's Managed Recharge Program.
<b>Water Market Alternative</b>																											
31	Credit System		TBD	Good	None	None	None	None	None	None	NA	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	Potential credits for mitigation or to offset potential injury through a water right transfer is provided for through IDWR administered programs (e.g., transfer process).
32	Utilize and/or Expand Existing Banking Program		TBD	Good	None	None	None	None	None	None	NA	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	The State Water Supply Bank (IWRB's Bank and Water District 1 Rental Pool) active programs administered by the State.
<b>Conservation, Water Management and Demand Reduction Alternatives</b>																											
33	Teton Valley Water Conservation		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	
34	North Fremont Water Conservation		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	
35	Lower Bench Water Conservation		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	
36	Egin Bench Water Conservation		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	
37	Increase Capacity of Cross-Cut Canal		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	
38	General Demand Reduction Alternatives		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	Several programs are offered through the IWRB's AWEP and encouraged through the ESPA CAMP process.
39	Weather Modification		TBD	Good	None	None	None	None	None	None	NA	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	A pilot program in the Upper Snake River is in operation through the ESPA CAMP process.
40	Consolidation (e.g., Lemhi)		TBD	Good	None	None	None	None	None	None	Private	Low	Low	TBD	1	3	1	1	1	1	1	1	1	1	12	1	

<sup>a</sup>Specific site location data is not available, however, assumptions have been made based on best professional judgment.

<sup>b</sup>Storage potential volume estimates are not published information, however, volume estimates were made based on topography and an assumed location/elevation.

<sup>c</sup>Some alternatives may be eliminated because it is more appropriate to have as part of another program.