Regional Economic Values of the Bear River

Study Area


N
Pocatello
Caribou County
Bear Lake County
Montpelier
Central Division
Onieda County
Franklin County
Preston
IDAHO
Bear Lake
Garden City
Lincoln County
UTAH
Box Elder County
Lower Division
Logan
Cache County
Upper Division
Brigham City
Rich County
Uinta County
Great Salt Lake
Ogden
Evanston
WYOMING
Summit County
Salt Lake City
0 10 20
Miles

Bringing partners together.

Who helped fund the study

- Cache Water District, Bear River Water Conservancy District, Utah Department of Water Resources, Cache County, Box Elder County, Great Salt Lake advisory council, Bear River Water Users Association, Blacksmith Fork Conservation District, North Cache Conservation District, Northern Utah Conservation District.
- We appreciate the numerous land managers and Bear River stakeholders, not listed, who helped us understand the Bear River and its local communities
- Conservation Economics and ECONorthwest conducted the study.

Why did we conduct this study?

- This study was intended to quantify the values of the Bear River to the rural economies highly dependent on the river's water, and the Great Salt Lake
- There is a need to efficiently use water from the Bear River for both maintaining Great Salt Lake and the upstream communities. This study was intended to provide data to more fully describe the value of the Bear River.
- As we look for solutions to maintain a resilient water supply in the Bear River basin, we need to understand the values that water provides to all uses.
- The Bear River contributes approximately 39% of water entering the Great Salt Lake but also forms the foundation of economies of the counties through which this river flows. (this % varies significantly year to year)

Agriculture.

- 850,000 acres, 630,000 acres are irrigated, half of these are in Idaho, %42 in Utah and %8 in Wyoming. Depleting between 806,000 and 1,612,000 acre feet each year.

Crop Type	Idaho	Utah	Wyoming	Total	Percent of Total
Alfalfa	114,161	96,854	9,101	220,116	35%
Grass Hay	63,799	64,422	34,428	162,649	26%
Pasture	24,166	51,073	22,734	97,973	16%
Winter Wheat	12,557	25,346	-	37,903	6%
Corn	7,652	24,785	-	32,437	5%
Barley	21,897	5,472	637	28,006	4%
Fallow/Idle	7,967	5,755	1,546	15,268	2%
Spring Wheat	11,407	782	22	12,211	2%
Potato	7,915	342	-	8,257	1%
Oats	2,033	931	826	3,790	1%
All Other Crops	4,103	7,021	-	11,124	2%
Total	277,657	282,783	69,294	629,734	100%

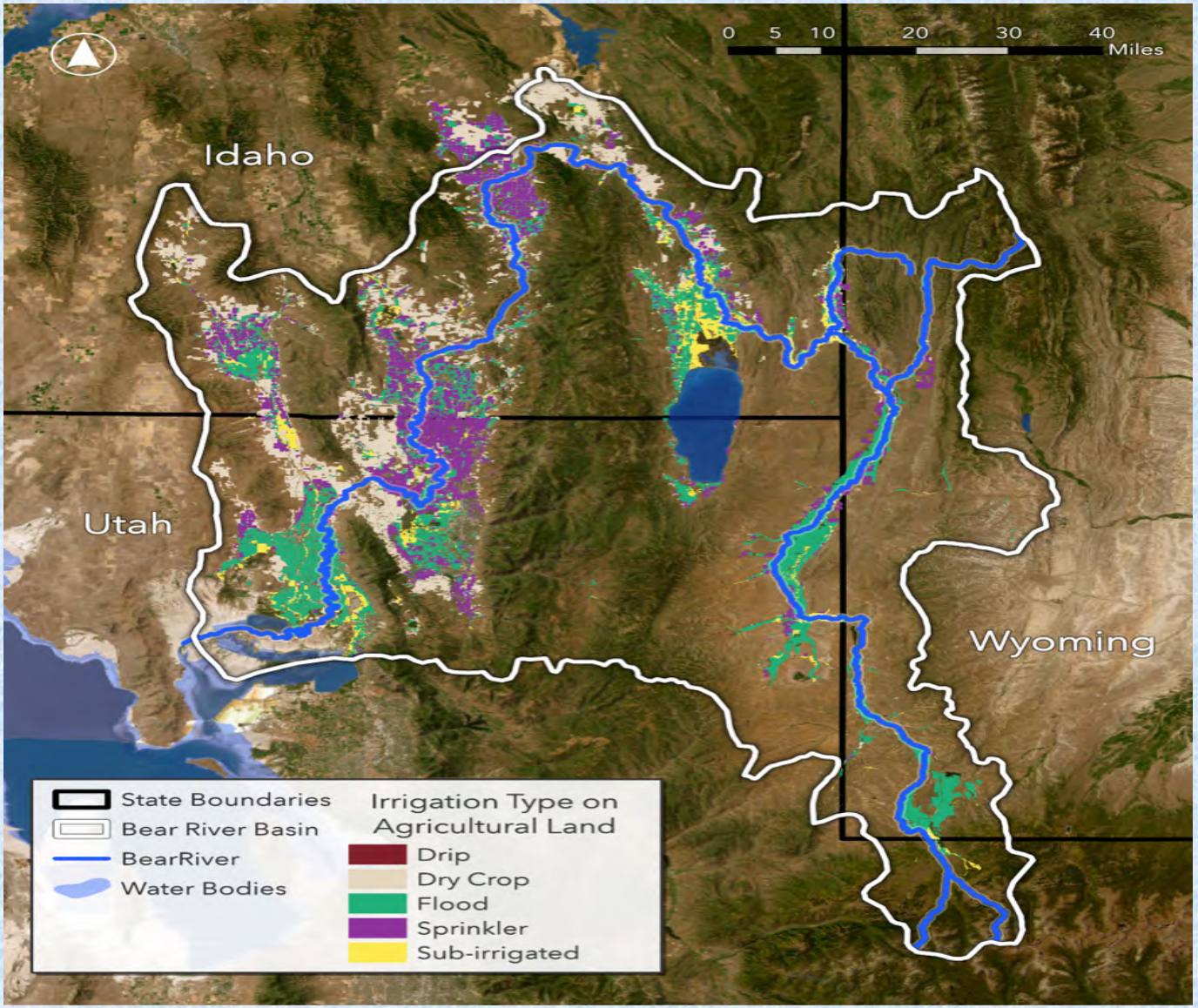

0 5 10 20 30 40
Miles
Idaho
Utah
Wyoming
State Boundaries
Bear River Basin
BearRiver
Water Bodies
Irrigation Type on Agricultural Land
Drip
Dry Crop
Flood
Sprinkler
Sub-irrigated

Table 7. Average Total Annual Irrigated Crop Revenues (in thousands of $2022) in the Bear River Basin

Crop Type	Idaho	Utah	Wyoming	Basin Total
Alfalfa Hay	$140,889	$124,829	$10,623	**$276,341**
Grass Hay	$37,915	$37,096	$18,360	**$93,372**
Pasture	$1,377	$2,835	$1,671	**$5,883**
Winter Wheat	$9,815	$21,331	$0	**$31,146**
Barley	$12,232	$2,123	$340	**$14,695**
Fallow/Idle	$0	$0	$0	**$0**
Spring Wheat	$9,413	$834	$19	**$10,266**
Corn	$8,236	$26,090	$0	**$34,325**
Potatoes	$32,806	$629	$0	**$33,435**
Oats	$602	$389	$342	**$1,333**
All Other Crops	$3,926	$5,283	$0	**$9,209**
Total Annual Value	**$257,211**	**$221,439**	**$31,356**	**$510,005**

Table 8. County Level Livestock Count and Revenues (thousands of $2022)
Source: National Agricultural Statistics Service. (2017). 2017 Census of Agriculture, County Profile. www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/

	Cattle and Calves			Sheep and Lambs	
	Livestock Count	Animal Revenue	Milk Revenue	Livestock Count	Revenue
Utah					
Box Elder	78,614	$44,573	$36,395	46,914	**$7,931**
Cache	57,695	$33,837	$74,817	2,685	**$548**
Rich	39,726	$21,290	$0	7,501	**$0**
Summit	18,707	$13,613	$0	12,603	**$3,026**
Idaho					
Bear Lake	28,175	$17,146	$4,571	6,175	**$216**
Caribou	25,146	$32,080	$4,602	2,186	**$313**
Franklin	33,532	$11,372	$35,114	664	**$138**
Oneida	23,388	$14,670	$0	305	**$73**
Wyoming					
Lincoln	43,358	$33,111	$1,996	20,090	**$6,334**
Unita	38,737	$21,188	$0	32,118	**$5,506**
Total	**387,078**	**$242,880**	**$157,495**	**131,241**	**$24,085**

The Bear River Basin agricultural sector is a sizeable water user; between 1.3 and 2.6 million acre-feet of Bear River water are annually diverted for agriculture.

Sales of agricultural products generate over $860 million in annual revenues.

Much of the agricultural production is exported outside the counties containing the Bear River.

Table 11. Bear River Basin Communities, Population and Municipal Water Source

Community	Population	Municipal Water Source	Water Plan Source
Logan, UT	52,420	Wells, Springs	Logan City, 2020
Brigham City, UT	19,373	Wells, Springs, Surface	Brigham City Corporation, 2019, Utah Department of Natural Resources, 2020
Smithfield, UT	13,263	Wells, Springs	Smithfield City, 2013
Evanston, WY	11,802	Surface Water	The State of Wyoming Water Development Office, 2012
North Logan, UT	10,705	Wells, Springs, Surface	Cache-Landmark Engineering, 2019
Tremonton, UT	9,727	Wells, Springs	Hansen, Allen, & Luce, 2017
Hyrum, UT	9,330	Wells, Springs	Hyrum City, 2022
Providence, UT	8,199	Wells, Springs	Providence, 2022
Nibley, UT	7,160	Wells	Jones and DeMille Engineering, 2019
Preston, ID	5,545		NA
Perry, UT	5,444	Wells, Springs	Bear River Water Conservancy District, 2017
Hyde Park, UT	5,116	Wells, Springs	Sunrise Engineering, Inc., 2023
Wellsville, UT	4,036		NA
Soda Springs, ID	3,084	Wells, Springs	City of Soda Springs, 2020
Richmond, UT	2,881	Wells, Springs	Richmond City, 2020
Montpelier, ID	2,610	Wells	Montpelier Planning and Zoning Commission, 2002
Garland, UT	2,559	Springs	Bear River Water Conservancy District, 2017
River Heights, UT	2,156	Wells	River Heights City, 20203
Malad City, ID	2,112	Wells, Springs, Surface*	Utah Dept. of Natural Resources, 2020.
Lewiston, UT	2,043	Wells, Springs (Surface)	JUB Engineers, 2021
Millville, UT	1,844	Wells, Springs	Millville City, 2016
Willard, UT	1,813	Wells, Springs	Bear River Water Conservancy District, 2017
Honeyville, UT	1,665	Wells, Springs	Bear River Water Conservancy District, 2017
Elwood, UT	1,496	Wells, Springs, Surface	Elwood Town, 2022, Utah Department of Natural Resources, 2020
Grace, ID	1,356	NA	
Mendon, UT	1,317	Wells, Springs, Surface	Utah Department of Natural Resources, 2020
Mantua, UT	1,075	Wells, Springs	Bear River Water Conservancy District, 2017

•USGS. (2019, June 8). *Springs and the Water Cycle*. www.usgs.gov/special-topics/water-science-school/science/springs-and-water-cycle

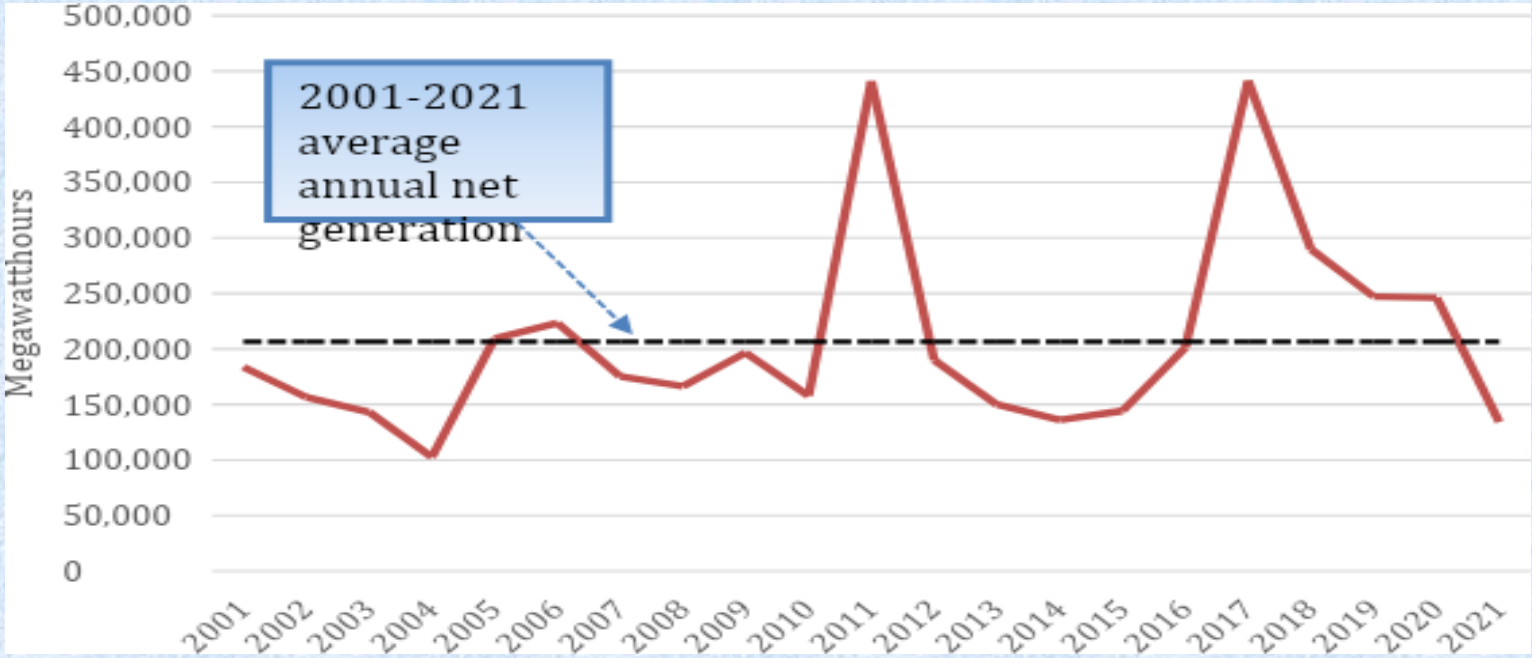
Table 12: Estimated Municipal and Industrial Water use in the Bear River Basin

	Gallons per Capita per Day (GPCD)	
	Low	High
Basin Population	210,604	210,604
Residential Water Use (GPCD)	150	220
Total Estimated Residential Water Use (Gallons per Day)	31,590,600	46,332,880
Non-Residential Water Use (GPCD)	60	340
Total Estimated Non-Residential Water Use (Gallons per Day)	12,636,240	71,605,360
Total Estimated Municipal Water Use (Gallons per Day)	44,227,000	117,938,000
Total Estimated Annual Water Use (Acre-Feet per Year)	49,534	132,091

Estimated total annual municipal and industrial water consumption is 50 to 132 thousand acre-feet per year, depending upon water conservation practices, generating approximately $63.6 million in annual revenue.

Hydropower generation

Figure 7. Annual Bear River Hydropower Net Generation, 2001-2020



Source: U.S. Energy Information Administration Electricity Data Browser

Bear River hydropower generates an estimated $18.2 million in annual revenues.

Recreation

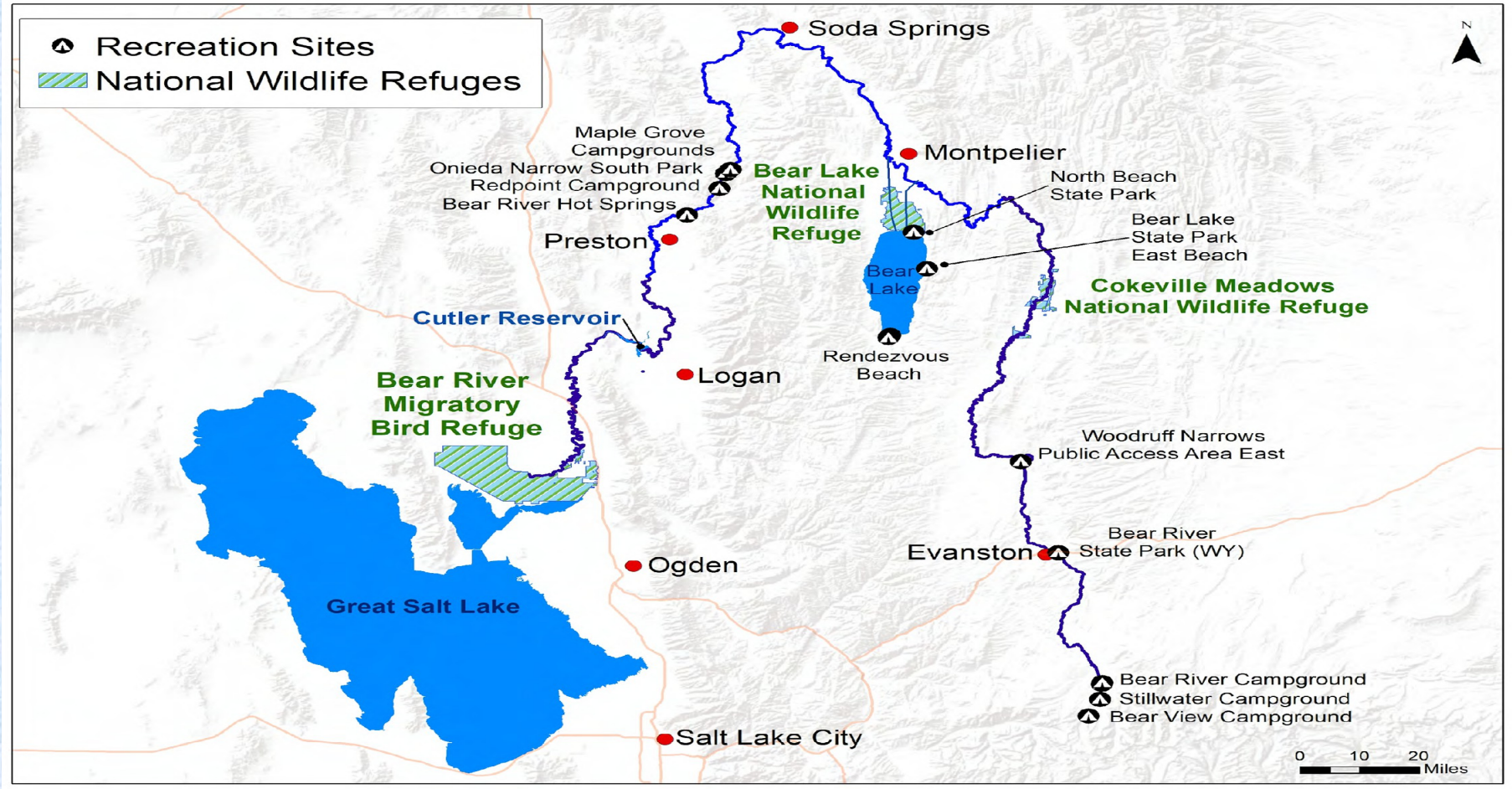

Recreation Sites
National Wildlife Refuges
Soda Springs
Maple Grove Campgrounds
Onieda Narrow South Park
Redpoint Campground
Bear River Hot Springs
Preston
Bear Lake National Wildlife Refuge
Montpelier
North Beach State Park
Bear Lake State Park East Beach
Bear Lake
Cokeville Meadows National Wildlife Refuge
Rendezvous Beach
Cutler Reservoir
Logan
Bear River Migratory Bird Refuge
Woodruff Narrows Public Access Area East
Bear River State Park (WY)
Evanston
Ogden
Great Salt Lake
Bear River Campground
Stillwater Campground
Bear View Campground
Salt Lake City
0 10 20
Miles

Table 13. Primary Bear River Recreation Sites

Site	State	Estimated Annual Visits	Primary Activities	Estimated Annual Regional Expenditures ($2022)
Soda Dam/Alexander Reservoir (PacifiCorp)	Idaho	48,790*	boating, fishing, picnicking	Local use
Grace Dam/Black Canyon Gorge (PacifiCorp)	Idaho	21,495*	fishing, kayaking, picnicking	Local use
Oneida Narrows Reservoir and Canyon (PacifiCorp/BLM)	Idaho	79,130*	tubing, camping, fishing	$2,037,173
Cutler Reservoir (PacifiCorp)	Utah	255,345*	bird hunting, boating, fishing	$6,573,683
Bear River Migratory Bird Refuge (USFWS)	Utah	120,000	birding, photography, hunting, fishing	$3,089,340
Total		2,021,160		$73,793,465

Site	State	Estimated Annual Visits	Primary Activities	Estimated Annual Regional Expenditures ($2022)
Bear River Headwaters (Uinta- Cache-Wasatch NF)	Utah	230,000	hiking, camping, fishing, snowmobiling	$7,181,071
Bear River State Park	Wyoming	130,590	biking, hiking, picnicking	Non-primary, local use
Woodruff Narrows Reservoir	Wyoming	5,640	fishing, boating, hunting	Local use
Cokeville Meadows National Wildlife Refuge (USFWS)	Wyoming	3,170	birding, fishing, hunting	$81,610
Bear Lake National Wildlife Refuge (USFWS)	Idaho	12,000	birding, auto touring	$308,934
Bear Lake	Idaho	1,115,000	beach lounging, boating, jet skiing	$54,521,654

•Aldrich, G and E, Hjerpe. 2022. The Conservation Funding Crisis. Conservation Economics Institute. 27p. https://www.conservationecon.org/_files/ugd/5fc209_964863909ec745818 cdb5a8643623366.pdf.

Cultural and Heritage

Table 14: Annual Regional Bear River Heritage Area (BRHA) Visitor Expenditures ($2022)

Note: Does not include Bear Lake visitor expenditures.

Spending Category	Percent Allocation	Visitor Expenditures
Lodging	21%	$5,713,943
Gas/oil	37%	$10,067,423
Restaurants	18%	$4,897,665
Groceries	11%	$2,993,018
Souvenirs/ miscellaneous	13%	$3,537,203
Totals	100%	$27,209,250

Environmental and non-market values

Non-market Value	Conservative
Recreation Consumer Surplus	
Waterfowl Hunting	1.0
Birding	2.0
Fishing	11.6
Boating	2.0
River Restoration	
WY/ID border to Dingle Marsh	23.8
Benson, UT to Cutler Dam	4.8
Wetlands	3.7
Total	48.9

Great Salt Lake values attributed to the Bear River

In addition to the economic impacts and contributions discussed above that stem from the use of Bear River water, the full economic value of the Bear River must also account for the industries and people that rely on the Great Salt Lake, to which the Bear River contributes 39% of inflows. (This value changes every year with the varied inflows of the Bear River. The %39 was based off of the 2022 Great Salt Lake Strike team report.)

Based on prior research investigating the eco- nomic value of the Great Salt Lake, we show that:

- Bear River water accounts for approximately $372 million (39%) of annual Great Salt Lake industrial mineral revenues (e.g., magnesium, titanium, salt, potash).
- Bear River water supports $18.5 million (39%) of annual revenues associated with Great Salt Lake aquaculture industries (e.g., brine shrimp).

Employment

In total, the Bear River is responsible for over 11,400 regional full and part-time jobs, resulting in $403 million in regional labor income

Bear River Value Category	Market Revenue	Non-Market Value
Crops	$510,005,000	
Livestock	$351,070,000	
Great Salt Lake Minerals	$372,000,000	
Great Salt Lake Aquaculture	$18,500,000	
Municipal and Industrial	$63,570,000	
Hydropower	$18,240,000	
Recreation	$115,000,000	$16,650,000
Cultural/ Heritage Tourism	$27,210,000	
River Restoration/ Protection		$28,610,000
Wetlands		$3,710,000
Great Salt Lake Protection		$52,650,000
Conservation Easements	$2,760,000	$51,600,000
Total	$1,471,145,000	$153,220,000

Annual Values	Total Employment	Total Labor Income	Total Output/Value
Market Impacts and Contributions	11,428	$403,270,000	$1,795,890,000
Non-Market Values	--	--	$153,220,000
Totals	11,428	$403,270,000	$1,949,110,000