

# THE LOWER SALMON RIVER BOATING GUIDE, VINEGAR CREEK TO HELLER BAR





# THE LOWER SALMON RIVER

**BOATING GUIDE, VINEGAR CREEK TO HELLER BAR** 



Cottonwood Field Office

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# THE LOWER SALMON RIVER

The Nez Perce Indians have occupied this area for millennia. They call this river "Tamaánma", which translates to "something laying near the side of the river." Early explorers dubbed it the "River of No Return" due to the difficulties they experienced trying to transport wooden boats upstream through roaring rapids. Whatever it is called, the dynamic Salmon River and the land it nourishes are very special.

The 425-mile waterway is the longest completely free flowing river in the lower 48 states and one of the few in the nation that contains no dams. The river begins as not much more than a trickle at an elevation of about 8,000 feet in the Sawtooth and Whitecloud Mountains of central Idaho. It gathers force as it makes its way northeast and then west, fed by snows from the Sawtooth and Salmon River Mountains in the south and the Clearwater and Bitterroot Mountains in the north.

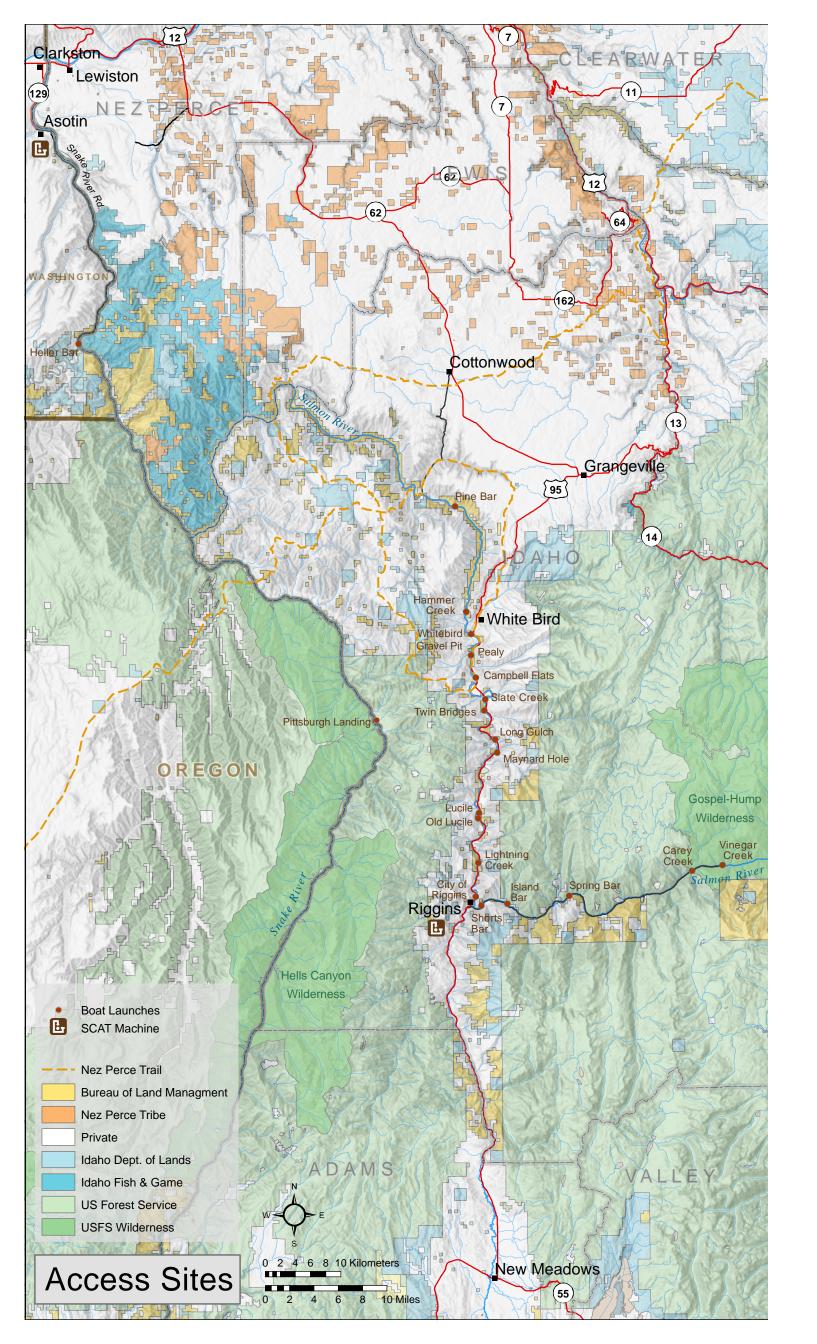
About 150 miles further on its westward course, the Salmon River has created the second deepest canyon in North America, which effectively splits Idaho in half. The section known as the Lower Salmon River begins at Vinegar Creek, 26 miles upstream from the town of Riggins. At Riggins, the river swings north and then west for 86 miles where it meets the Snake River in Hells Canyon. The Snake River continues to flow into the Columbia River and eventually into the Pacific Ocean. The drainage area of the Salmon River, which lies entirely within Idaho's borders, encompasses approximately 13,550 square miles.

The river and its canyon are truly remarkable. The numerous – and unusual – white sand beaches are a reminder that this river is still free flowing. Respect the river, listen to it, learn from it, cooperate with it, and care for it.



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# **INFORMATION**

#### HOW TO USE THIS BOATER'S GUIDE

This guide includes maps and information about the Salmon River from Vinegar Creek to the confluence with the Snake River and the Snake River from the Salmon / Snake confluence to Heller Bar below the Snake and Grande Ronde River confluence.

This guide is intended to illustrate where beaches are located along with highlighting public and private land. The beaches will change in size, shape, and slope from year to year but the areas where sand is deposited is consistent. The images of the beaches were taken at flows between 3,400-8,000 cubic feet per second (cfs) on the Salmon River and at 9,000 cfs on the Snake River. The aerial photographs were taken at flows between 3,310-5,000 cfs on the Salmon River and 11,500 cfs on the Snake River. At higher flows, some beaches will be submerged under water and lower flows may expose more beaches/campsites. The river mile markers on the Salmon River represent the number of miles to the confluence with the Snake River. The river mile markers on the Snake River represent the number of miles to the confluence with the Columbia River.

#### **RIVER SECTIONS**

The Lower Salmon is the last 112 miles of the Salmon River and is a pool-and-drop river, with the more difficult rapids in the narrow canyons and during higher flows. Numerous white sandy beaches on both sides of the river offer camping, as all beaches and shoreline below the average high water mark is public land.

The first 34.5 miles from Vinegar Creek to Lucile is an exciting section with several Class II and III rapids and a few Class IV rapids at higher flows. It is often run by commercial outfitters in 1-3 days. The Riggins section, most commonly run from Spring Bar or Shorts Bar to Lucile, is the most popular day stretch and includes many fun Class II and III rapids.

The next 25.5 miles from Lucile to Hammer Creek is mostly flatwater with the exception of Blackhawk Rapid, which can be Class III or IV depending on flows and is usually run on river right avoiding the hole on river left. This section flows along Highway 95 with numerous river access points and boat ramps.

From Hammer Creek to the Confluence of the Snake is the last 52 miles of the Salmon River and requires a self-issue permit (refer to the Permit section on page 4). This section is pool and drop and has mostly Class II-III rapids with a few Class IV rapids throughout all 52 miles. During the summer months, visitor use is high through this section, please be respectful of other users at the boat ramps and on the river.

The 20-mile stretch of the Snake River, from the confluence with the Salmon River to the Heller Bar take-out near the confluence with the Grande Ronde River, contains slower moving water with some rapids and is often characterized by stiff up-canyon winds as well as fluctuating water levels due to dam releases. Jet boat traffic is typically busier on this section, especially on the weekends.

#### TRIP DURATION

Depending on what section you float and the flow of the river, trips can range from a half day to seven or eight days or more. There is a total of 132 river miles from Vinegar Creek to Heller Bar with multiple river access sites providing for many trip options. The average duration for a trip from Hammer Creek to Heller Bar is four to six days.

#### MAIN SEASONS OF USE

Seasons of use depend on the water level and section of river, but generally the floating season begins in June from Vinegar Creek to Hammer Creek and in July from Hammer Creek to Heller Bar. Typically, steelhead season runs September through early spring and salmon season is sometime in the spring. Check Idaho Fish and Game rules and regulations for steelhead and salmon fishing. Power boating season, depending on flows, can occur year round.

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#### **RIVER MILEAGES**

	Spring Bar Take Out	Shorts Bar Take Out	Lucile Take Out	Hammer Creek Take Out	Pine Bar Take Out	Eagle Creek Take Out	Confluence	Heller Bar Take Out
Vinegar Creek Launch Site	15	24	34.5	60	71	100	112	132
Spring Bar Launch Site	-	9	19.5	45	56	85	97	117
Shorts Bar Launch Site		-	10.5	35.5	46	76	88	108
Lucile Launch Site		-	-	25.5	36.5	65.5	77.5	97.5
Hammer Creek Launch Site	-	1			11	40	52	72
Pine Bar Launch Site	1			-/		29	41	61
Eagle Creek Launch Site	11-6	رارا			1		12	32
Confluence		The second		-	- >4		-	20

Pittsburg Landing launch on the Snake River is 27 miles upstream from the Salmon/Snake confluence.

#### **DIFFICULTY RATING**

The Lower Salmon River is Class II-IV on the International Scale. The level of difficulty of the rapids vary depending on season and river flows. At higher water levels, the river becomes increasingly more difficult. Please know your ability and boat safely. Slide Rapid is a Class V-VI at flows 20,000 cfs and higher and the BLM does not recommend boating at those flows.

This guide book is not a substitute for personal skill or judgement. Whitewater boating can be dangerous and hazardous in nature. All rapid ratings are arbitrary, and can vary greatly with the water level. It is the sole responsibility of each boater to get proper instruction and paddle safely within their ability. The BLM is not responsible for personal injury, death, property damage, or violation of the law associated with your trip. It is imperative that individuals make an informed choice whether to boat a section or not. Therefore, before attempting any river, paddlers should ensure that every person in their group understands the inherent risks of river running, freely assumes responsibility for their own safety, and possesses the necessary skill and prior experience to reasonably ensure a safe trip. You are responsible for your own safety.

#### WHITEWATER CLASSIFICATIONS-INTERNATIONAL SCALE

Class I—small waves, passages clear, no serious obstacles.

Class II—medium-sized regular waves, passages clear, some maneuvering may be required.

Class III—waves numerous, high, and irregular, rocks, eddies, narrow passages, scouting may be necessary.

Class IV—powerful, irregular waves, boiling eddies, dangerous rocks, congested passages, precise maneuvering required, and scouting recommended.

Class V—exceedingly difficult, violent rapids often following each other without interruption, big drops, and violent current, scouting mandatory but often difficult.

Class VI—limit of navigability, generally considered unrunnable.

#### **ELEVATIONS ABOVE SEA LEVEL**

Vinegar Creek	1,975
Riggins	1,821'
Hammer Creek	1,440'
Pittsburg Landing (Snake River)	1,130'
Salmon/Snake Confluence	900'
Heller Bar (Snake River)	840'

#### **FLOW INFORMATION**

Flow measurements are taken daily from the White Bird Gauge just above Hammer Creek. For daily flow information go to the USGS website at https://waterdata.usgs.gov/id/nwis/uv?13317000 or call the BLM at (208) 962-3245.

The minimum recorded flow is 1,580 cfs on December 11, 1932 and the maximum recorded flow is 134,000 cfs on June 1, 1894. Water temperature ranges from less than 32 degrees to sometimes over 72 degrees Fahrenheit.

#### **Approximate One-Way Shuttle Distance and Drive Times**

Vinegar Creek to Heller Bar	170 miles—5 hours
Vinegar Creek to Pine Bar	96 miles—2.5 hours
Vinegar Creek to Hammer Creek	60 miles—2 hours
Hammer Creek to Heller Bar	125 miles—3 hours
Hammer Creek to Pine Bar	40 miles—1 hour
Pine Bar to Heller Bar	110 miles—2.5 hours
Pittsburg Landing to Hammer Creek	19 miles—1 hour

Private shuttle services are available.

Check local listings and online for companies offering this service.

#### KAYAKING PLAY WAVES/HOLES

This guide book has locations and prime flows of some of the most popular kayaking play spots on the Lower Salmon River. Know your ability. Surf and play at your own risk.

Gold Hole	River Mile 109.9	Map 1	7,000 to 11,000 cfs
Couch Wave	River Mile 103.0	Map 4	9,500 to 12,000 cfs or 22,000-29,000 cfs when the Little Salmon River is flowing at least 2,000 cfs
Cat's Paw	River Mile 92.3	Map 8,9	3,800 to 5,200 cfs
Peace Wave	River Mile 91.5	Map 9	3,400 to 6,500 cfs
Mill Wave	River Mile 86.9	Map 10	3,000 to 4,500 cfs
Machine Wave	River Mile 85.5	Map 11	6,500 to 10,000 cfs
Race Creek	River Mile 84.9	Map 11	24,000 to 50,000 cfs
Tight Squeeze	River Mile 83.8	Map 11	5,000 to 7,500 cfs
Chair Creek	River Mile 81.7	Map 12	24,000 to 32,000 cfs
Rodeo Hole	River Mile 79.5	Map 13	10,000 to 19,000 cfs
Demon's Drop	River Mile 43.7	Map 24,25	10,000 to 12,000 cfs
Lower Bunghole	River Mile 28.1	Map 30	4,000 to 7,000 cfs
Sundown Surf	River Mile 8.0	Map 38	4,000 to 6,500 cfs



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# REQUIREMENTS AND LAWS

#### **PERMITS**

As of 2018, there are no private permits required on the Lower Salmon River from Vinegar Creek to Hammer Creek. However, self-issue permits are required for all private trips below Hammer Creek from July 1st – Labor Day and all overnight trips year-round. You can get a self-issue permit at White Bird Gravel Pit, Hammer Creek, Pine Bar, Graves/Rock Creek, the BLM office in Cottonwood, or online on the Idaho BLM website (https://www.blm.gov/programs/recreation/recreation-activities/idaho). This permit also authorizes use of the Snake River in Hells Canyon below the mouth of the Salmon River if your trip originated on the Salmon. This self-issue permit will have all of the current rules and regulations required for a river trip through this section. Please note that the requirements on the Snake River may differ from those on the Lower Salmon. Different regulations will be posted at launch sites or will be printed on the self-issue permit.

#### · Special Recreation Permits

Special recreation permits are required for all commercial use and organized group activities on the Lower Salmon River and are issued by the BLM Cottonwood Field Office. Contact the BLM Cottonwood Field Office for a complete list of authorized commercial outfitters.

#### Idaho Invasive Species Sticker

A state law requires the owner of any boat and any non-motorized vessel (canoe, kayak, raft, drift boat etc.) to buy and display an Idaho Invasive Species Sticker to legally launch and operate the boat in Idaho. Stickers are available online at http://parksandrecreation.idaho.gov/. For questions about sticker purchases, contact the Idaho Parks and Recreation registration help line at: 1-800-247-6332. Only inflatable, non-motorized vessels less than 10 feet long are exempt.

#### Washington State Discover Pass

Any vehicles parked at or using the water access site at Heller Bar on the Snake River must have a Washington State Discover Pass. This pass allows for access to recreation lands managed by the State of Washington. The Discover Pass can be purchased at https://discoverpass.wa.gov/.

#### RESPECT PRIVATE PROPERTY

Although all beaches and shoreline below the average high water mark are public land, there is private property along the river above the high water line. Respect private land and enter it only with permission.

#### ARCHAEOLOGICAL SITES

You will probably see evidence of historic and prehistoric people and communities along the river. Please do not disturb these sites. Federal and State laws strictly forbid vandalism of cultural sites (such as pictographs and structures) or the removal of arrowheads or other cultural artifacts.

#### FISHING AND HUNTING

Idaho fishing and hunting licenses are required. Learn and observe the seasons and regulations. They are strictly enforced by the Idaho Department of Fish and Game. More information can be found at their website at https://idfg.idaho.gov/.

#### **FIREARMS**

Discharging a firearm near or within an occupied area, such as a campsite, is prohibited. Appropriate and safe use of firearms by all members of the party is the direct responsibility of the trip leader. Clean up any used casings and/or targets.

#### **GROUP SIZE**

There is no limit on group size from Vinegar Creek to Hammer Creek. There is a maximum group size of 30 people per trip from Hammer Creek to the confluence with the Snake. Below Hammer Creek, groups cannot be combined (camping or floating together) using multiple self-issue permits if the total number of people is greater than 30.

#### CAMPING PROTOCOL

Camp running is prohibited. Camps cannot be occupied before 1:30 pm Pacific Time (2:30 pm Mountain Time) unless the entire group is present. Occupation includes sitting in the eddy or on shore in front of a camp or beach.



Firepans are required when camping along the river, A. Hedrick BLM

#### **FIRES**

You are required to use firepans for all camp and cooking fires. An approved fire pan is a durable, metal fire pan at least 12-inches x 12-inches wide with a bottom in it, with at least a 1.5 inch lip around its outer edge and sufficient to contain fire and remains. Please elevate fire pans off the ground to prevent scorching. If the fire pan does not have legs to elevate it, place rocks underneath the corners of the pan. All ash and charcoal must be removed and carried out of the river corridor. Gather only driftwood for fires. Scatter any unused firewood away from camp before leaving. All seasonal fire restrictions must be followed in the river corridor. NO FIREWORKS ALLOWED! When floating on the Snake River; firepans are required; use of wood for fuel is prohibited from July 1 through September 15. No firewood may be gathered on the Snake River

#### **DISHWATER**

Food bits left in camp are a magnet for biting insects. Bring along a strainer or piece of screen to filter food bits from dishwater. Scatter the strained water directly into the main current of the river or in vegetation 200 ft. above high water - making sure no food particles are dumped. Do not strain water on the beach or sand.



Patrols pack out tires and trash found in the river and on beaches...pack out the trash you bring, Ryan Turner BLM

#### **TRASH**

Pack out everything you pack in. Spend a few extra minutes to scout your camp and pick up litter that may have been left behind by others. Remember, cigarette butts, twist ties, and food scraps like peanut shells, orange peels and apple cores are all trash. Pack it in, pack it out!

#### **HUMAN WASTE**

Human waste carryout is required. It is mandatory to carry out all solid human waste with an approved portable toilet system. An approved portable toilet system must be reusable, washable, water tight, and Sanitizing Container with Advanced Technology (SCAT) Machine® compatible, or RV dump compatible. Portable toilets with snap on lids (such as ammo cans or plastic buckets) are required to have a rubber gasket in the lid.

Plastic bag liners are NOT acceptable nor are WAG BAG®, RESTOP 2® or any other type of plastic bag system. Information about appropriate, inexpensive methods to dispose of human waste is available from the BLM.

Please do not put wet wipes, plastic bags, peat pots, cans, diapers, ashes, straw, cat litter or other debris in your toilet if you plan on using the SCAT machine. The SCAT Machine is for use with toilets not utilizing plastic bags or peat pot liners and can clog or get damaged if foreign objects are put through the cycle.

Please urinate only on wet sand or directly into the river. Urinating on hot, dry sand or rocks creates an offensive odor and attracts insects. If your group uses a pee bucket, please dump it into the main current of the river.

#### PERSONAL FLOTATION DEVICES

Federal boating requirements state all recreational vessels must carry one U.S. Coast Guard approved Type I, II, III or V wearable personal flotation device for each person on board that is within reach, in good condition and is the correct size and fit. It does not help you if it's not on you; please wear it while on the water!

In the state of Idaho, children 14 and under must wear an approved personal flotation device when they are on board of a boat 19' in length or less whenever the boat is underway or under power. This applies to manually propelled watercraft such as canoes, kayaks, stand-up paddle boards and rafts in addition to powerboats, sailboats, jet skis and fishing float tubes.

# **SAFETY**

#### RECOMMENDED EQUIPMENT

- First aid kit; know what is in it and how to use it.
- Boat repair kit; know what is in it and how to use it.
- Carry at least one extra oar or paddle and personal floatation device per boat.
- Throw bags and pin or wrap kits.
- Consider packing a satellite phone or a GPS communication device.
- Sand stake to anchor your boat at beaches.

#### RIVER SAFETY

- Wear your life jacket. Remember that personal flotation devices only work when you have them on.
- Plan for all kinds of weather; even hot, sunny days can turn cool and rainy, creating hypothermia conditions.
- When in doubt, scout.
- When in trouble, be active.
- Get yourself out of trouble first, then help others. Worry about your gear only after all people are safe.
- Most accidents happen on shore and in camp. Be cautious getting in and out of boats.
- Wet rocks can be slippery. Watch your step.
- Rattlesnakes, bees, cactus, and poison ivy are all plentiful in the Lower Salmon River corridor. Learn how to avoid them and how to treat the symptoms of an encounter.



Couch Wave at River Mile 103, courtesy Mike Hicks

#### **DRINKING WATER**

Although water quality is high, river water is not considered potable without treatment or filtering due to the possible presence of Giardia. Bring your own drinking water or plan to filter or boil stream and river water. There are several recreation sites with potable drinking water but nothing downstream from Pine Bar.

#### **FOREST FIRES**

During the summer, forest fires are a common occurrence along the Salmon River corridor. Please check local fire information for any fire restrictions prior to your trip.

#### **HAVE A PLAN**

Tell someone where you are going and when you will be returning.

#### IN CASE OF EMERGENCY

Note your location in an emergency and call 911 or the local sheriff's office:

Idaho County Sheriff (208) 983-1100 Lewis County Sheriff (208) 937-2447 Nez Perce County Sheriff (208) 799-3131

BLM (208) 962-3245, Monday-Friday, 7:45 am - 4:30 pm Pacific Time

The BLM carries a satellite phone for emergency purposes on river patrols.

# RIVER ETIQUETTE

Although you may find solitude on the Lower Salmon River, you will not be alone. Your actions will directly affect the experience of others on the river and the river itself. River users come to the Lower Salmon for many reasons, but none of them come expecting to find difficult situations with others. Following a few simple guidelines will help ensure that the journey down the river is a positive experience for everyone on the water.

#### CAMPING

Please camp at a beach appropriate to your group size. Small groups should leave large camps for bigger groups. "Camp running" is not allowed, as it creates the stress of hurrying - exactly what most boaters go to the river to avoid. There are usually plenty of camp spots. Set your own leisurely pace, select a camp that fits your group size, and relax. On rare occasions, you may be asked to share a camp with a late arrival. Be courteous, make new friends, and continue to enjoy your trip!

#### **BREAKING CAMP**

Before departing your camp, naturalize the beach by scattering unburned driftwood piles and rocks that were used as tent stakes, sand anchors or tie downs. Destroy your sand castles and structures, and knock down your rock cairns. Do a final beach sweep before leaving camp to make sure you haven't left any micro trash or belongings. Leave your beach clean and natural for the next group.

#### **DOGS**

If you bring a dog along, keep it under control at all times, use a collar with identifying tags and pack out all dog feces. All dogs must be on a leash at developed recreation sites such as boat ramps and campgrounds. Out of respect for other visitors and private property owners, keep dogs contained when near private property and popular attraction sites (rapid scouts, historical sites).

#### **TECHNOLOGY AND NOISE**

To some, technology is a necessity even in remote, wild settings. To others, it is inappropriate. Avoid conflicts by making a conscious effort to allow everyone his or her own experience. As much as possible, keep the noise down. Sound travels easily in the river corridors, so be aware of your group's noise level, especially as you pass other's camps. Use headphones to listen to music or listen to the sounds of nature.

#### RIVER ENCOUNTERS

Communication and common sense are the keys to successful interaction with other river users. Your trip will be much safer and more enjoyable if you give other boaters lots of space, especially in rapids. Powerboats have always been allowed on these rivers. Although they can be infrequent on the Lower Salmon River, they are very common on the Snake River.

- Downstream drift traffic has the right-of-way. However, once a jet boat is committed to powering upstream through a rapid it cannot stop and should be given the right-of-way.
- Float boats should yield the deeper channel to powerboats when possible and move toward the side to give them room to operate safely.
- Powerboats should be aware of and minimize their wake when passing another craft.

The river is large enough to accommodate both float boats and powerboats. Common sense, safety and courtesy will help avoid confrontational behavior which will ensure peaceful coexistence for all users.



Hammer Creek boat ramp, Ryan Turner BLM

#### **BOAT RAMP ETIQUETTE**

Because river trips start and end on the boat ramp, your experience there can set the tone for the entire voyage and color your memories of the adventure long after it ends. If the ramp is busy, be patient and wait your turn. When it comes, use the ramp only for loading and unloading your vehicle and trailer. Rig and de-rig your boat off of the ramp. Allow others to go before you if all they have to do is put a loaded boat in the water and take off. Be friendly, helpful, and considerate and enjoy this part of your trip.

# **AFTER YOUR TRIP**

#### **HUMAN WASTE DISPOSAL**

Dispose stored human waste appropriately at the following locations:

- Asotin, Washington—Chief Looking Glass Park on 1st Street (SCAT Machine© and RV dump station)
- South Riggins, Idaho—Hells Canyon National Recreation Area Office (Forest Service) at 1339 Highway 95 (SCAT Machine© only)
- White Bird, Idaho—Hammer Creek Recreation Site at river mile 52 (RV dump station only)

#### TRASH DISPOSAL

Recycle or properly dispose of all the trash from your trip.

#### **LOST GEAR**

If you lose or leave any gear on the river, contact the BLM. We maintain a sizable inventory of "lost and found" items! BLM Cottonwood Field Office: 208-962-3245

#### LET US KNOW HOW IT WENT

If you encountered any problems on your trip, or have suggestions about how BLM can enhance river recreation experiences, we would like to hear from you.

Bureau of Land Management Cottonwood Field Office 2 Butte Drive, Cottonwood, Idaho 83522 (208) 962-3245

#### THE WRECKREATIONIST

This sculpture is located at the launch site at Hammer Creek and was constructed in 2004. It is built from the trash collected from the Salmon River and its banks. Hopefully, it creates an awareness to the impacts people have on the river environment. Look for a fisherman, a catarafter, a jet boater, and a hunter surrounding a tree, a sun, and birds.

Thanks to the young men and women from Homedale High School, Center Point High School, and Fort Boise Mid-

High School who created this sculpture in welding class. This project made possible through the leadership of Evan Worthington and a grant from the Wittenburger Foundation and the Idaho Commission of the Arts.

BLM river patrol has removed over 8000 tires from the river. Approximately 1 ton of trash is removed every year. PLEASE...remember to pack out all of your trash and trash left by others.

The Wreckreationist, Evan Worthington BLM



### CONSERVATION EASEMENTS

The Lower Salmon River recreation and conservation project has been part of a priority management effort for Congress and the BLM since 1991. Through multiple acquisitions of land and interest in land, the BLM has been able to preserve the river in its unique beauty and character for future generations. These fee ownership and conservation easement acquisitions achieve goals and objectives identified in the Cottonwood Resource Management Plan, including preservation of the canyon's exquisite beauty and protection of the many special species that inhabit the waters and lands of the second deepest canyon in the county. The primary effort of the BLM, in cooperation with volunteer and willing landowners, has been to preserve the canyon through conservation easement acquisitions on private lands. The primary benefit of this effort is to promote working ranches as part of an important economic driver within the region while working with those ranchers to preserve the canyon as an open space with spectacular views. Private lands with current and future scenic conservation easements will always have the same views you see today; clear waters pouring in from their tributaries; preserved fish, big game, and upland game bird habitat; and limited home and road development. Those same conservation easements contain provisions for the continued production of beef; promotion of healthy working forests; and providing ranching, forestry, and recreation jobs to local communities.

Past and future conservation acquisitions are completed without the use of taxpayer dollars. Funding for the acquisitions is from the Land and Water Conservation Fund (LWCF) program, which as a special fund appropriated by Congress each year. The primary source of money for the LWCF is generated from royalties of offshore oil and gas leases where Congress may appropriate up to \$900 million annually to the fund. Four Federal agencies and local communities from every State are eligible to receive LWCF monies for various conservation and recreation projects. Since 1995, the BLM has received a total of \$13,398,460 for the acquisition of 15,801 acres in fee simple ownership and 9,781 acres of conservation easement interest on the Lower Salmon River and areas of the Craig Mountain Wildlife Management Area along the Salmon and Snake Rivers.

# SNOWHOLE WILDERNESS STUDY AREA

The unique natural values of the 5,332 acre Snowhole Wilderness Study Area (WSA) are protected through the continuing implementation of the Lower Salmon River Recreation Management Plan and the Lower Salmon River Cultural Resource Management Plan. The WSA is withdrawn from all forms of appropriation under the mining laws by formal withdrawal enacted in 1986, meaning, there will be no impacts from mineral exploration or development under the recommendation that the entire WSA would be open to off-highway vehicle (OHV) use. Currently there is no land-based OHV use and it is unlikely to occur in the near future simply due to the rugged topographic features of the Salmon River Canyon within the WSA. Livestock use is currently authorized at historical levels.

The recreational values of this WSA are outstanding. The Lower Salmon River, 20 miles of which pass through this WSA, provides nationally recognized whitewater rafting opportunities. Based upon the percentage of the WSA area to the total river corridor, recreation use within the WSA is currently estimated at 8500 annual user days. Recreation activities associated with river running include fishing, camping, hiking, hunting and sightseeing. The recommendation will protect and enhance the recreational values of this WSA and accommodate increased use.

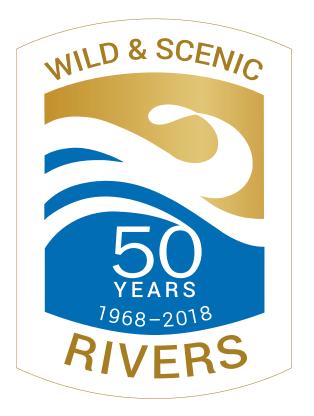
### WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 designated 237 miles of the Salmon River, from the mouth of the North Fork of the Salmon to the confluence of the Salmon and Snake Rivers, to be studied for potential inclusion in the National Wild and Scenic Rivers System.

The Salmon River Wild and Scenic Rivers study was completed in 1973 and the recommendation to Congress included the entire 237 miles in the National Wild and Scenic Rivers System. The study recommended that the segment from North Fork to Corn Creek be designated as Recreational; the segment from Corn Creek to Long Tom Bar as Wild; the segment from Long Tom Bar to Hammer Creek as Recreational; and the segment from Hammer Creek to the Snake River as Scenic. Outstandingly Remarkable Values (ORVs) include fishery and wildlife; archeology and historical; and outstanding recreation in a scenic mountainous canyon.

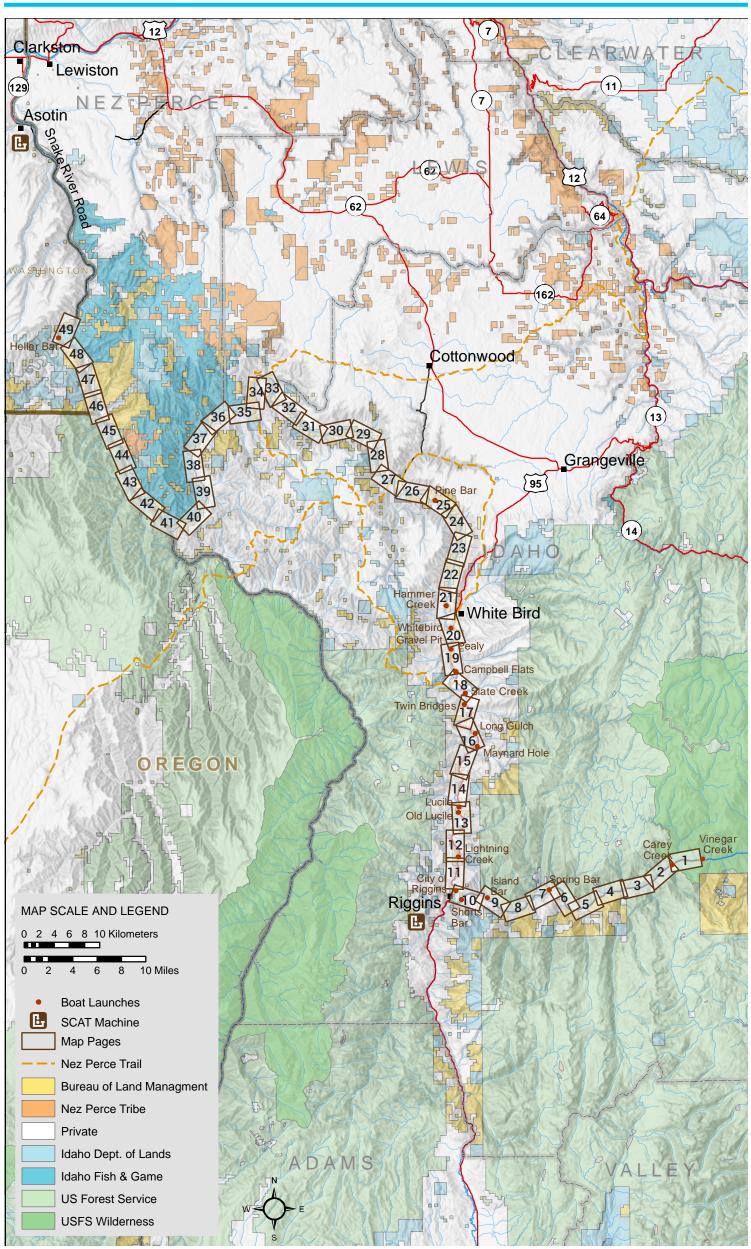
In 1980 the Central Idaho Wilderness Act designated 125 miles of the Salmon River from North Fork to Long Tom Bar as a component of the Wild and Scenic Rivers System. In the final Conference Report for the Act, Congress directed the Secretary of the Interior to manage the 112 mile segment from Long Tom Bar to the confluence with the Snake River to protect the river's ORVs until such time as Congress acts on designation of the segment.

While the Lower Salmon River is not a designated Wild and Scenic River, it is a suitable river and it is BLM's policy to maintain its free-flowing condition, water quality, tentative classification, and ORV's until Congress designates the river or releases it for other uses.



Idaho has approximately 107,651 miles of river. Less than 1% or 891 miles of Idaho's rivers are designated as Wild and Scenic. These are Battle Creek, Big Jacks Creek, the Bruneau River, the Bruneau River (West Fork), Clearwater River (Middle Fork), Cottonwood Creek, Deep Creek, Dickshooter Creek, Duncan Creek, Jarbidge River, Little Jacks Creek, Owyhee River, Owyhee River (North Fork), Owyhee River (South Fork), Rapid River, Red Canyon, St. Joe River, Salmon River, Salmon River (Middle Fork), Sheep Creek, Snake River and Wickahoney Creek.

# **MAP INDEX**

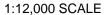


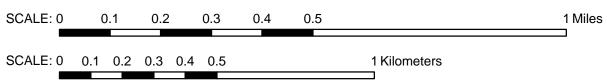
## MAP LEGEND



The compass on each map page is rotated to indicate True North

This box indicates the river flow in cubic feet per second on the date of the imagery for each map page.





**Boat Ramp** 

Campground



Campground, Fee Site



Hot Springs



Informational Kiosk



**River Permit Station** 





Kayak Play Wave



Picnic Area Point of Interest



Potable Water



Restroom



**RV Dump** 



Trailhead



**USFS** Office



Recreation Site



Hwy 95 Milepost



River Mileage



Rapid Class II



Rapid Class III



//// Rapid Class IV



Nez Perce Trail



Major Roads

Minor Roads



Snowhole Rapids WSA



Private Land

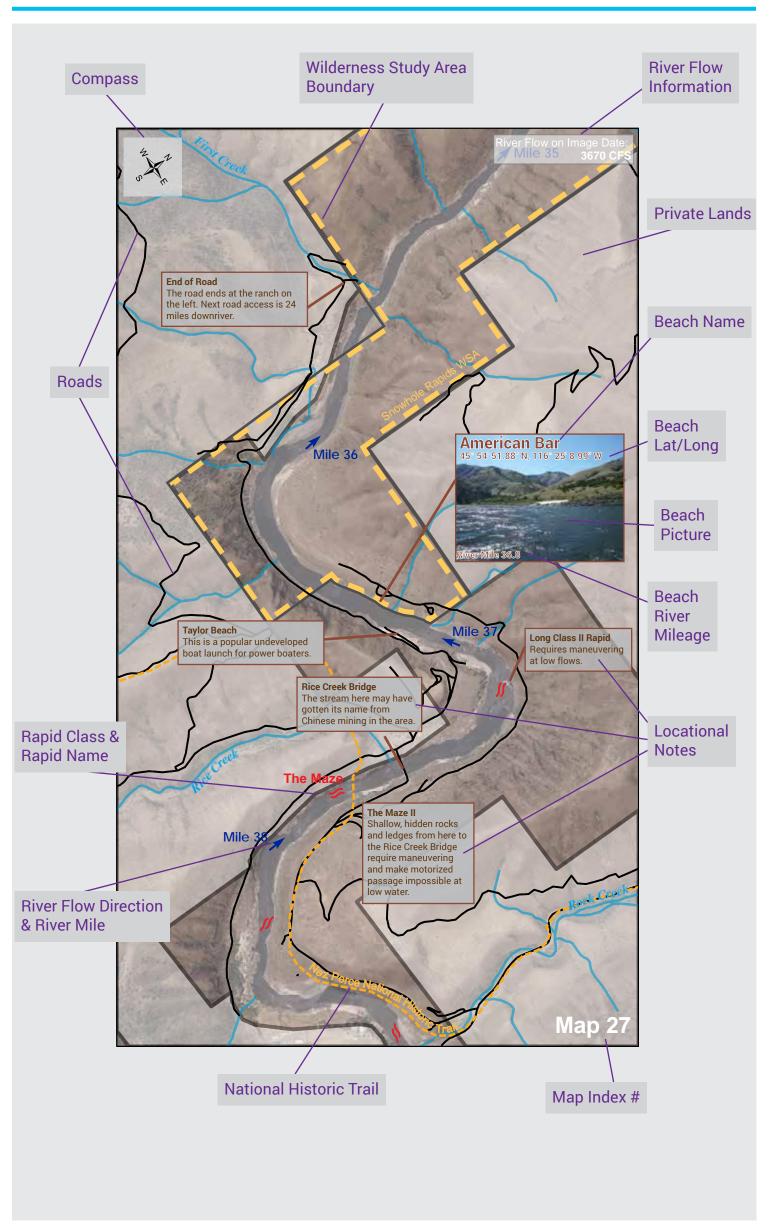
Map Coordinate System: UTM Zone 11N, NAD83; Beach Lat/Long coordinates provided in WGS 84.

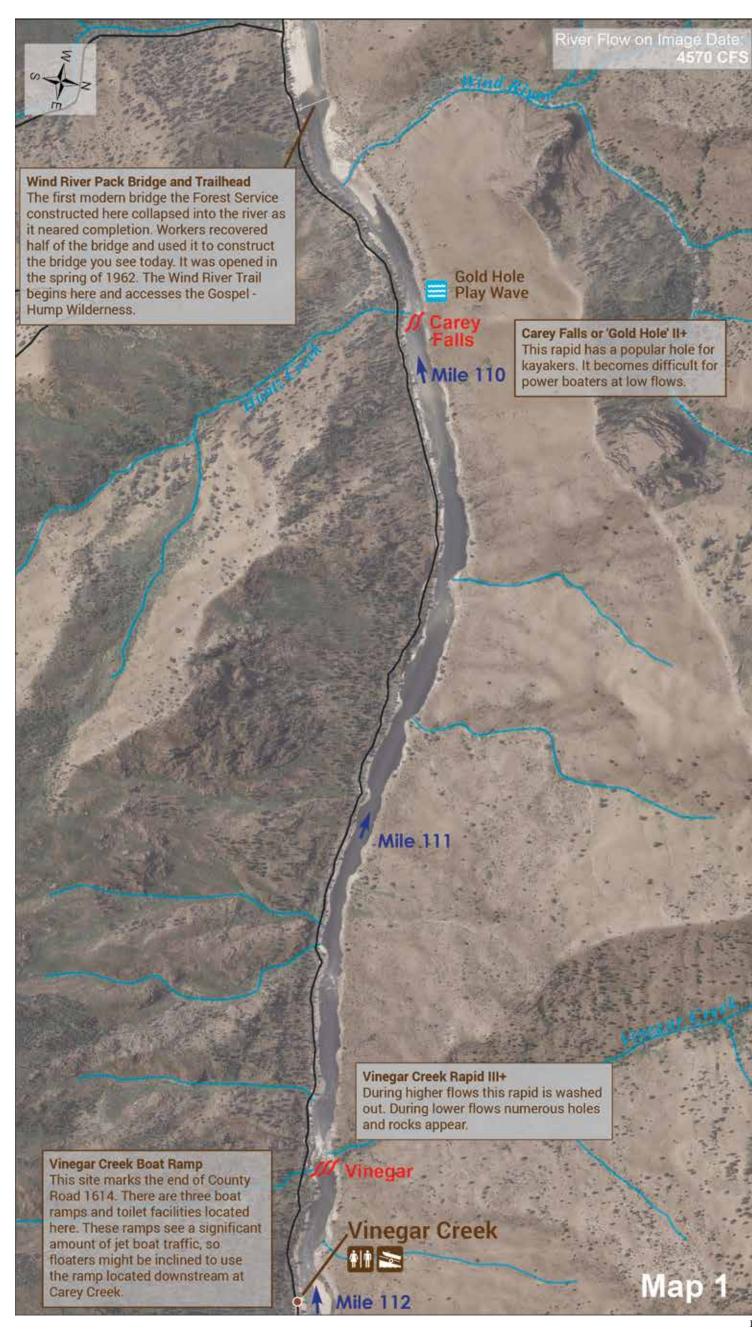
Data Source Information: Land status, hydrology, and transportation data compiled from Bureau of Land Managment (BLM) resource base data at a scale of 1:24,000. Official land records should be checked for up-to-date status on any specific tract of land.

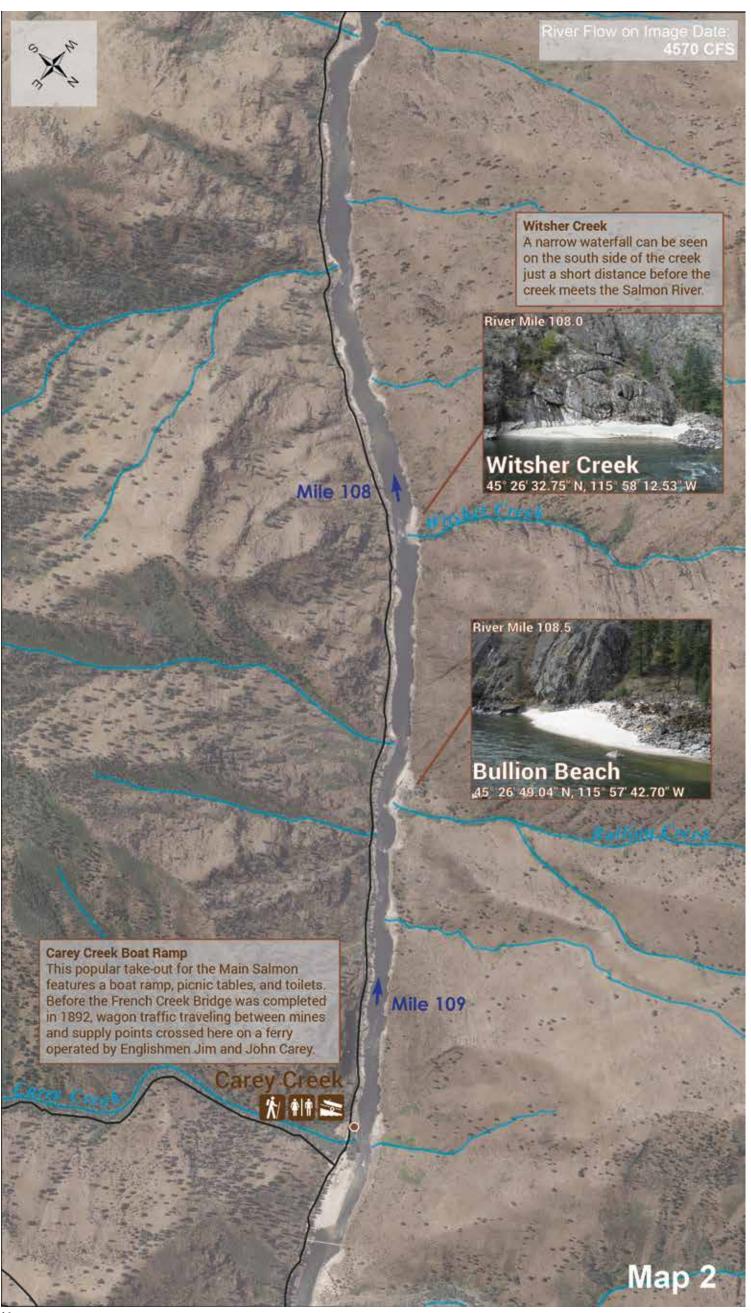
Even though every effort is made to depict the road network, features, and descriptions accurately, BLM cannot guarantee road classification and/or positional accuracy of roads and other features in all cases. No waranty is made by the BLM for use of this data for purposes not intended by the BLM.

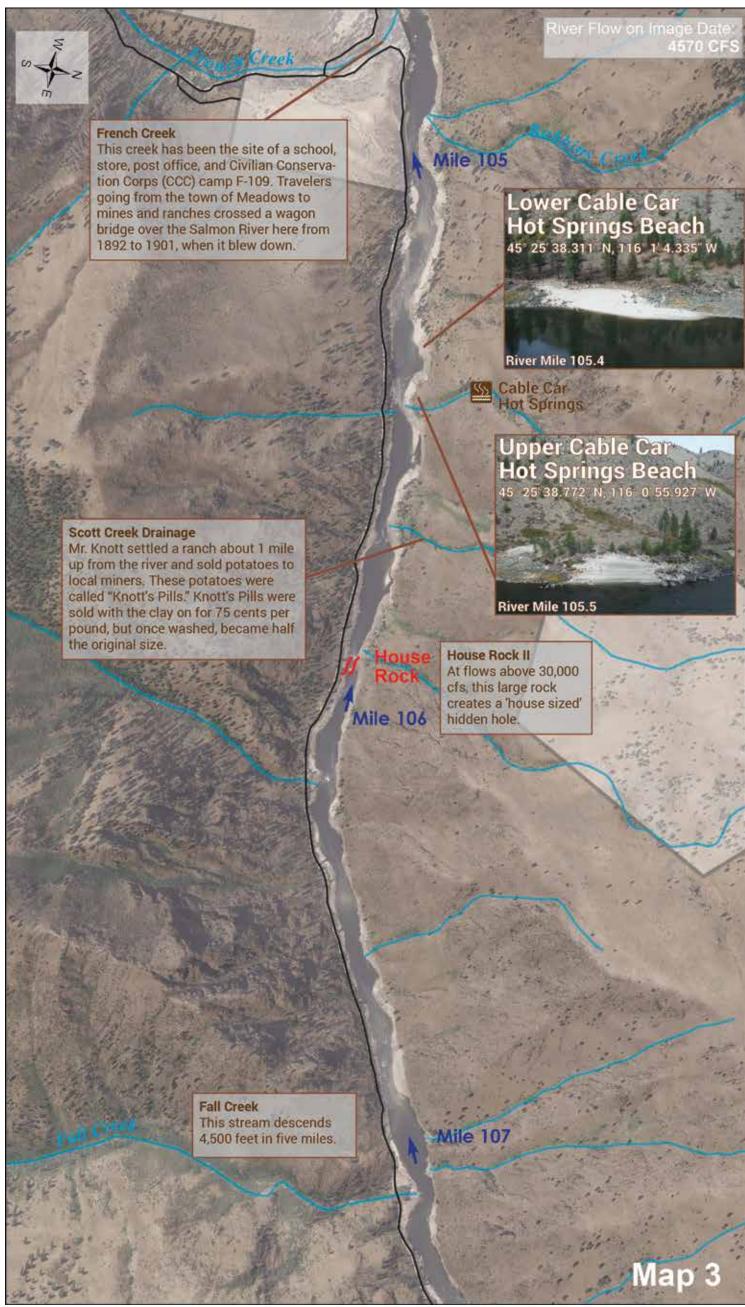
Recreation Information: Local Bureau of Land Managment (BLM) and Forest Service (USFS) recreation facilities are shown on the maps throughout this guide. Contact information for administrative offices are listed.

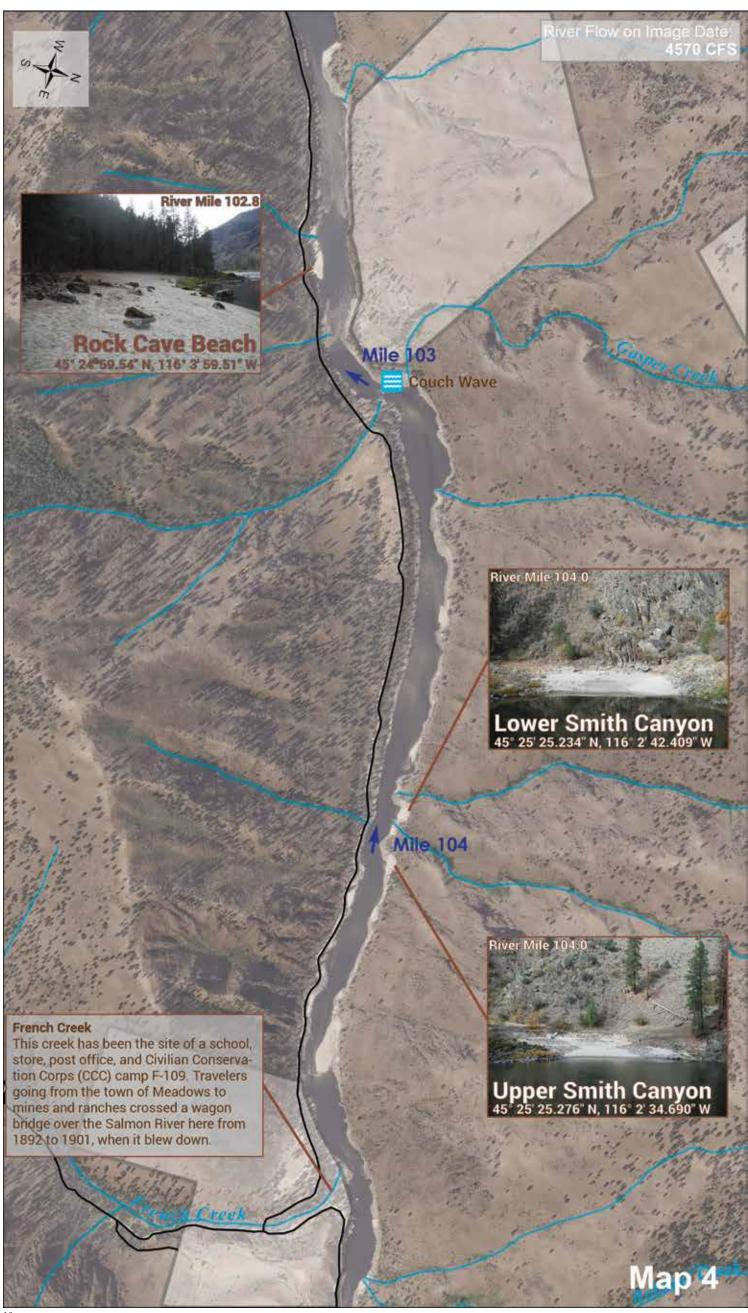
# MAP EXAMPLE

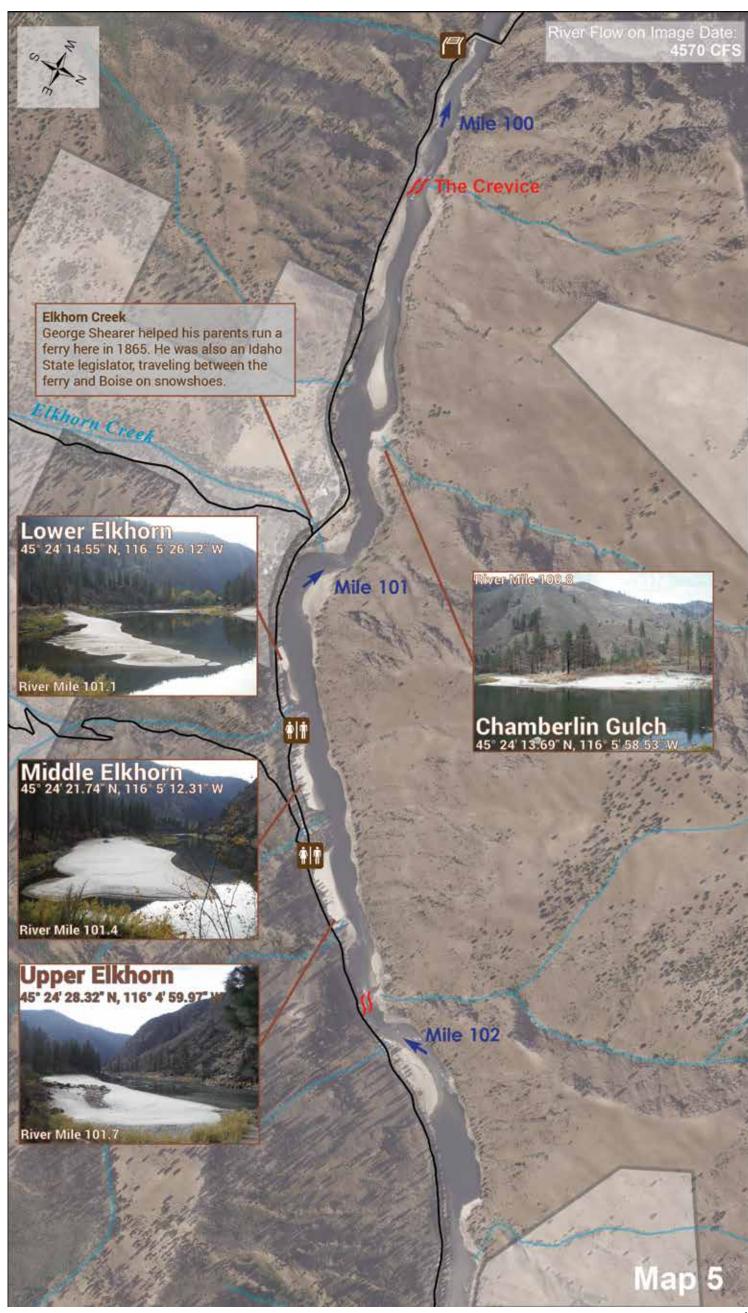


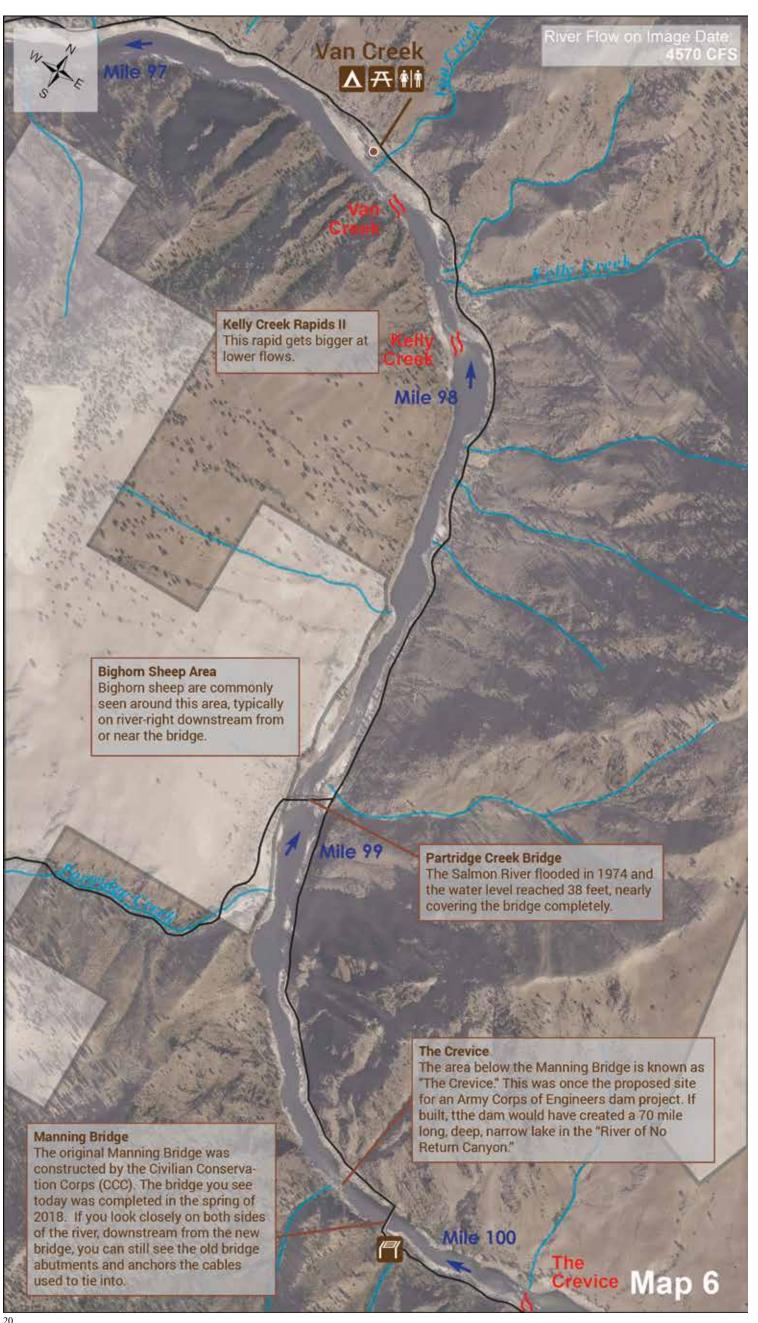


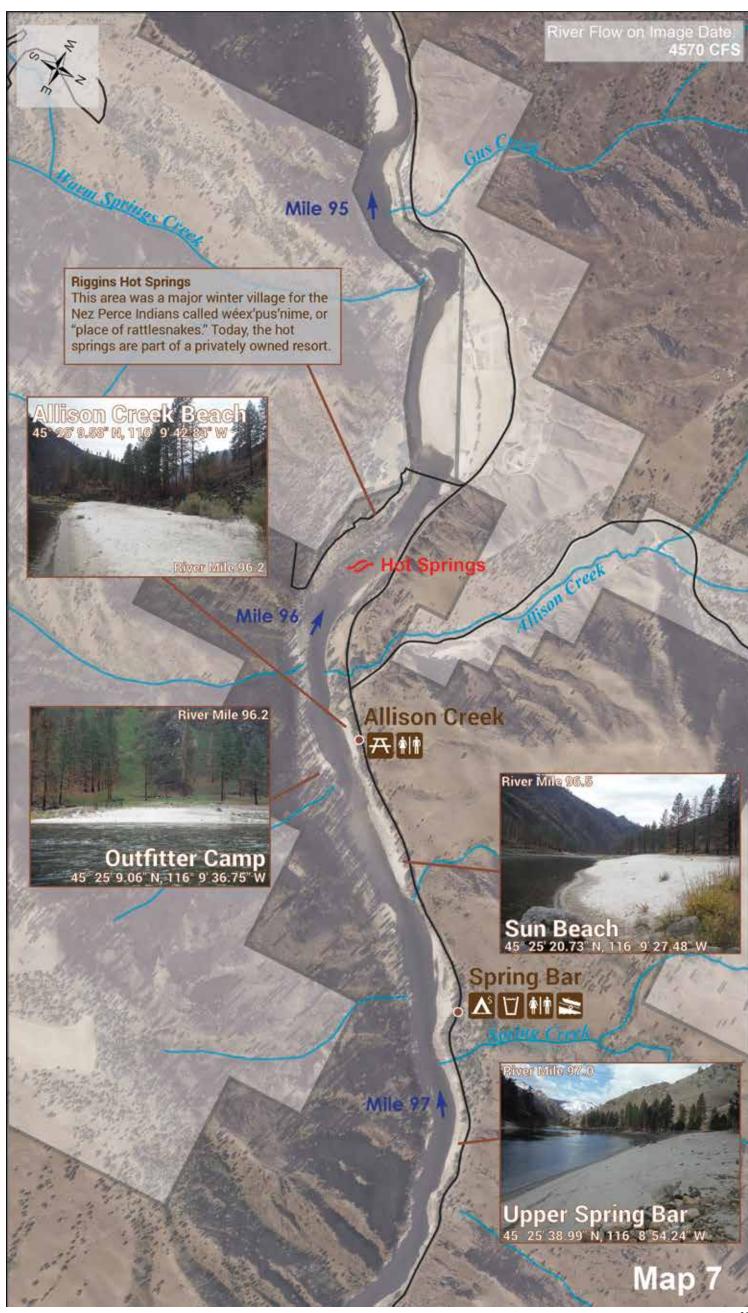


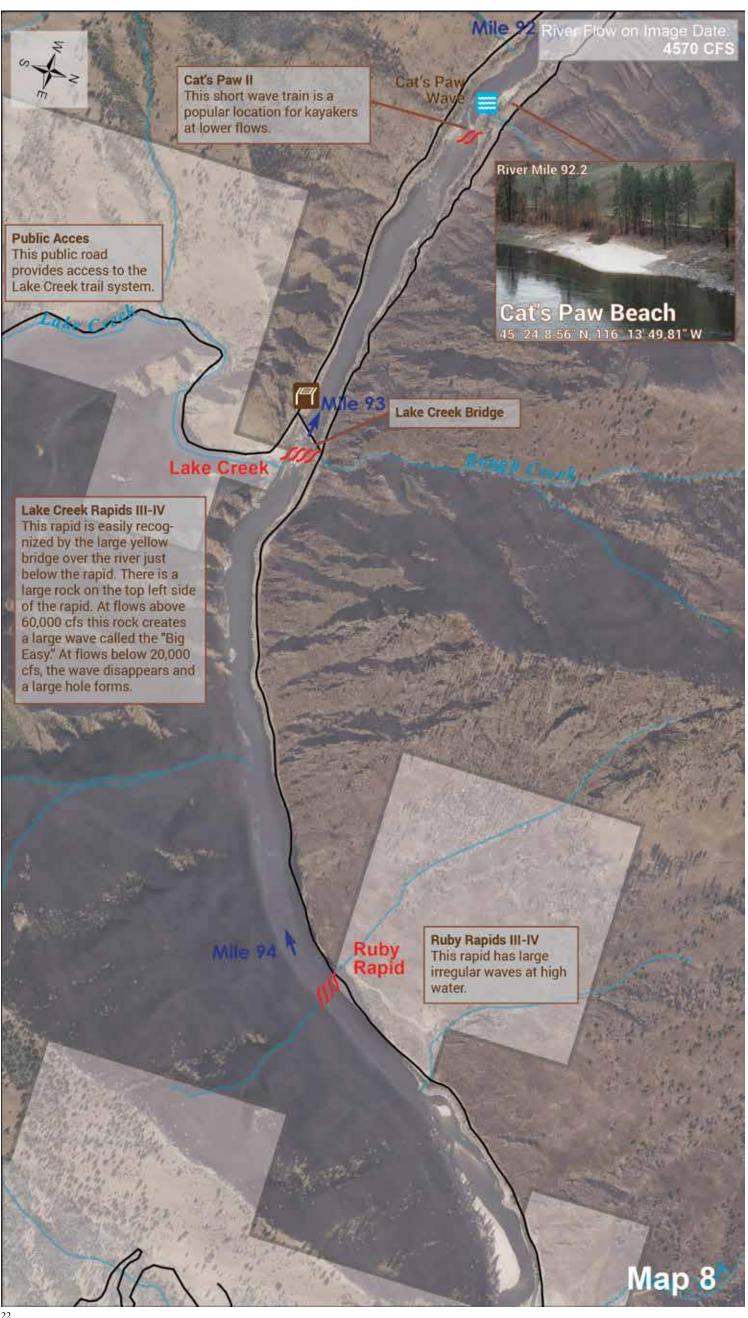


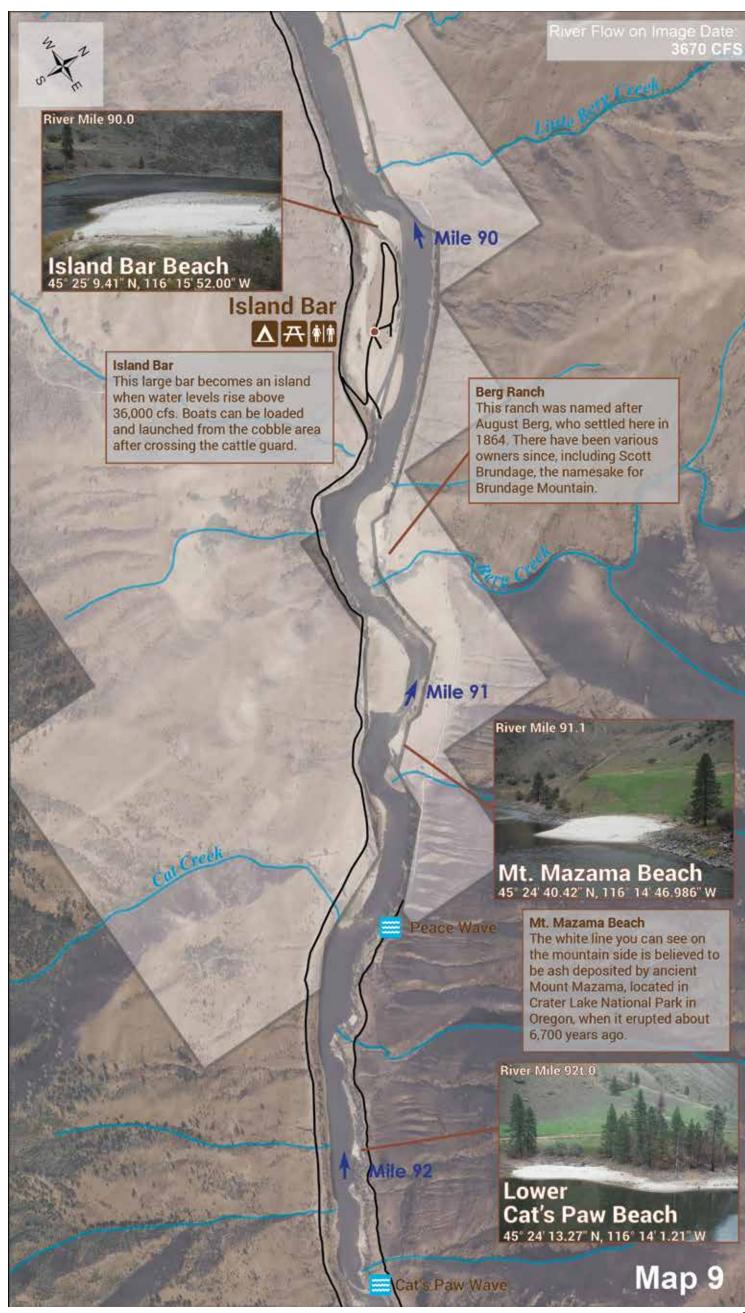


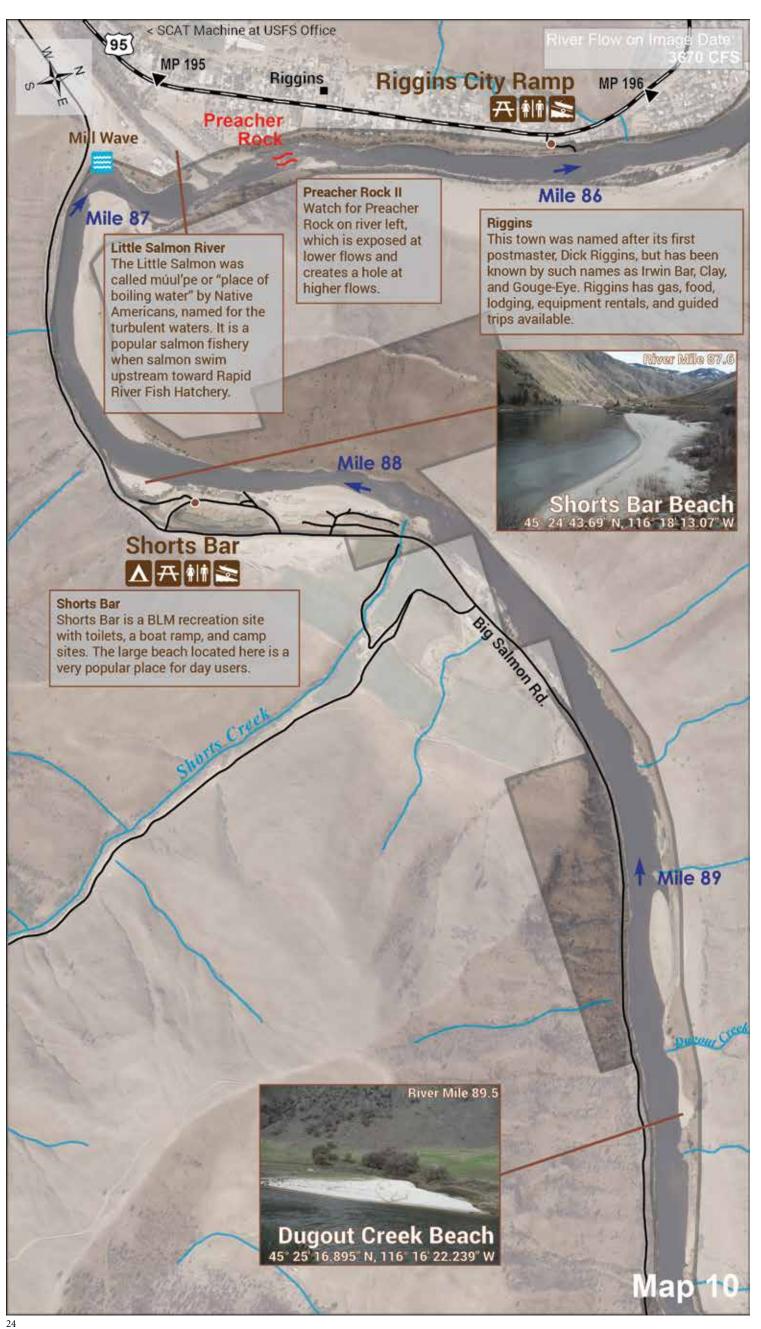


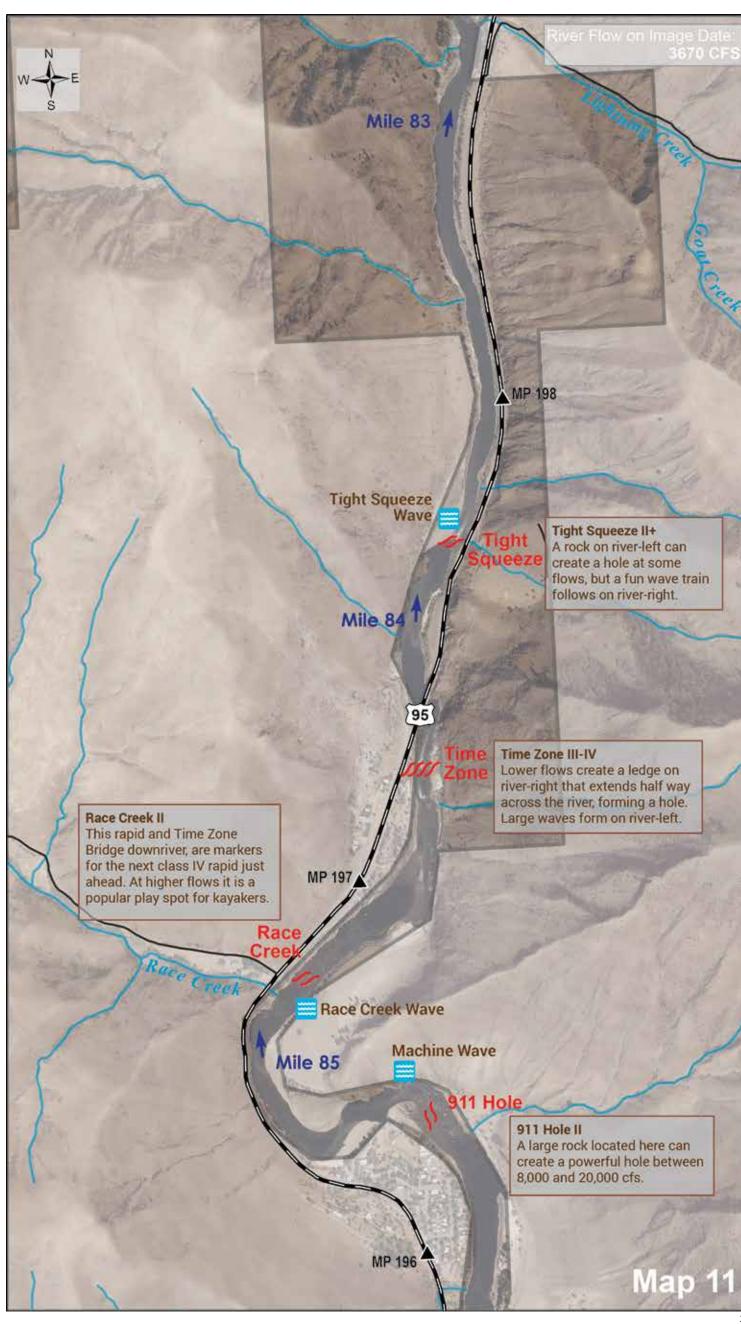


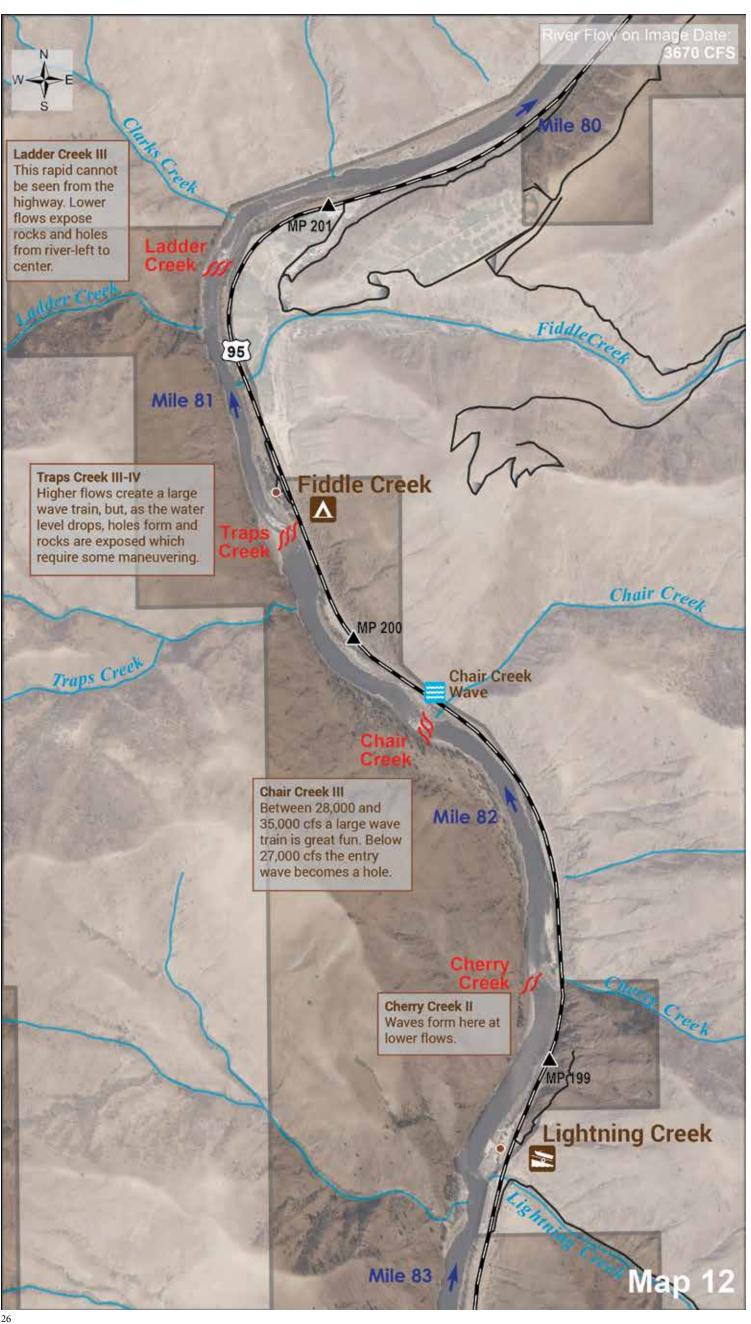




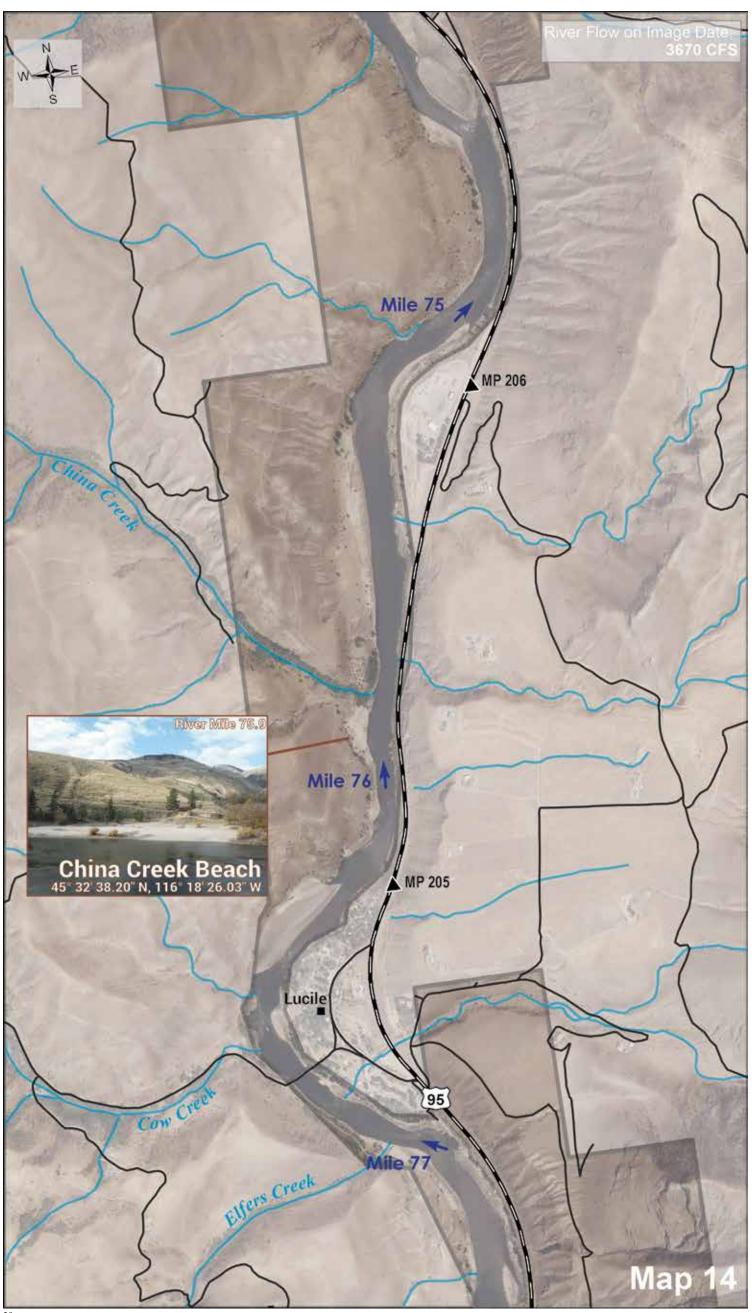




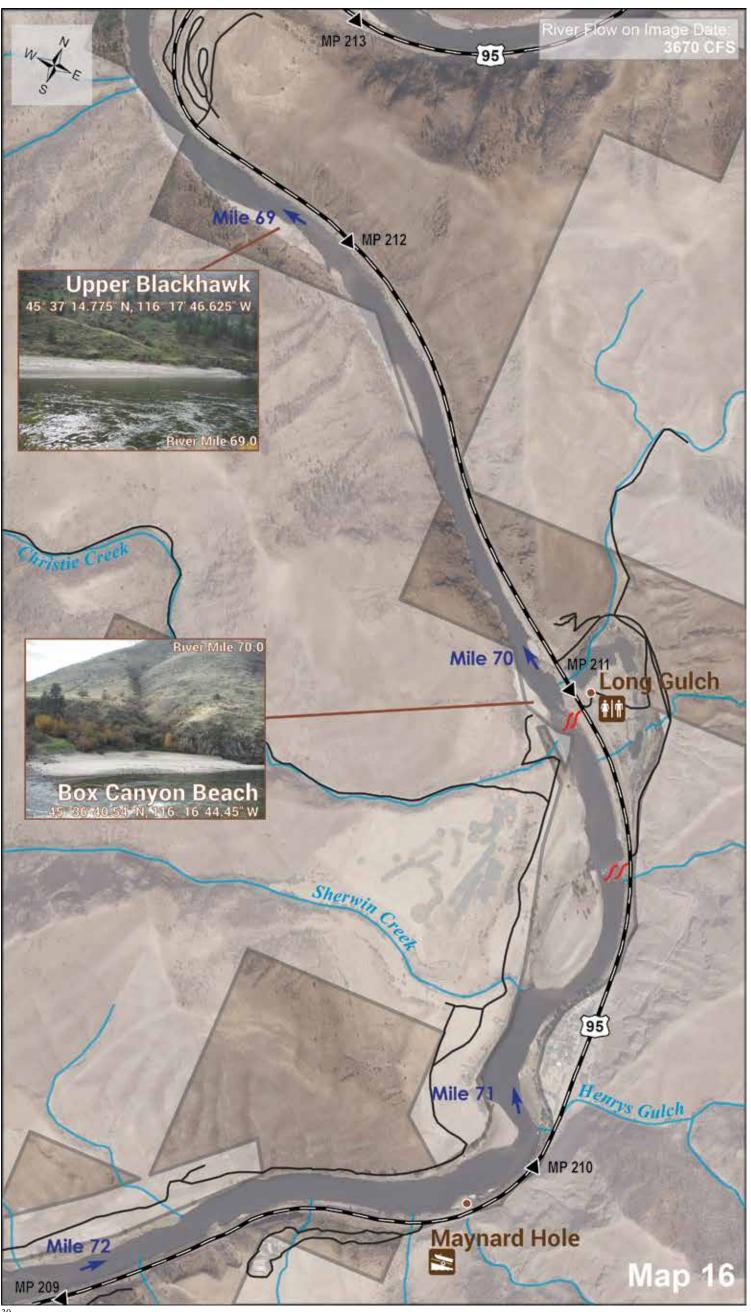






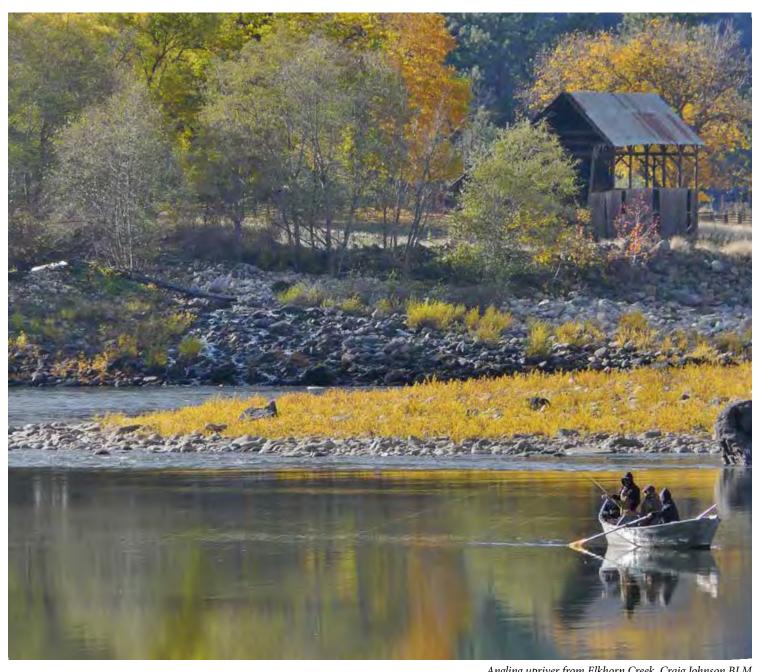




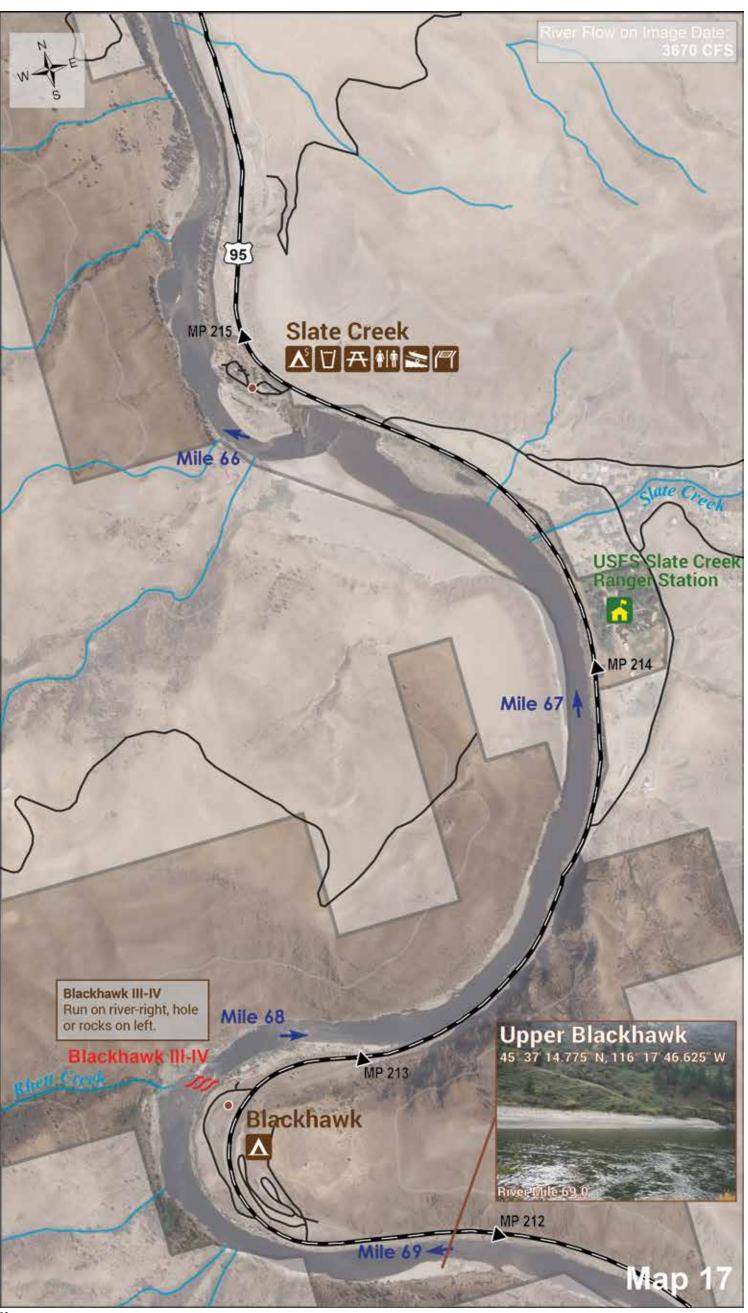


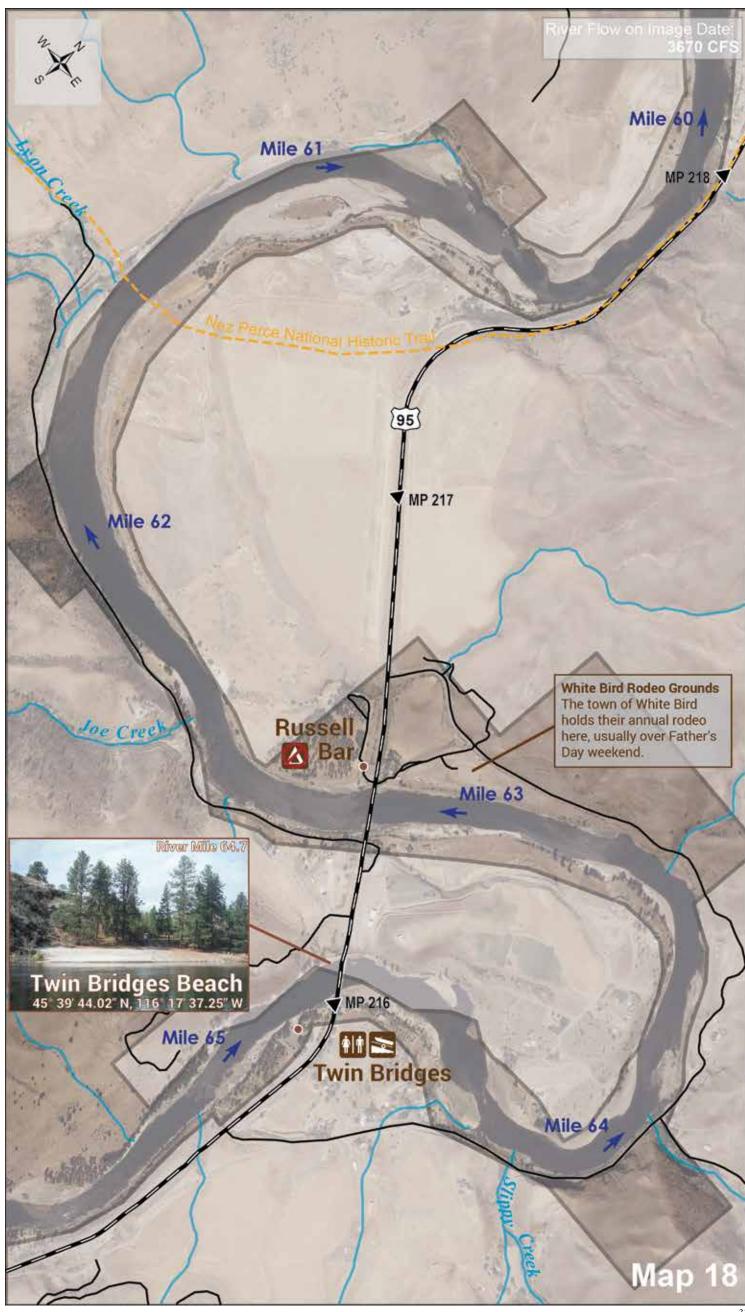


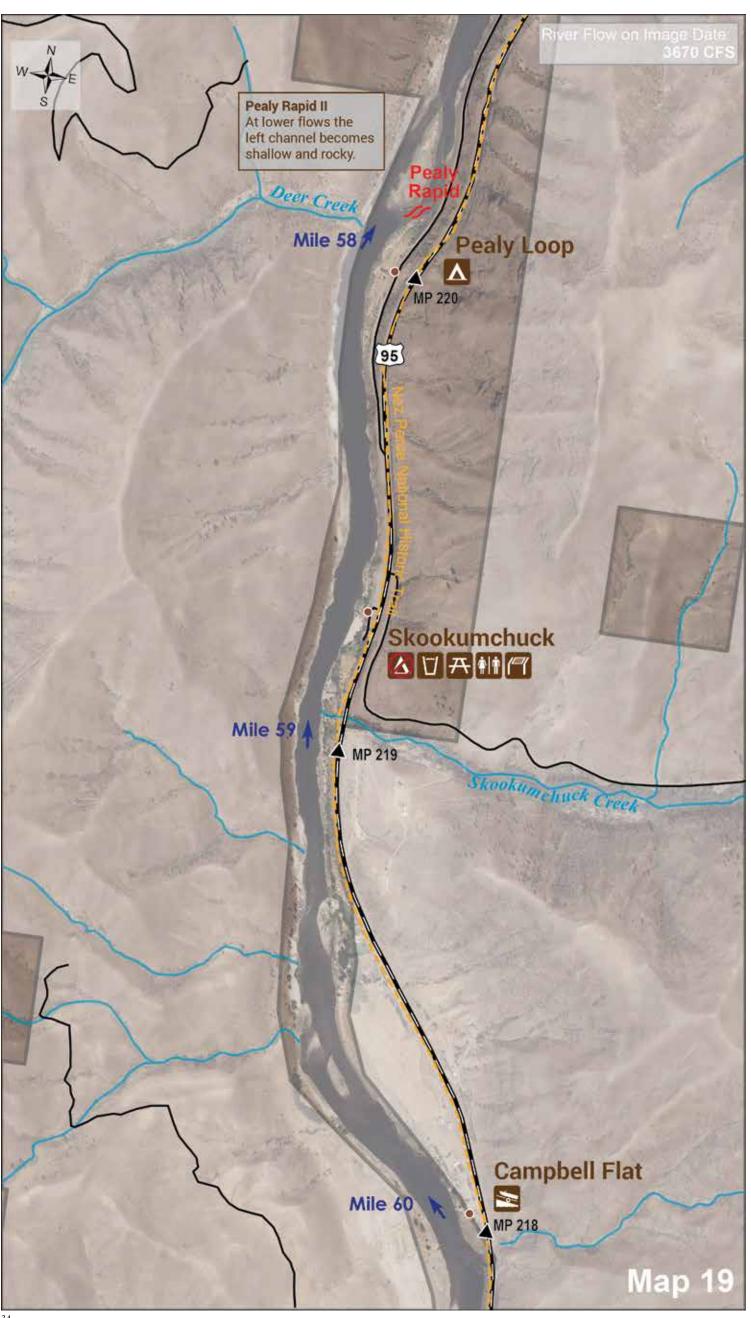
 $View\ to\ the\ southeast\ of\ Blackhawk\ Bar\ (River\ Mile\ 68-69)\ and\ John\ Day\ Mountain,\ Craig\ Johnson\ BLM$ 



 $Angling\ upriver\ from\ Elkhorn\ Creek,\ Craig\ Johnson\ BLM$ 









 $Eel\ fishing,\ University\ of\ Washington\ Libraries,\ Special\ Collections$ 



A National Geographic expedition on the Lower Salmon River, 1935, Idaho State Historical Library



 $Sections\ along\ Highway\ 95\ offers\ great\ mellow\ floats\ at\ certain\ river\ levels\ for\ kids\ or\ the\ beginning\ boater,\ Ryan\ Turner\ BLM$ 

## **HUMAN HISTORY**

### **PREHISTORY**

The first human inhabitants of the Lower Salmon River canyon were Native Americans who lived in the canyon over 12,000 years ago. Climatic conditions were cooler than today, and people probably relied on deer, elk, small game, fish and the multitude of plant resources found in the canyons and the surrounding area for sustenance. The climate changed around 8,500 years ago with a peak in aridity and much hotter conditions than today. The human inhabitants adapted to the new conditions by becoming less reliant on big game for food, and placing a greater dietary emphasis on plant, river mussel, and fish resources. The climate slowly moderated with increasing precipitation and cooler temperatures by 4,000 years ago. During this period, the use of plant resources and river mussels continued to increase, with big game remaining a part of the diet.

Around 2,000 years ago, there was a dramatic, short term increase in precipitation. The Salmon River began cutting down to its current level, and human occupation once again changed. Permanent winter villages began to appear along the river. These villages often consisted of semi-subterranean pit houses with the floor excavated into the ground for insulation against cold weather.

Poles around the outside of the pit were lashed together at the top and covered with mats made of cattail. Part of the house structure consisted of Great Basin wild rye grass, too. A fire burned in the middle of the floor. Some of these house pits can still be seen today along the Lower Salmon River.

The people who lived in these riverside villages hunted deer, elk, bighorn sheep, and relied on salmon, steelhead trout, and river mussels as important food sources.

People moved seasonally utilizing a variety of plant foods, big game, and fish. They continued to winter in permanent villages composed of pit houses. The importance of salmon, steelhead, and root crops as food sources grew. Roots of the cous, found in river canyons, and camas, common in moist upland meadows and prairies, were eaten raw or baked and stored for winter use.

In the early 1700s, the Nez Perce Indians, the long-time inhabitants of the Lower Salmon River area, obtained horses and a new era was born. Horses enabled the Nez Perce to travel greater distances and expand their already extensive trade networks. Trading and hunting trips into what is now Oregon and Montana became more common.

Rock art created by Native American inhabitants of the Lower Salmon River area is still visible in some places. Pictographs, designs painted on the surface of rocks, can be found along the river. The function of pictographs is unknown. They may have been drawn to represent events, serve as trail markers, or send messages to others. Along the Lower Salmon River, the pictographs are usually red. The paint was made by grinding ochre, or iron oxide, and mixing it with oil or grease and resin. Please remember that rock art is fragile. View and photograph these sites, but please do not touch the paintings! Rubbing the figures, or even just touching them can destroy this early art.



## **HISTORIC**

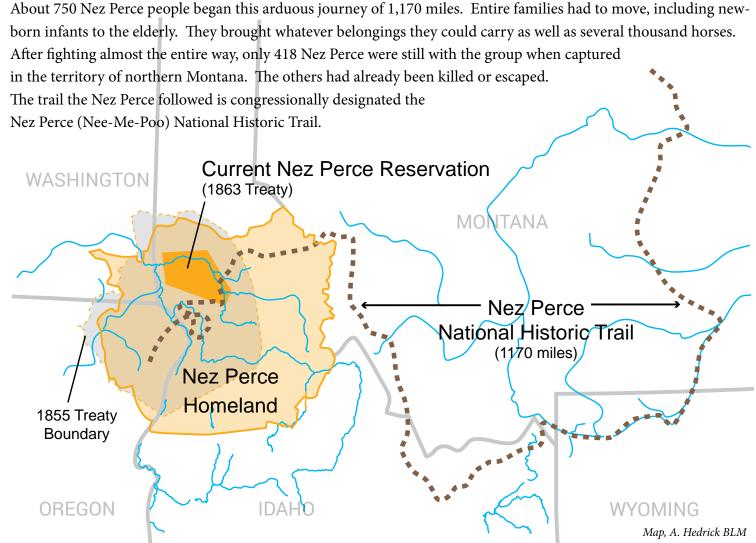
The historic period of the Lower Salmon River region begins with the arrival of Meriwether Lewis and William Clark in 1805. It was the first significant contact between the Nez Perce Indians and Euro-Americans. Lewis and Clark traveled along the Clearwater River to the north of here. Although they did not visit the Lower Salmon River themselves, Sergeant Ordway and several members of their expedition travelled to the area between Deer Creek and Wapshilla Creek on a quest to purchase salmon from the Nez Perce.

Soon after, fur trappers began to enter the region. One of the first was Donald McKenzie, who arrived at the confluence of the Little Salmon and Salmon Rivers, near Riggins, in 1811. He traveled along the Salmon River to the White Bird area before continuing north on his search for areas rich in furs.

In 1855, the Nez Perce Indians signed a treaty that established a reservation with the understanding that the tribe would retain control over most of their territory, which included the entire Lower Salmon River. But in 1860, gold was discovered on Nez Perce land, creating pressure from Euro-Americans to change the reservation boundaries. In 1863, a new treaty was drafted which greatly reduced the tribe's territory. Only a portion of the Nez Perce agreed to this new treaty. Those who did not agree were forced to move into the new treaty area in 1877. From northeast Oregon some Nez Perce groups had to cross the Snake River, crossed Joseph Plains, then crossed the Salmon River near the Rice Creek Bridge and then followed Graves Creek to Tolo Lake.

Before moving to the reservation at Lapwai, several young Indians camping at Tolo Lake near Grangeville traveled to the Salmon River and killed some of the Euro-American settlers near White Bird. Only certain settlers were targeted that had previously mistreated the Indians; those settlers that had treated the Indians well were allowed to pass unharmed. This instigated a confrontation between the U.S. Army and the Nez Perce Indians, which erupted into the Nez Perce War.

The Nez Perce were willing to surrender the young men under a flag of truce at White Bird but were shot at by volunteers who accompanied the military. The first battle was then fought at what is now the White Bird Battlefield on June 17, 1877. After the initial fight in which no Indians were killed, the Nez Perce crossed the Salmon River at Horseshoe Bend, near the mouth of Slate Creek. They traveled across Joseph Plains to the west, then turned north and crossed back over the Salmon River near Billy Creek. From Billy Creek they went east, passing Cottonwood, and continued east to Montana and finally were captured in October of 1877, only about 40 miles from the Canadian border.





River crossings could be treacherous. When the crossings occurred in mid-June the discharge of the Salmon River is much higher than July and August. The Nez Perce had to swim their horses across the river but needed to transport people across the river as well as their belongings. Often used was a bull boat. A bull boat is circular in shape and was constructed by creating a circular hoop made from a stick for the top and one for the bottom that are the same diameter (about 7 feet). Vertical sticks (about 18 inches long) then were used to connect the bottom and top hoops together with additional sticks laid horizontally across the bottom. All of these were lashed together to form a framework the shape of a bowl. A skin of a large animal was stretched around the framework and attached. A person could then paddle the waterproof boat across the river with additional people and belongings. With each stroke of the paddle, the boat would spin requiring the operator to alternate sides when paddling. This method of water transport was used through much of the West and is the first boating on the Salmon River.



Nez Perce men on horses, Idaho State Historical Library



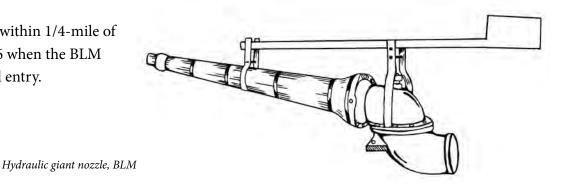
Chinese miners at Slate Creek, Idaho State Historical Library

## **MINING**

Mining began along the Salmon River in 1860 with the discovery of fine, or "flour," gold. The area was mined intensively through the 1880s. Mining activity continued through the early 1900s with another large influx of miners during the Depression years of the 1930s. Miners used several methods to extract gold from placer deposits, the loose gravel and soil deposited by the river in terraces. In the widely used hydraulic method, water was transported from a nearby stream into a reservoir or pressure box where it funneled into a large movable nozzle called a "hydraulic giant." A stream of high pressure water was then used to break up the hillside. The excavated material was carried away in sluice boxes with artificial riffles installed to catch the heavier gold. The larger rocks were pitched out into tailing piles. Today evidence of hydraulic mining - high vertical banks, extensive rock tailing piles, and remnants of ditches, and reservoirs - can be seen along the Lower Salmon River. The total amount of gold removed from this area is unknown. Miners also attempted to mine copper north of White Bird and near the Salmon and Snake Rivers confluence.

The presence of Chinese sojourners, who came to work the newly discovered gold fields along the Lower Salmon River in the 1870s, forms an interesting part of the area's history. Most Chinese mining along the river occurred between 1870 and 1900 when they left extreme poverty in their homeland and came to America to work and save money so they could return to China as wealthy individuals. The Chinese maintained much of their native culture since they planned on returning home, although many eventually decided to stay. They were often victims of discrimination, frequently chased off their claims, robbed, and sometimes murdered. The laws of many mining districts prohibited the Chinese from mining. Since the mineral values along the Lower Salmon River were comparatively low, the Chinese were generally allowed to mine there without much interference. The Chinese who lived along the river usually built rock structures containing a fireplace, with a wooden framework over the top, probably covered with canvas. The philosophical beliefs of feng shui (how one interacts with their surroundings) and architectural styles were brought to America and practiced even in these remote locations. Many of these rock structures are still standing today. An excellent example is found below Half and Half rapids. Many of these early structures were reused after the 1900s, especially during the Depression of the 1930s.

Mining was prohibited on land within 1/4-mile of the Lower Salmon River in 1986 when the BLM withdrew the area from mineral entry.



## **TRANSPORTATION**

Ferries were critical to move both people and livestock across the forbidding barrier of the Lower Salmon River in the days before bridges were built. By the early 1900s, many areas in Idaho were settled with a system of trails and roads which led to small communities, homesteads, and mines. The stage road between White Bird and Riggins was completed between 1894 and 1898. When Highway 95 was constructed in 1931, it obliterated most of the stage road. Northern Pacific completed the first railroad survey along the river from Salmon to Lewiston in 1872. However, construction was not feasible due to high cost. From 1920 to 1940, a road from Rock Creek to White Bird, paralleling the Lower Salmon River, was planned to shorten the distance between Cottonwood and White Bird and would have been the current Highway 95. The road was under construction in 1939 by the Works Progress Administration but was abandoned in 1940, reportedly because of the high cost of construction and political pressure from the nearby town of Grangeville, which would have been bypassed. A 3-mile segment of that road now provides access to the Pine Bar Recreation Site.

#### **BOATING HISTORY**

Nez Perce Indians used canoes, ranging from 15 to 40 feet long, and bull boats (water-tight skin boats) on the Lower Salmon River. A fur trapping expedition attempted to boat the Salmon River in a small skin canoe in 1832, but the journey ended in failure when two men drowned and two others walked out of the canyon. Surveyors conducting the 1872 Northern Pacific railroad survey traveled much of the river in boats built in Salmon, Idaho. In the 1870s, boating on the Salmon River began in earnest when large wooden scows were built to transport mining supplies downriver. The scows, 32 feet long and 8 feet wide with double hulls and 3 foot high gunwales, could be built in three days. They were steered by two boatmen operating "sweeps," two 22 to 28 foot poles with 12 to 14 foot blades, set on a pivot, one on the bow and one on the stern. At the end of each trip, the scows were dismantled and the wood was sold for building materials, since there was no way to get them back upstream. This is how the Salmon River earned the nickname "River of No Return." The most famous river man on the Salmon in the early days was Captain Harry Guleke, who piloted scows down the river from 1896 through the 1930s. His trips included a National Geographic expedition in 1935. Although you won't see wooden scows on the river today, you can see a replica built for the Idaho Centennial in 1990 on display at the Visitor Center in Riggins on Highway 95.



Captain Harry Guleke piloting a scow for a National Geographic expedition in 1935, Idaho Historical Library

The first known trip on the Salmon River with inflatable craft occurred in 1929 when four men paddled two 9 1/2 foot rubber boats from Shoup to Riggins. Wooden dory-style boats first appeared in 1936. In 1947, Glen Wooldridge, a Rogue River veteran, ran a 32-foot plywood boat with a 33-horsepower outboard upstream from Riggins to Salmon, forever tarnishing the river's "no return" reputation. Boating as we know it today-with kayaks, canoes, rafts, and other crafts-began on the Salmon River in the mid-1970s and continues to evolve.



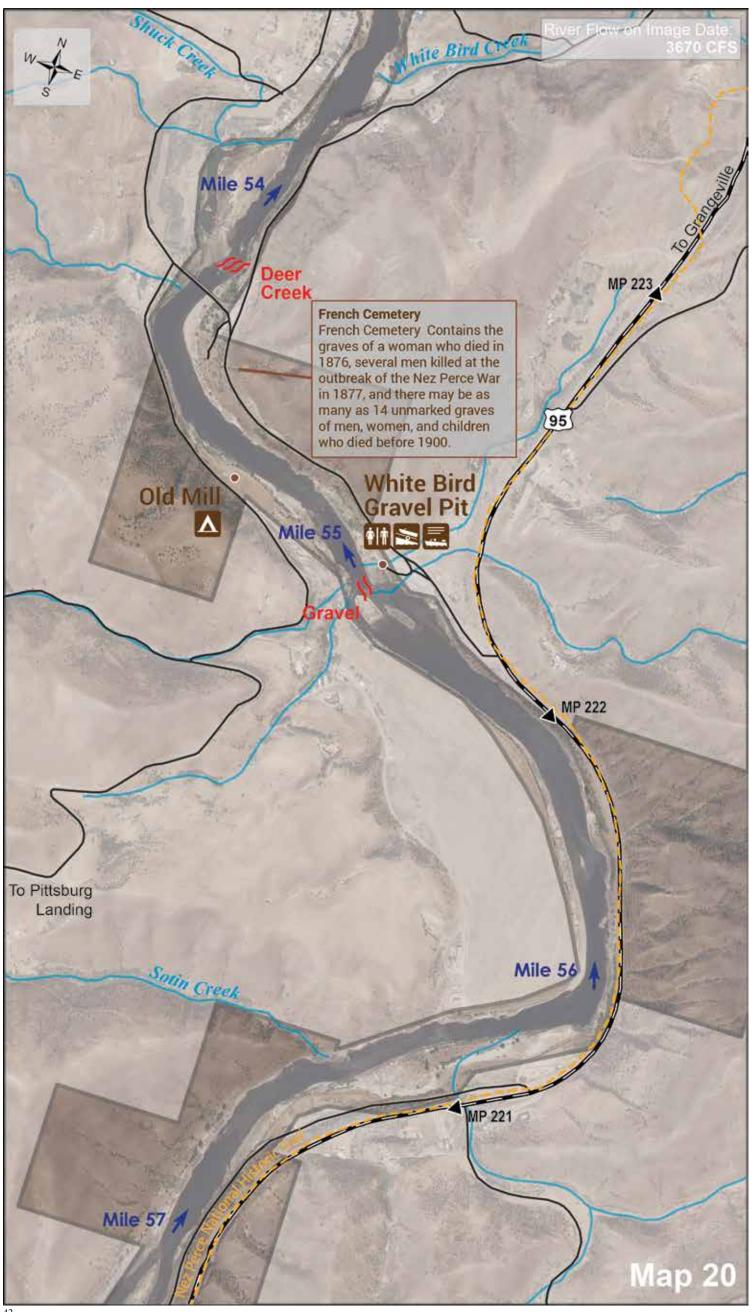
Cattle grazing upstream from Pine Bar, Craig Johnson BLM

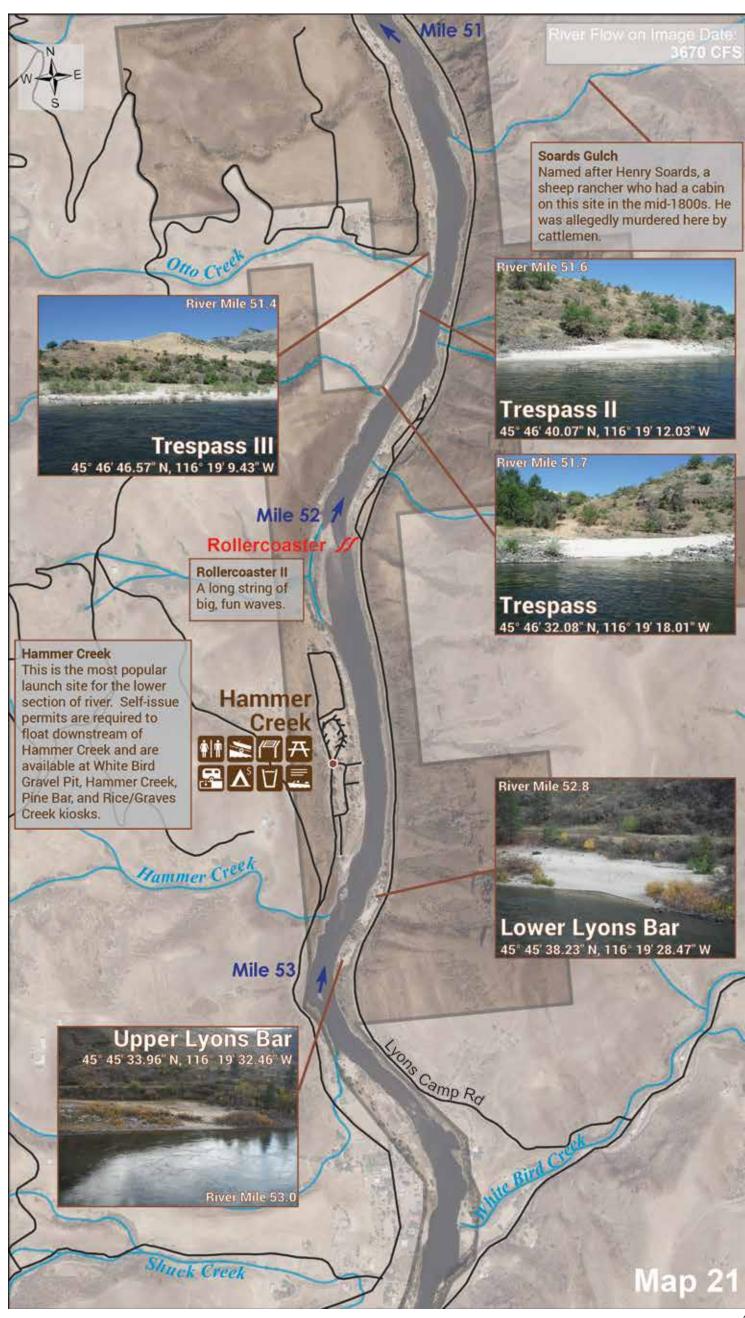
## AGRICULTURE AND RANCHING

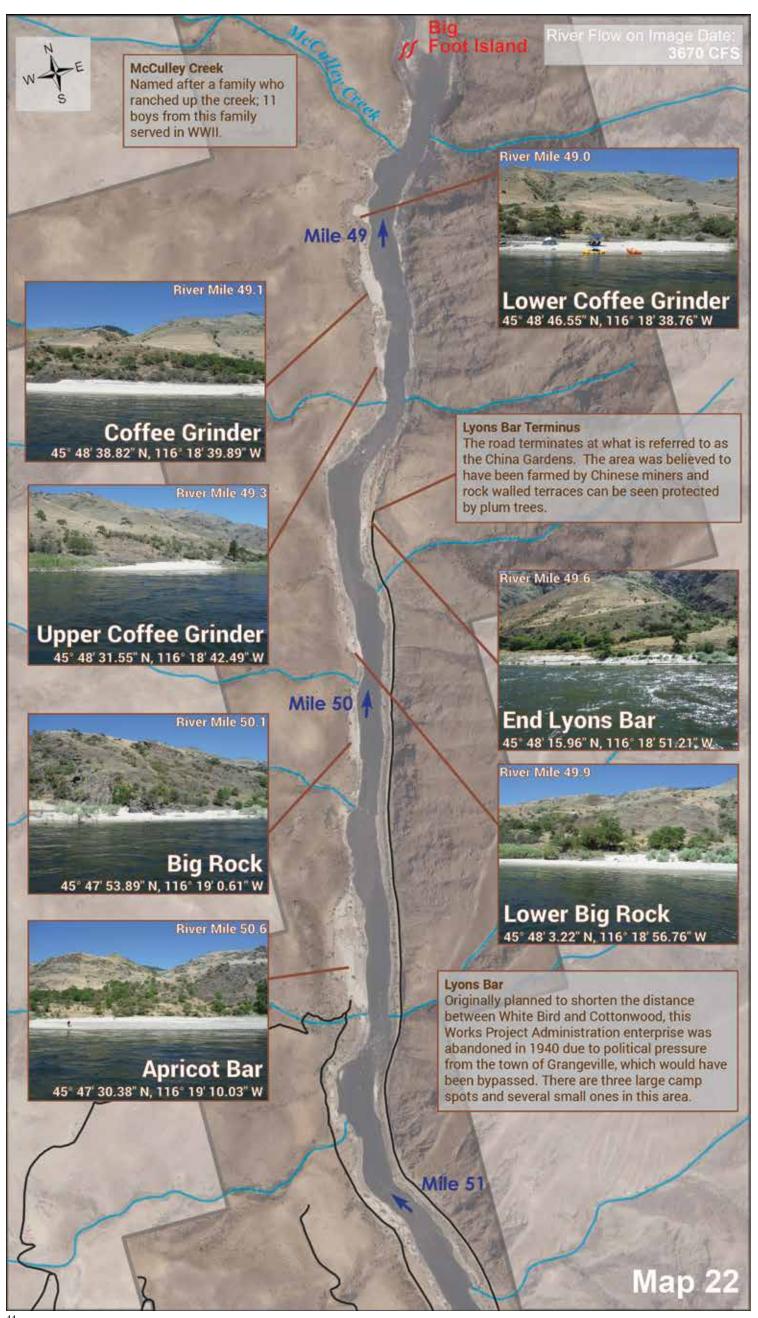
Although most of the land along the Lower Salmon is not suitable for agriculture, some gardens and orchards were planted along the river. Some miners, especially the Chinese, maintained garden plots at their mine sites. Most of the land along the Lower Salmon River is, however, suited to ranching. Settlers brought the first cattle to the region in the early 1860s. Grazing from 1890 to 1940 was unrestricted and quite heavy, much heavier than would be acceptable today. Sheep were also brought to the area, and feuds arose between cattle and sheep ranchers over use of the range. The feuds sometimes resulted in poisoned water holes, crop destruction, and even murder. Most land along the Lower Salmon River is still grazed today, primarily from November through mid-June, and ranching continues to be an important part of the regional economy.

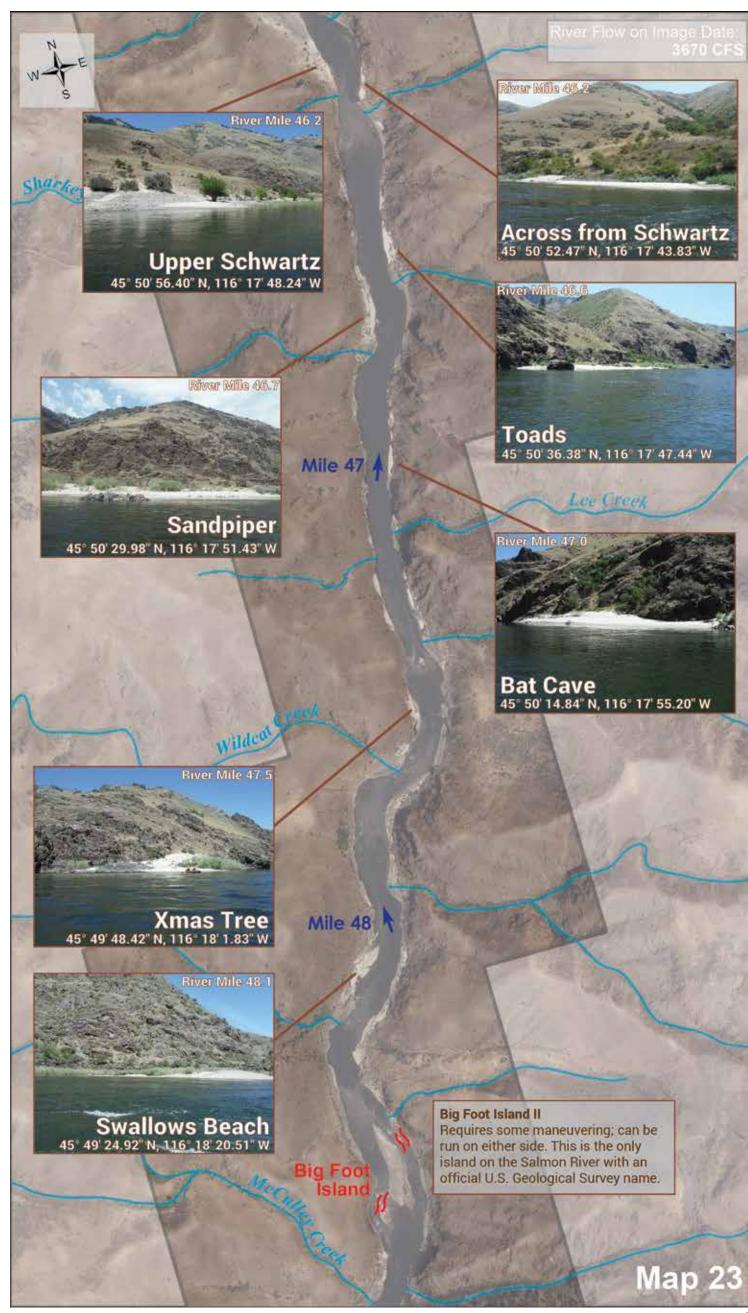


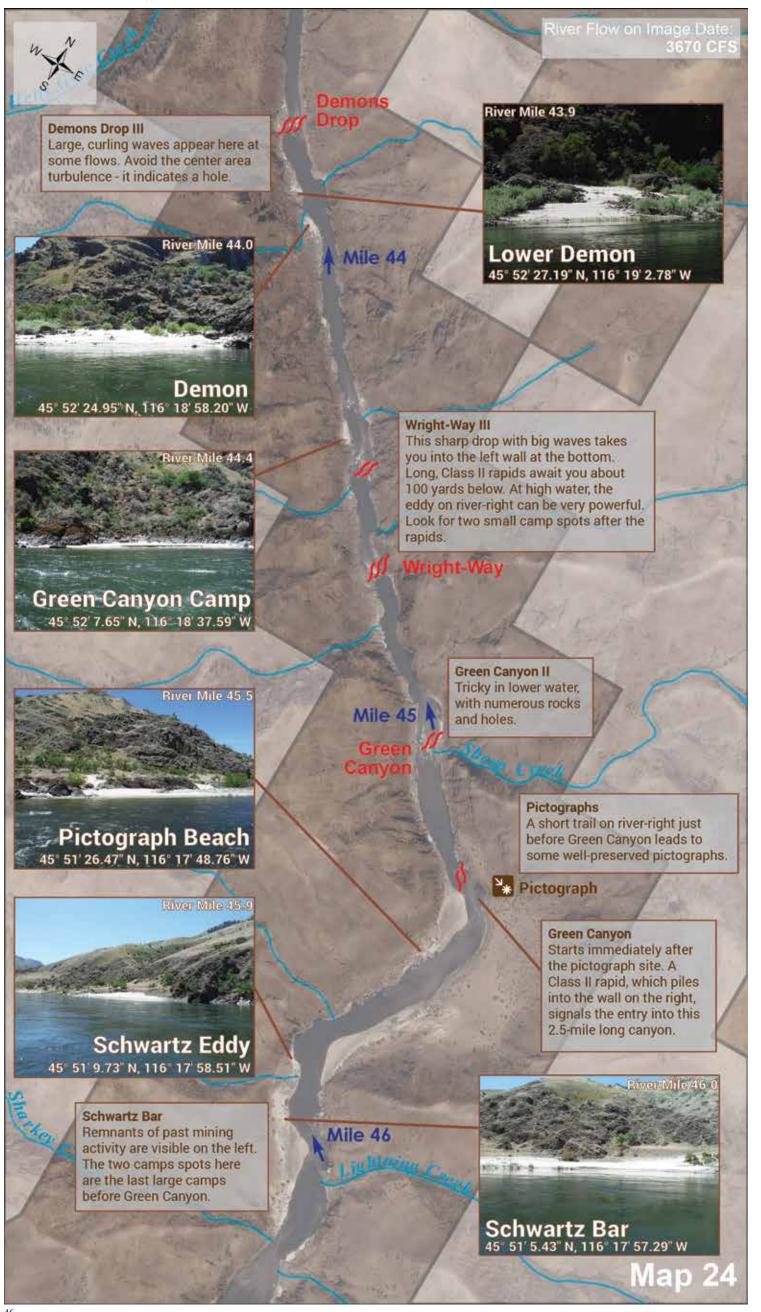
Mill Wave, courtesy Matt Rusher

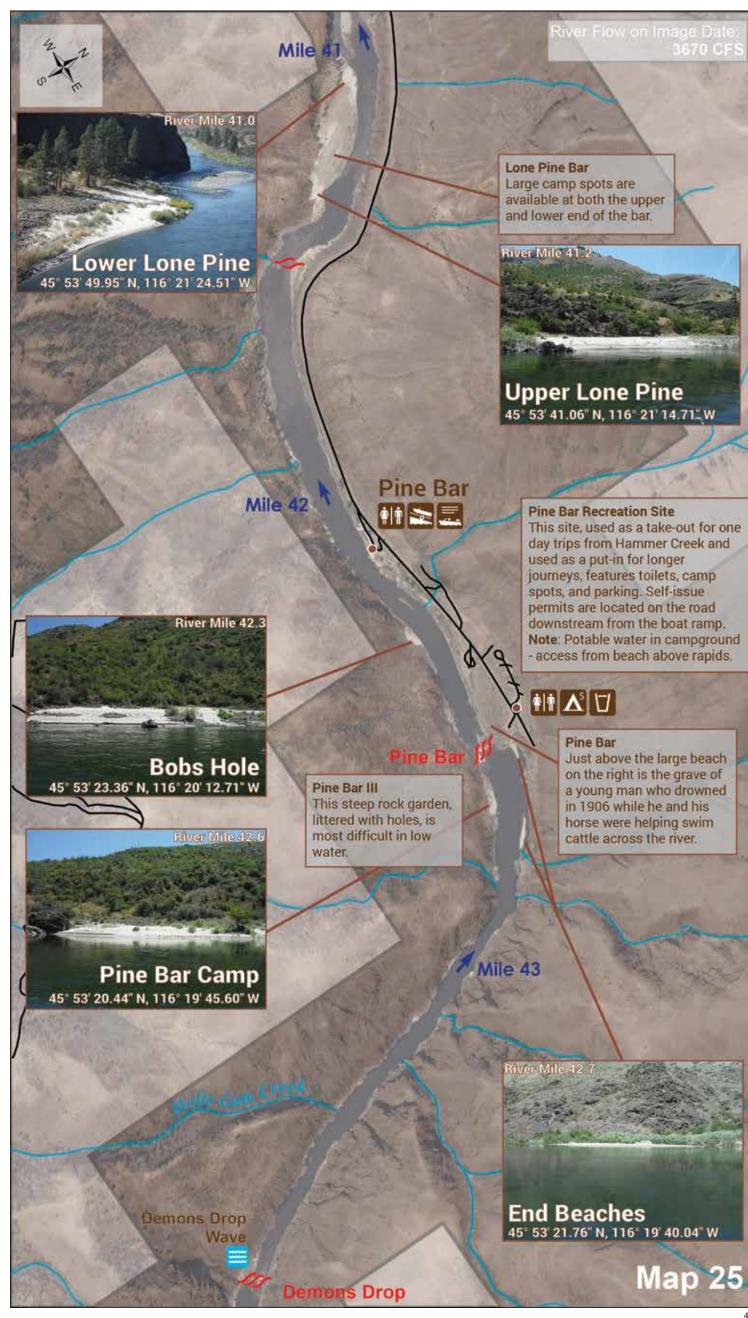


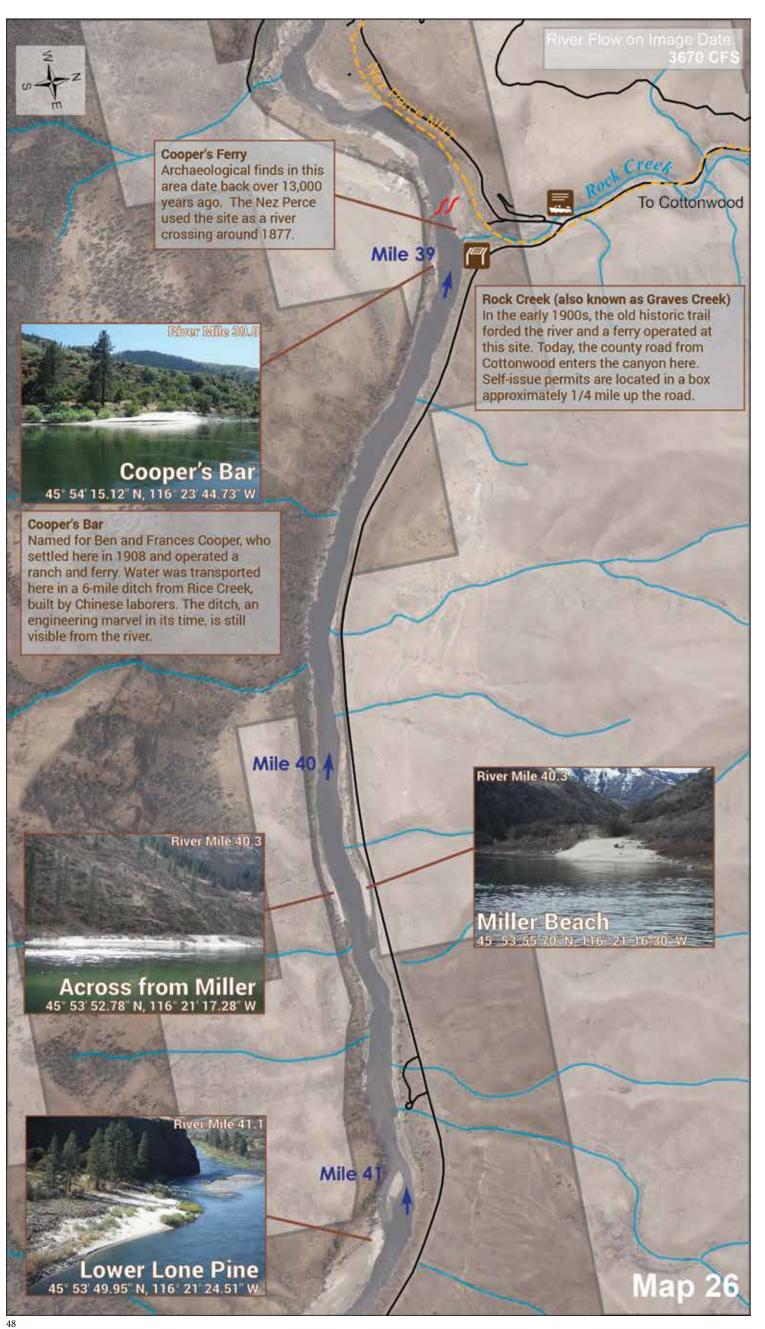


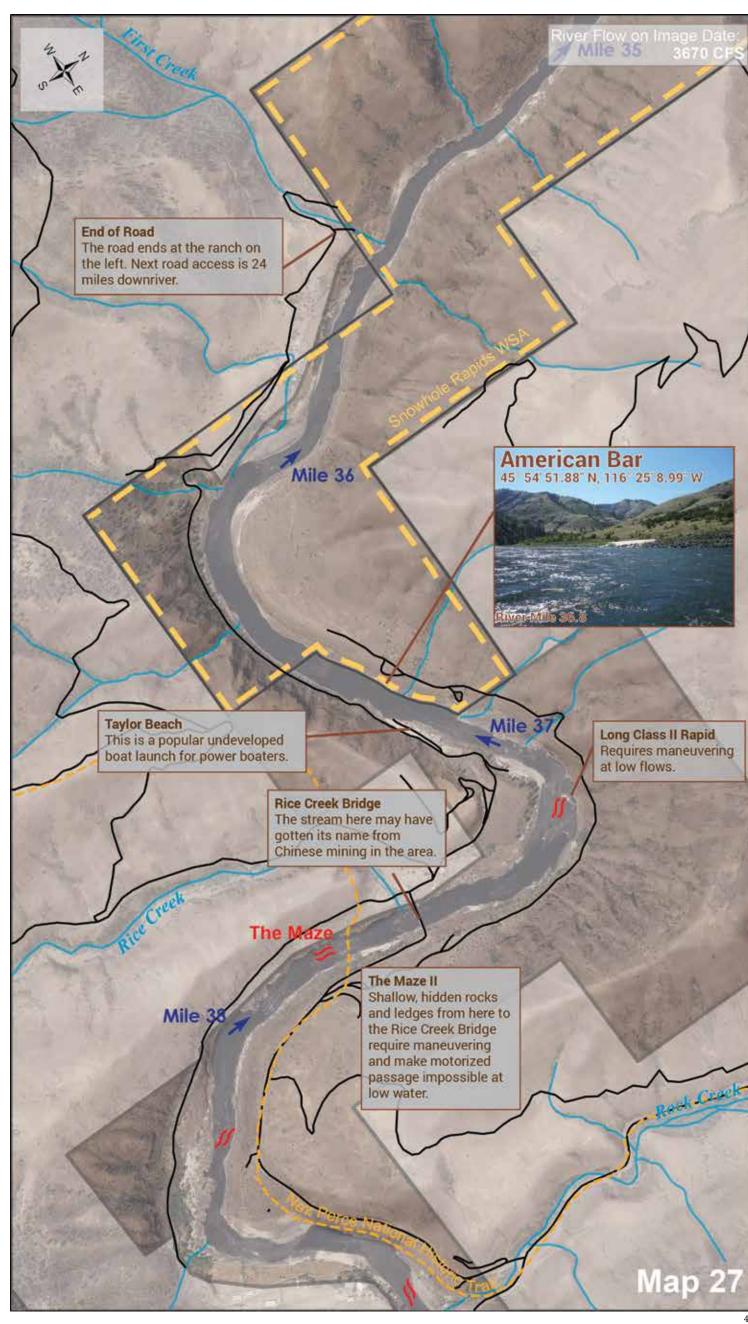




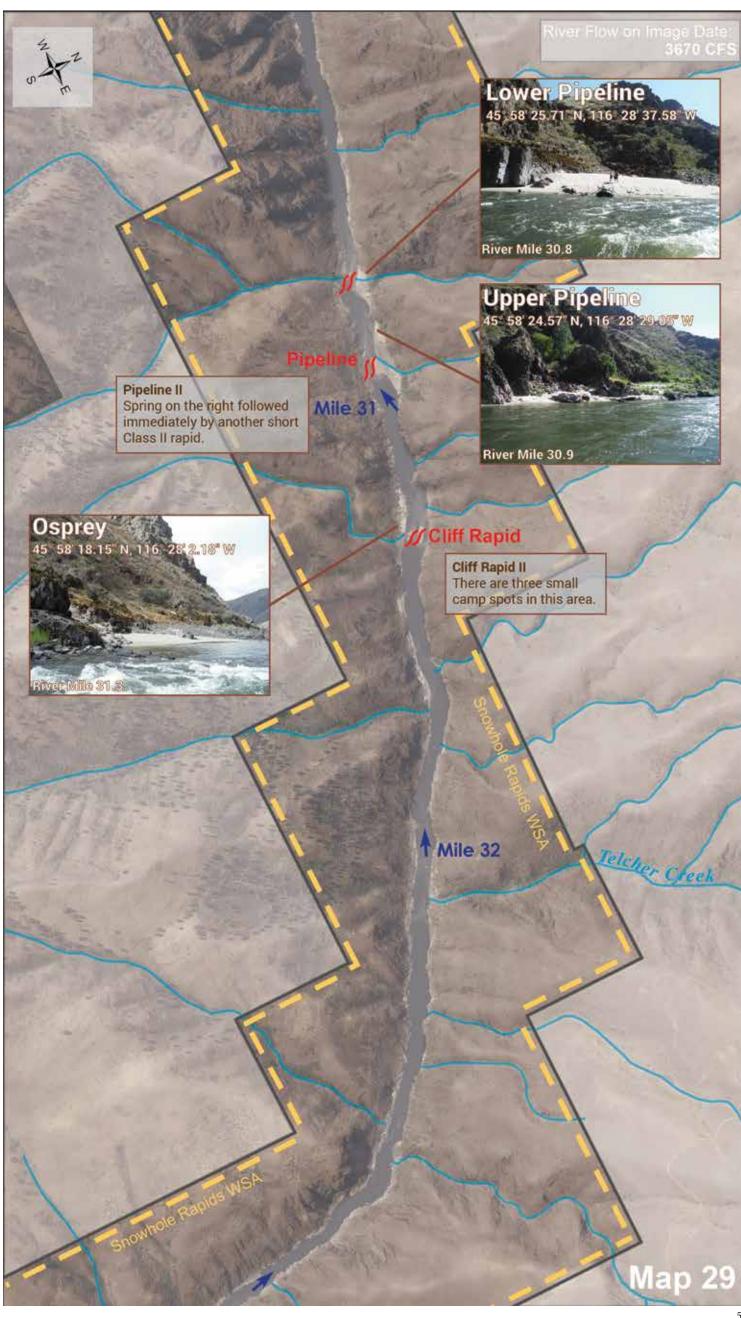


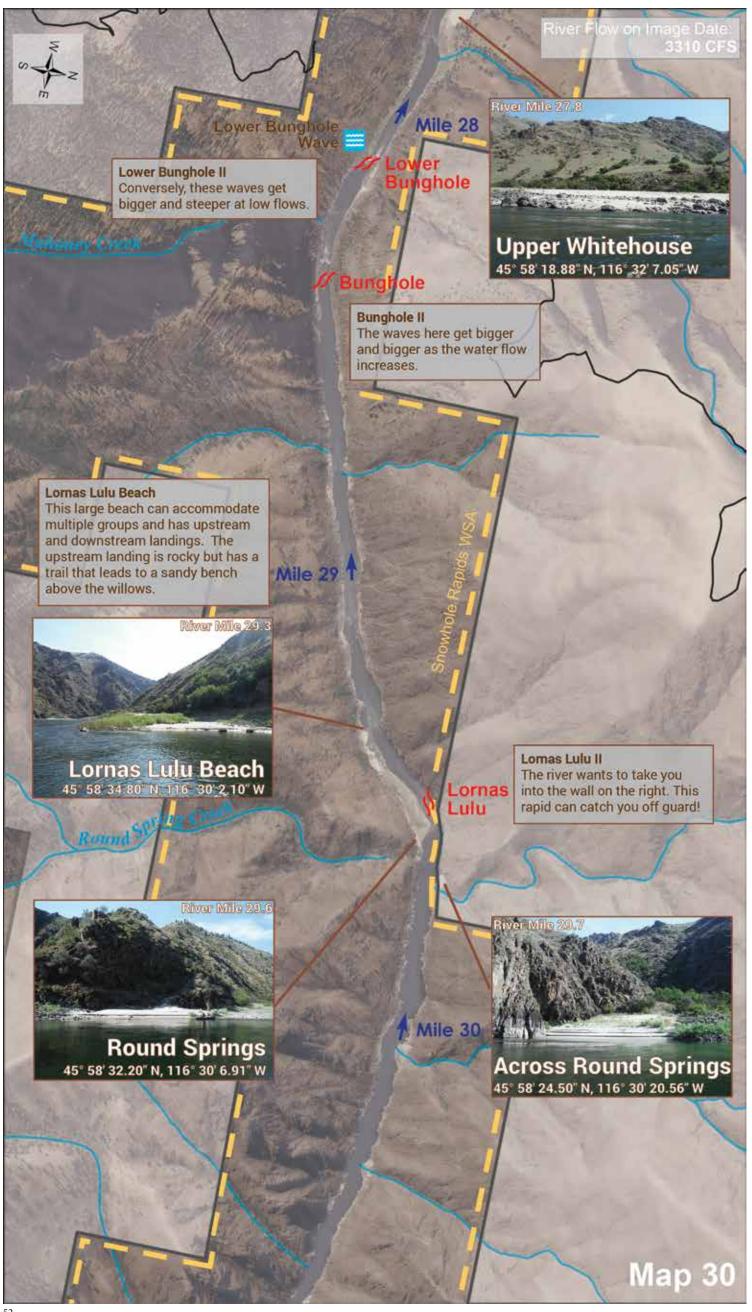


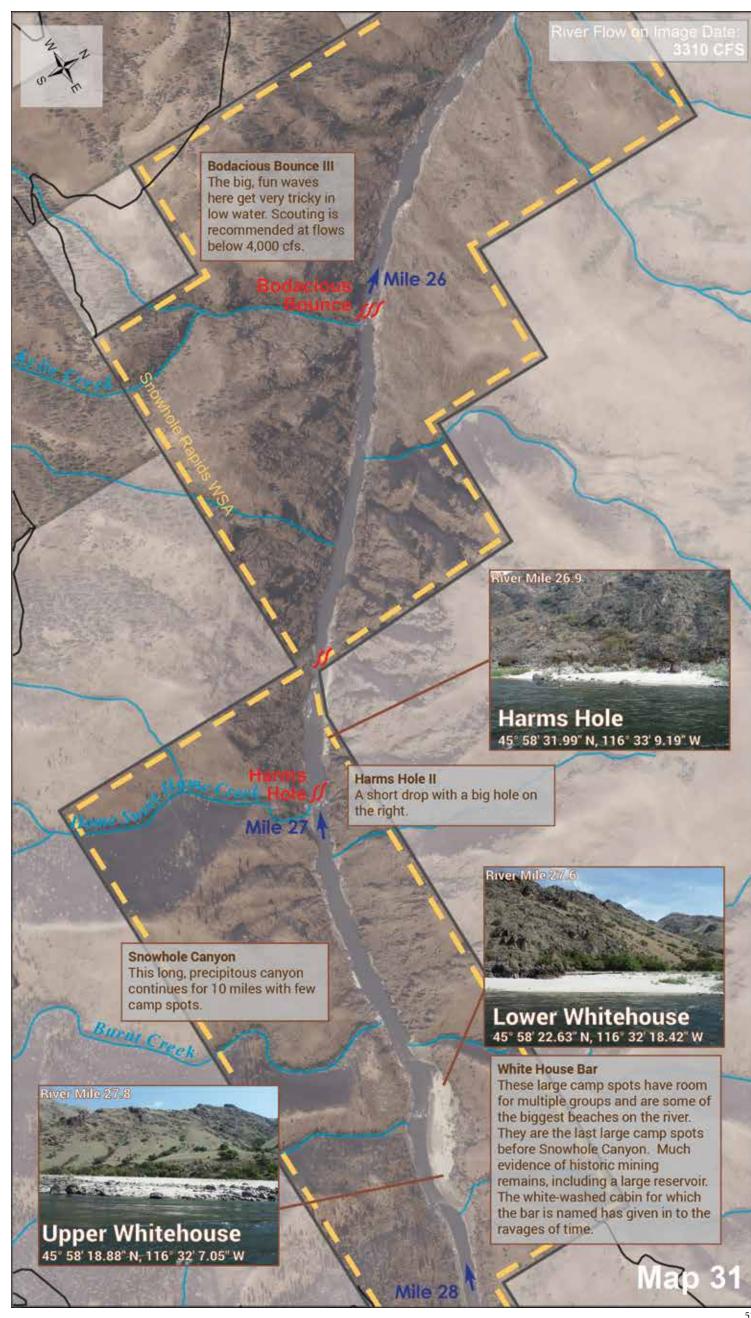


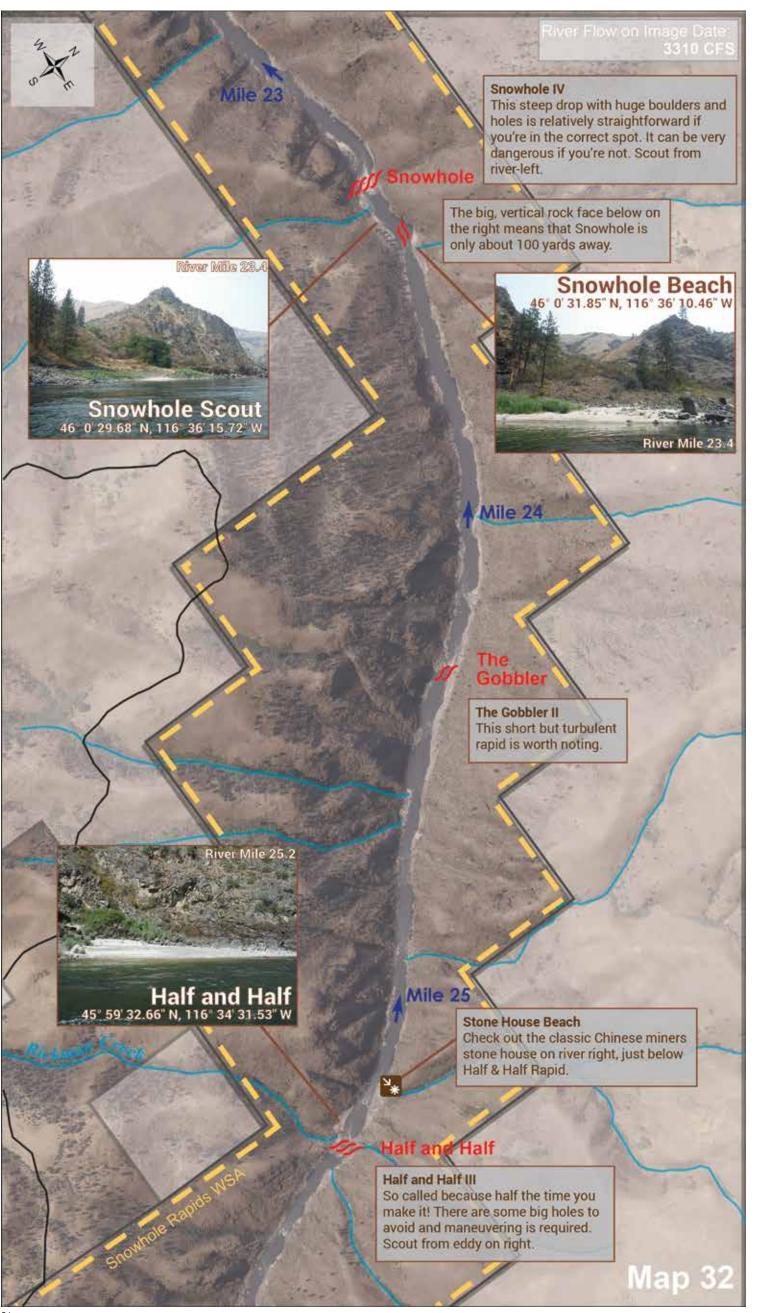


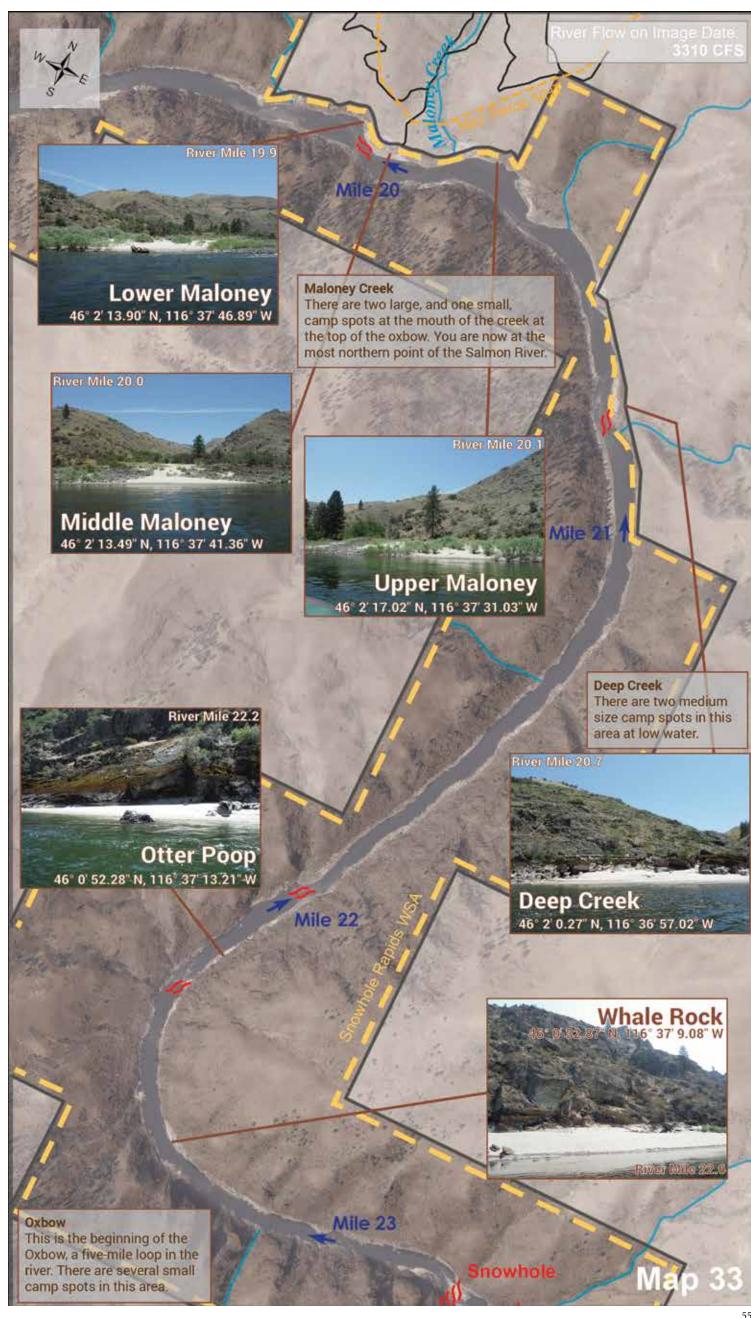


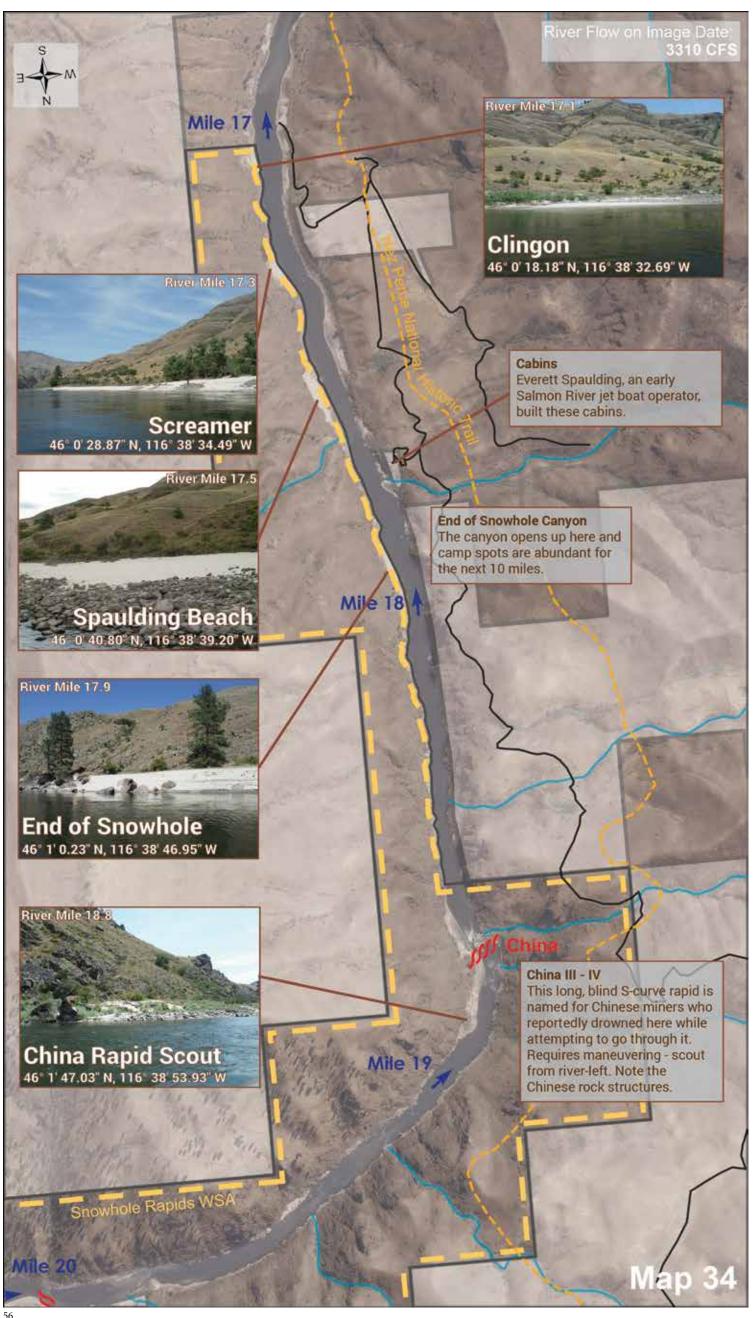


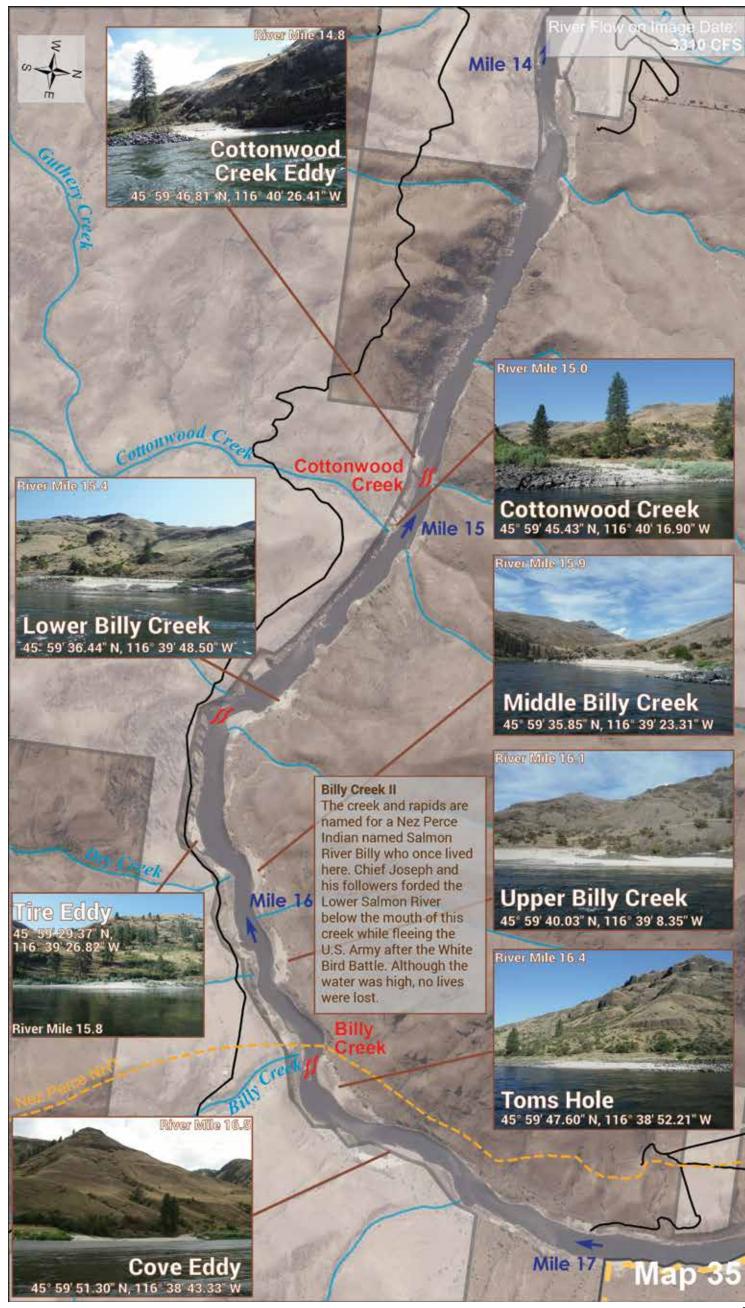


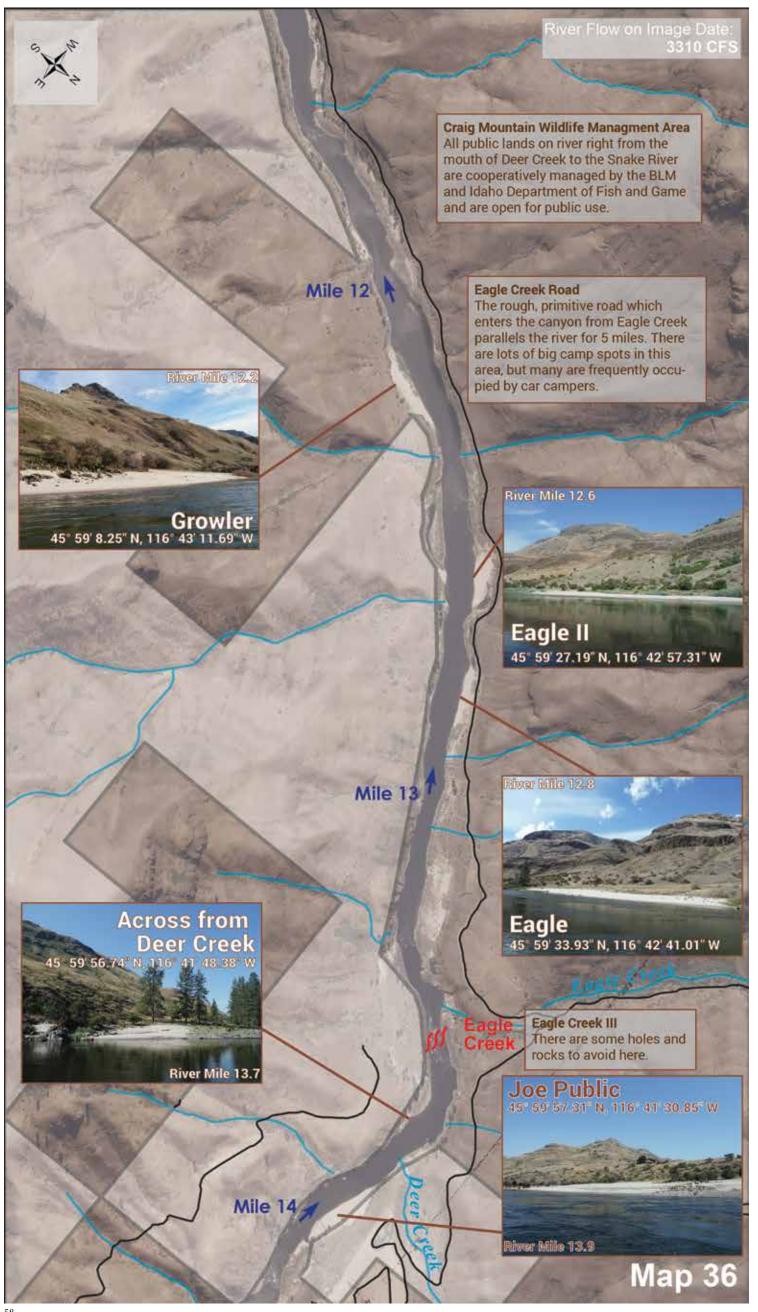


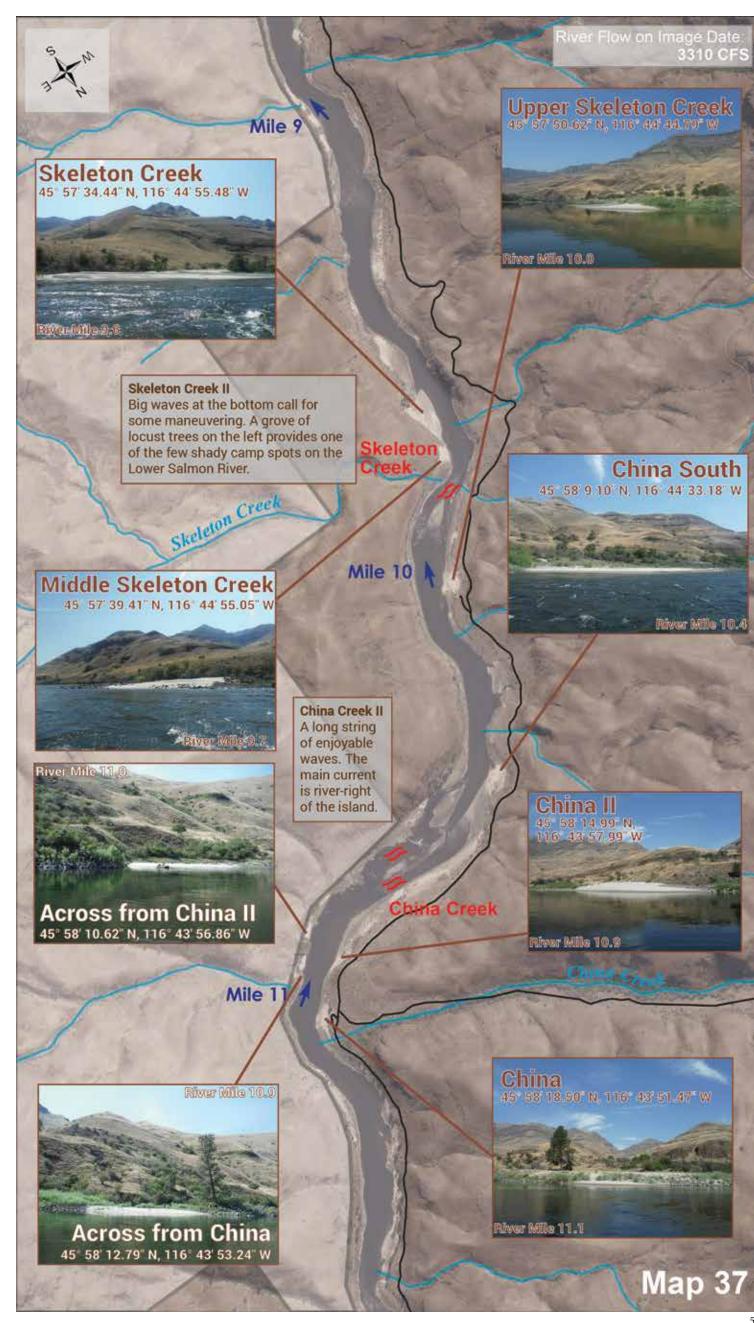














Looking upstream at Wapshilla Creek, Ryan Turner BLM



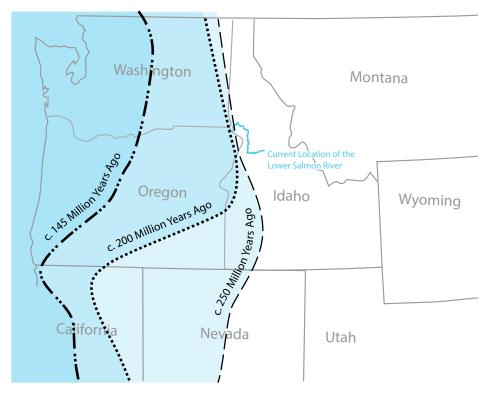
 $Scouting\ Slide\ Rapid\ at\ 18,900\ cfs,\ Ryan\ Turner\ BLM$ 

## **GEOLOGY**

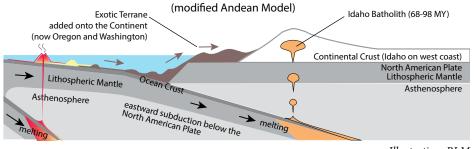
The geology along the Lower Salmon River is remarkably old and complex. The visible geology along the river goes back over 400 million years long before the first amphibians or seed plants are found in the geologic record. It begins when western Idaho was actually the coast of North America and contains some of the oldest exposed rocks in both Oregon and Idaho. At that time, plate tectonics pushing the Pacific crust under the North American crust crafted the volcanic islands (exotic terranes) from the present day Aleutian Islands to the coastal boundary that was located in western Idaho near present day Hells Canyon. The islands were too big or thick to get subducted beneath the continental crust therefore they 'hung up' (much like a jam in paper shredder) at the crustal zone and welded themselves to the ever growing North American continent. The signs of that collision are slices of oceanic crust, limestone with tropical corals, volcanic seamounts, shiny blue-green serpentinite, and large areas of totally crushed, folded, and twisted layers of rock metamorphosed by the incredible forces of one plate being drawn beneath another while resisting those colossal forces. Therefore, the Lower

## Position of the North American continental margin during the Mesozoic Era

(modified after Brooks, 1979)



## Cross Section of the North American Continental Margin during the Mesozoic Era, c. 68-145 million years ago



Illustration, BLM

Salmon River represents the age-old battle line where the dense exotic terranes resisted being subducted beneath the west coast of North America and 'hung up' creating some of the most distorted and deformed geology in all of the Pacific Northwest.

Young, dark-brown basalt flows lie on top of the older, light-gray granite of the Idaho Batholith (right).

Note the difference in the color and weathering in these two rock types. The talus piles of rock along the river bank eroded from the highly-fractured basalt on the cliffs above.

The granite erodes or weathers by exfoliating off large slabs like a peeled onion.

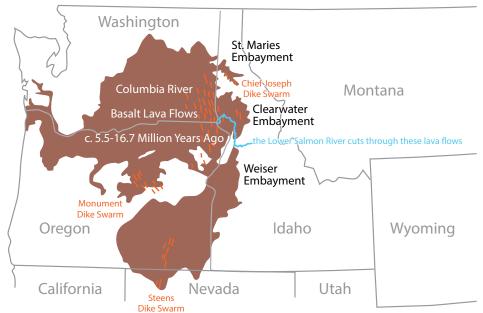
Quartz crystals in the granite upstream contribute to the white sand beaches along the Lower Salmon River.

A. Hedrick BLM



Seventeen million years ago, the earth's crust thinned out near the continental subduction zone beneath eastern Oregon. Repeated eruptions of expansive lava, now called the Columbia River Basalt Flows, flooded onto the land surface. Evidence of the repeated lava flows can be seen in the cliffs where multiple layers of basalt were deposited one layer upon another over eons of time.

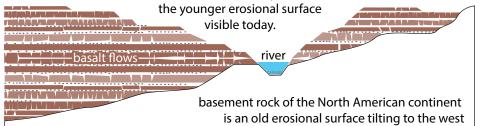
# The Columbia River Basalt during the Cenozoic Era (modified after Maley, 2018)



Sources of Basalt Lava Flows = Dike Swarms

## Cross Section of the Columbia River Basalt in Western Idaho

A schematic section of basalt lava flows in the Clearwater Embayment area. Basalt flows are later cut (or eroded) by the Salmon River to form



Illustration, BLM

A very striking feature along the Lower Salmon are the hexagonal basalt columns that line the river. The most striking examples occur around Wapshilla rapids. Basalt cools to form columnar (hexagonal) joints. The size of the columns has to do with the rate of cooling that occurred in the basalt. Very rapid cooling resulted in small columns, while slow cooling was more likely to produce large columns. Erosion continues to whittle away on the columns but there are many miles of river where they can be seen right up to the water's edge.

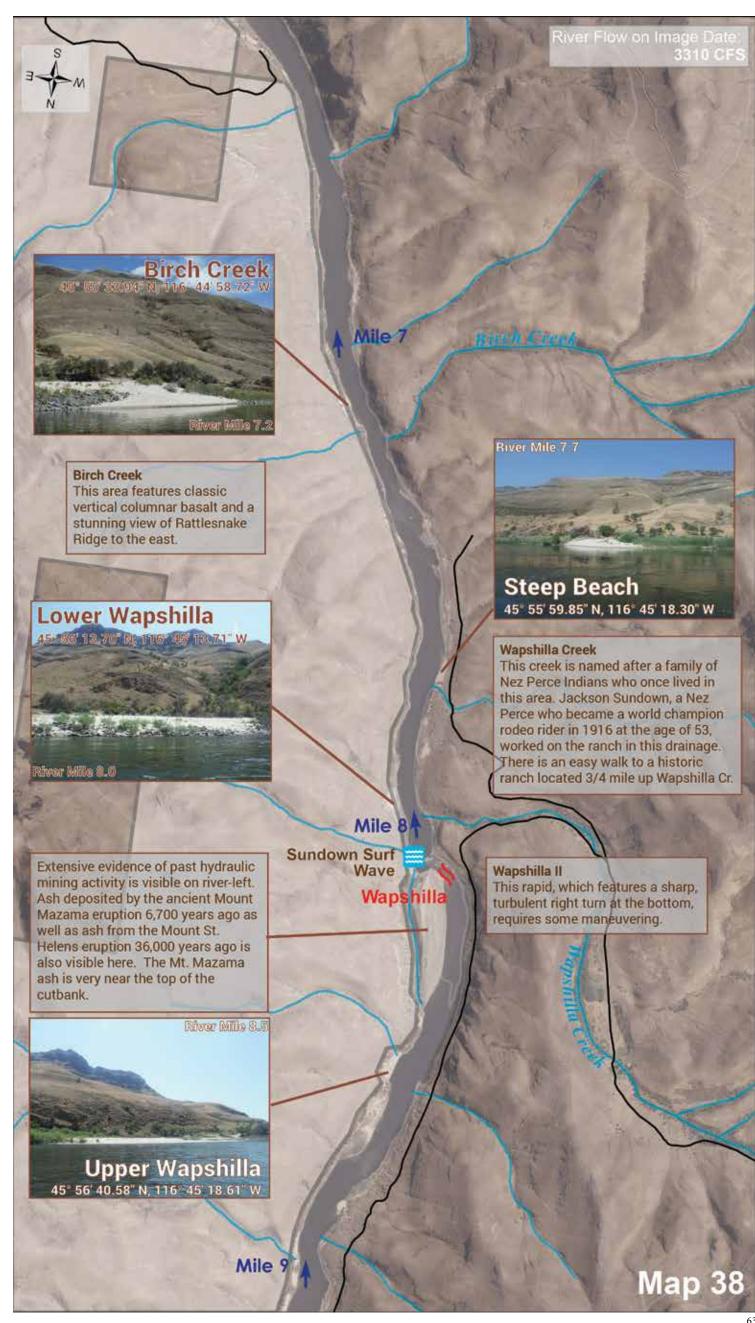
In Blue Canyon, the river cuts through the resistant, basement rock forming a narrow, steep canyon. Here the beaches are small and widely distributed occurring only where there is a break in the continuous canyon edge. The gradient of the river in the basement rock is generally higher and the larger rapids can be found in their depths.

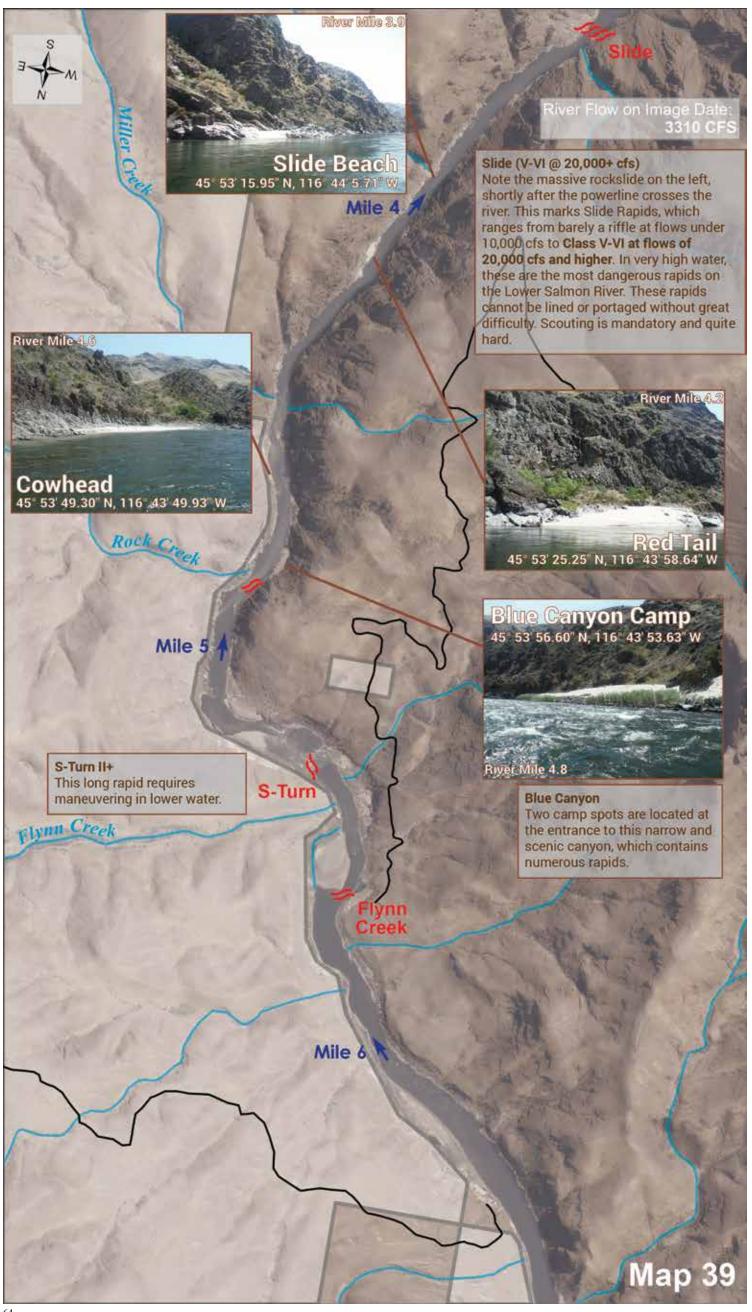
Why are there white sand beaches when most of the surrounding geology is dark basalt and metamorphosed basement rock? The answer lays upstream where

the geology consists of decomposed granite of the Idaho Batholith. It is light colored and erodes into sand-sized particles. Each spring as the Salmon floods, white sands eroded from the granite upstream are transported downstream and deposited on the beaches along the river creating a striking contrast to the dark basalt. Beaches are refreshed and maintained each year by the annual flooding that occurs on the undammed Salmon River.



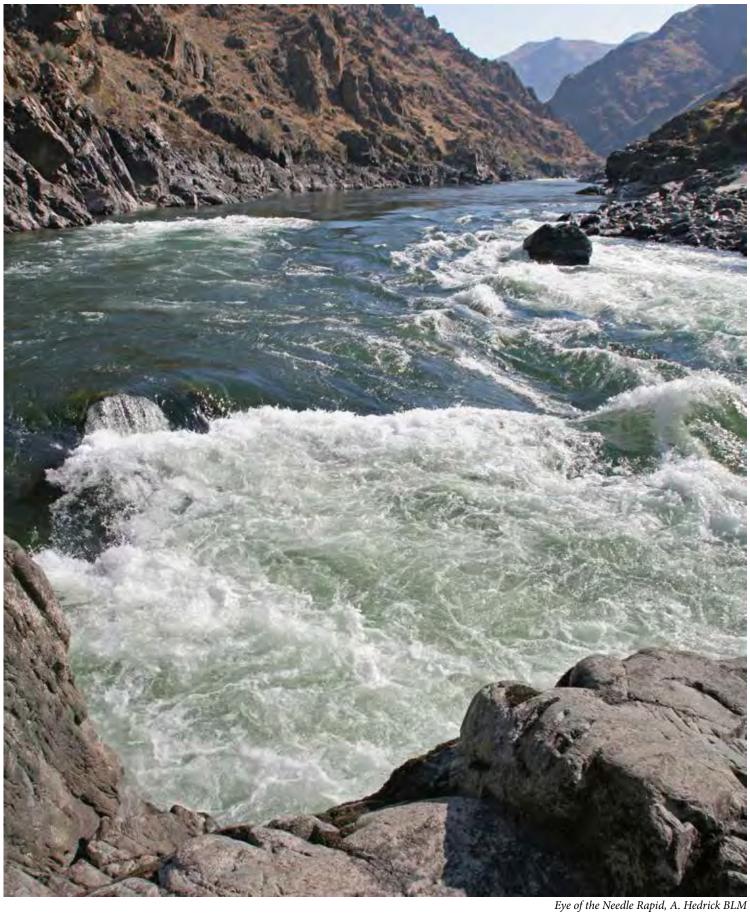
Basalt lava cools and joints in hexagonal columns that can be stacked vertcially, diagonally or horizontally as shown here, A. Hedrick BLM

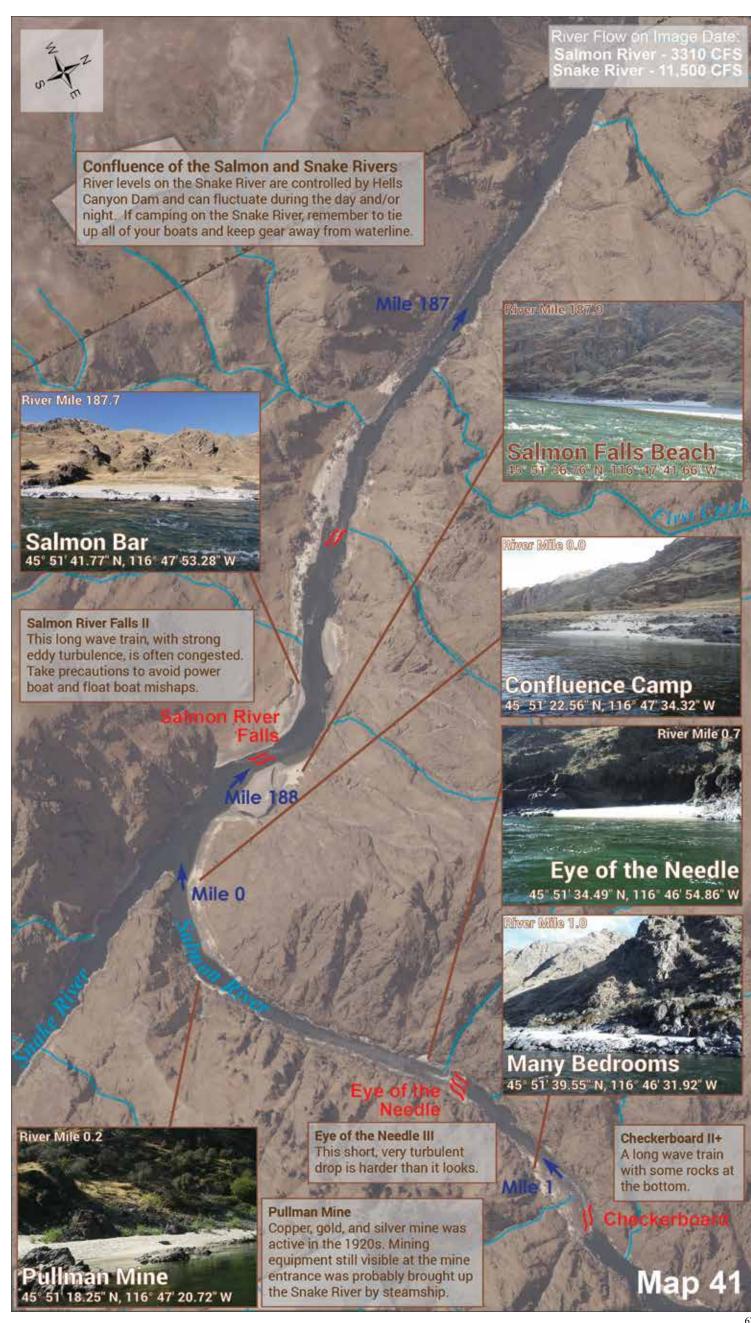


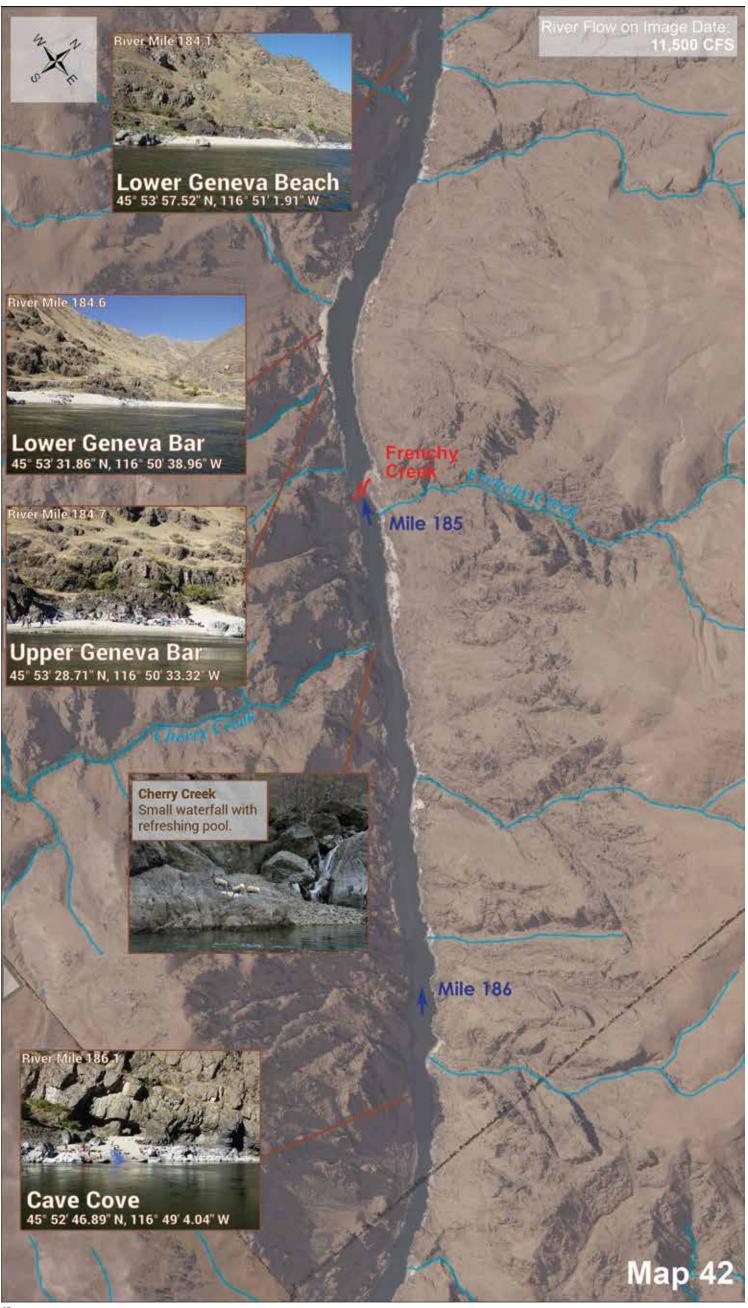


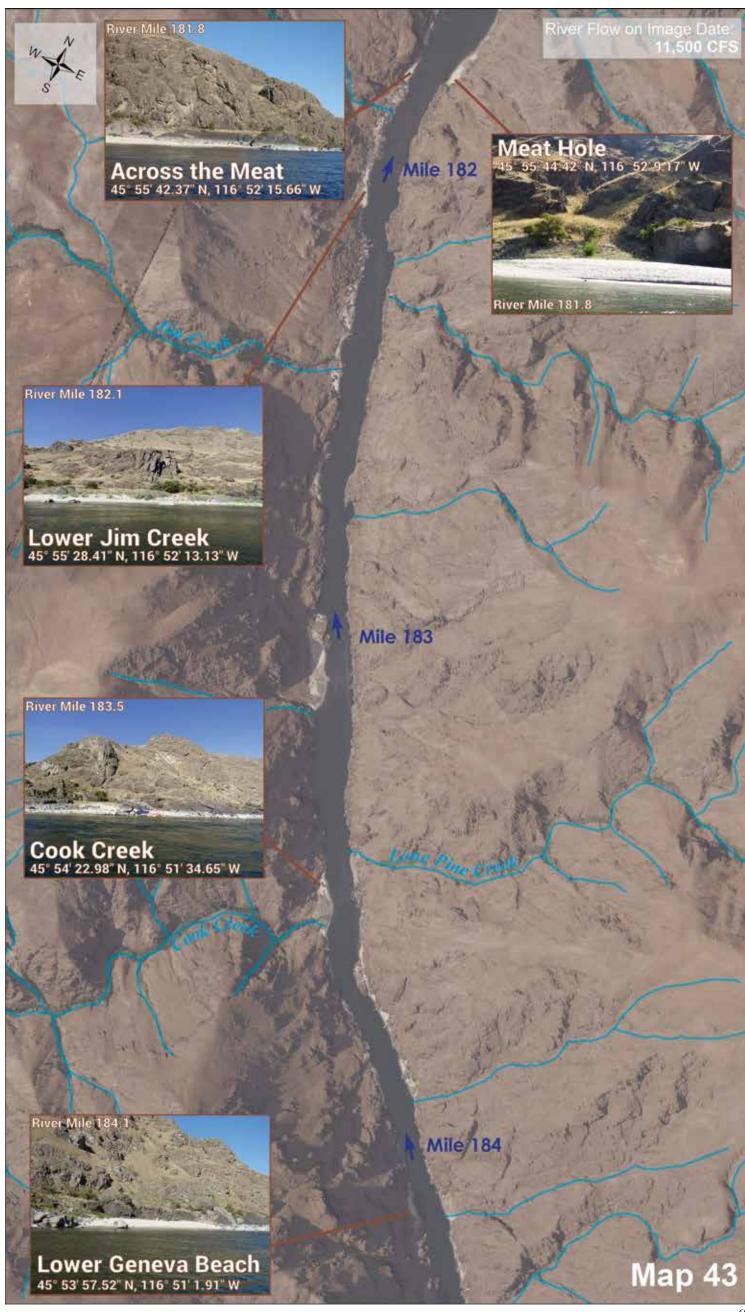


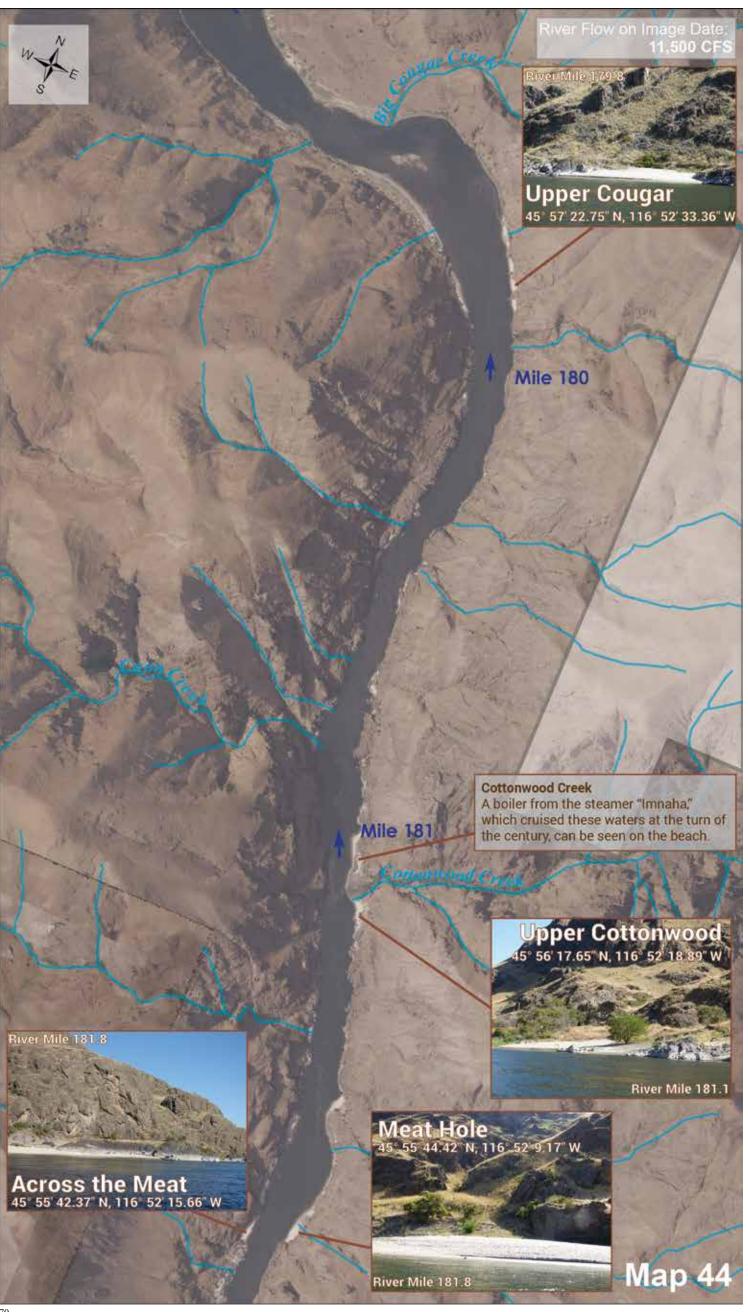


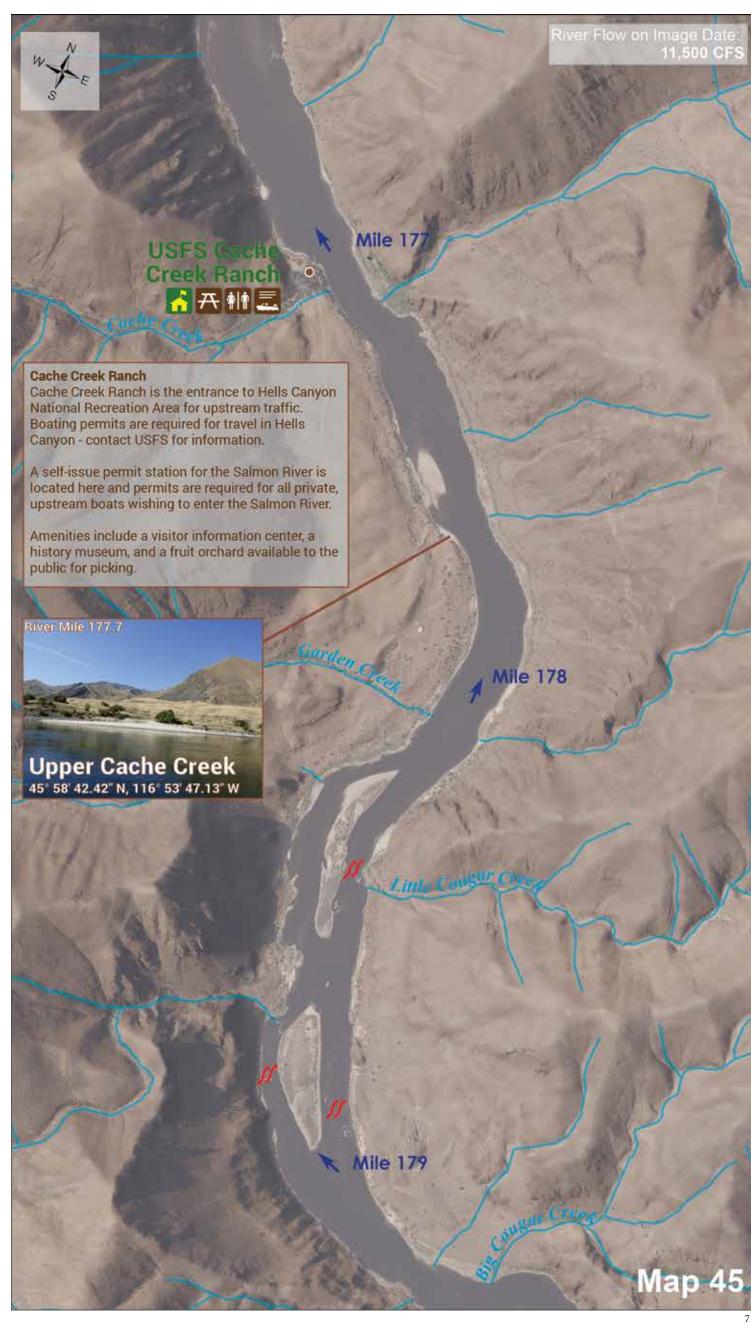


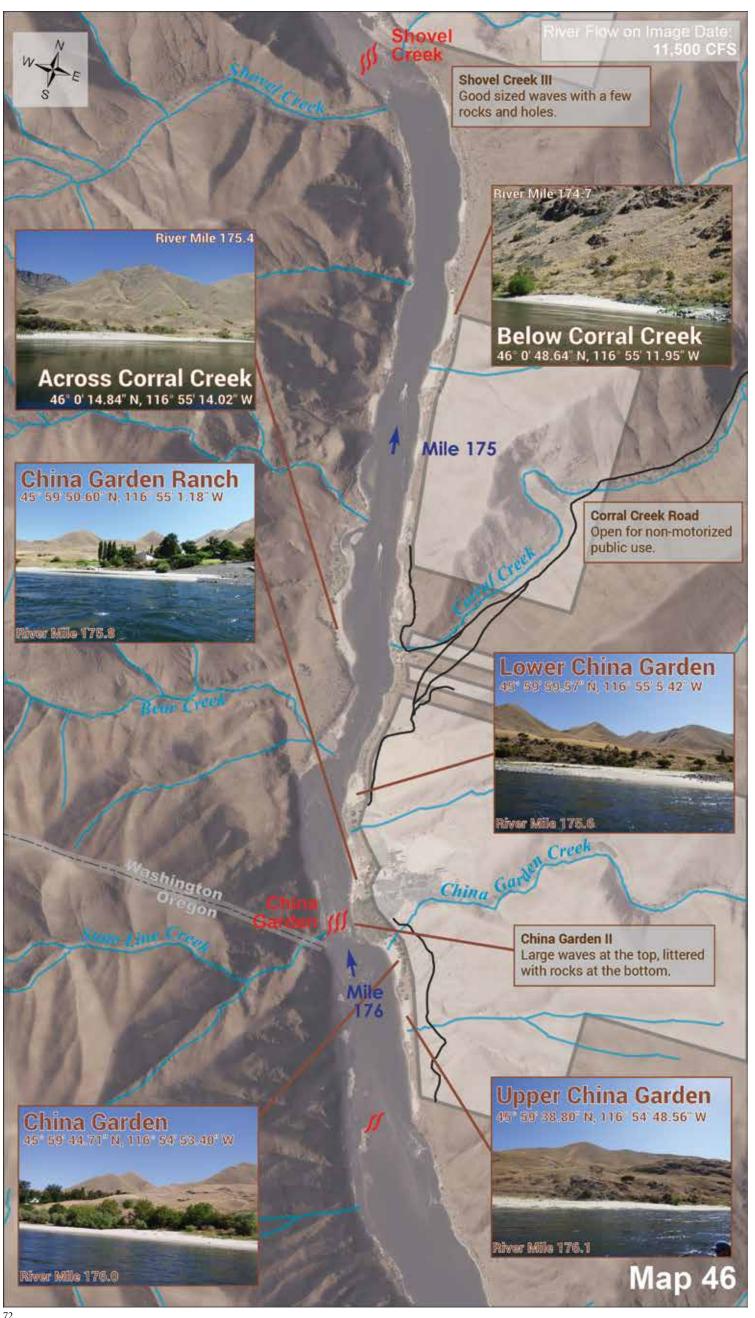


















### **WILDLIFE**

#### FISH

Many species of both cold and warm water fish are found in the Salmon River; including steelhead trout, salmon, bull trout, rainbow trout, smallmouth bass, and catfish. White sturgeon, as much as 10 feet long and 100 years old, also swim these waters.

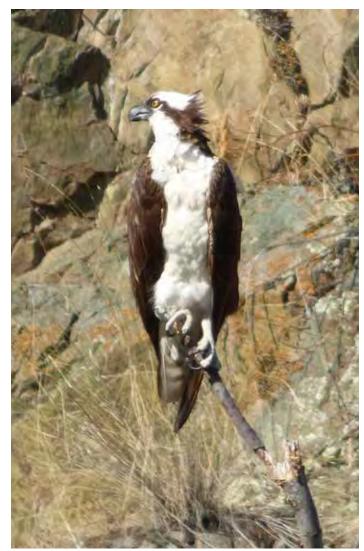
The Salmon and Snake Rivers and their tributaries provide important habitat for steelhead trout and salmon. These anadromous fish, which require both salt and freshwater in their life cycles, use the rivers as passageways to travel the 500 to 900 miles between the Pacific Ocean (where they spend their adult lives) and the Idaho streams (where they spawn). Sadly, Idaho's wild salmon and steelhead runs today are only a fraction of their historic size. Sockeye salmon are listed as an endangered species, and fall Chinook salmon, spring/summer Chinook salmon, steelhead trout, and bull trout are all listed as threatened species under the Endangered Species Act.

### **BIRDS**

The sights and sounds of nature's acrobats fill the air of the Lower Salmon River canyon. Listen for the chestnut brown and white canyon wren's fluid song of decelerating, descending notes resembling the sound of laughter. Look for them in steep, shady sections of the canyon and cliffs. The sooty-gray American dipper, or water ouzel, may be seen bobbing along the water's edge or diving, swimming, and even walking on the river bottom in search of food. A blue and white belted kingfisher may hover, then dive headlong into the water from the air. They can be easily recognized by their deep, irregular wing beats and their loud, rattling call.

Chukar partridges, natives of India and Pakistan, were introduced to the canyon in the 1950s. These brownish-gray birds, with black and white barred flanks and red legs and bill, have a distinct and rapid "chuck, chuck, chuck" call. They like rocky desert areas and arid grasslands and are frequently seen at the river's edge during the summer. Bank swallows nest in large colonies, burrowing into river banks. The more common cliff swallows build gourd-shaped mud nests along the canyon walls. Canada geese and mergansers are common.

The Lower Salmon River canyons also features a very high



Osprey, Craig Johnson BLM

concentration of raptors, and dependent on species, may occur year-long or seasonally. Commonly observed raptors include: Golden eagles, red-tailed hawks, Northern harriers, American kestrels, turkey vultures, and ospreys. Other raptors that may be observed include bald eagles, prairie falcons, and peregrine falcons.

### **AMPHIBIANS AND REPTILES**

Western toads are common along the river, and tailed frogs and spotted frogs are found in side drainages. Western rattlesnakes, gopher snakes, rubber boas, racers and garter snakes are all found in the canyon. The Western fence lizard and Western skink are often spotted.

### **MAMMALS**

Many mammals can also be seen and heard along the Lower Salmon River. Beavers, otters, minks, and raccoons are all area residents. Cougar (also called mountain lion or puma) and bobcat are common, but due to their secretive nature and nocturnal habits are rarely seen. The howl of coyotes can add a special dimension to a river trip. Mule deer, which can be easily identified by their white rumps and narrow white tail with a black tip, and white-tailed deer are often observed in the area. American elk, or Wapiti, winter in the upper elevations of the canyon but are rarely seen. Sharp eyes may spot Rocky Mountain bighorn sheep in Blue Canyon and along the Snake River. Black bears may be observed in riparian areas and in shrub or timbered habitats.



Canyon wrens, Craig Johnson BLM



Chukar eating wildflowers, Craig Johnson BLM



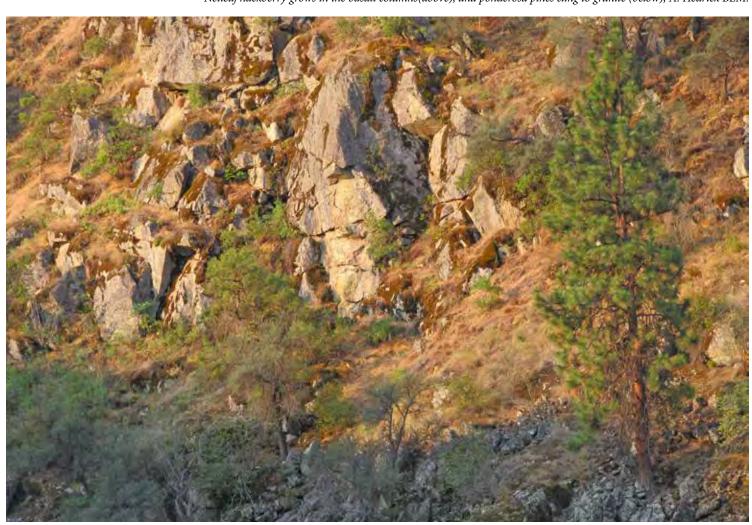
 $Bighorn\ sheep,\ Craig\ Johnson\ BLM$ 



River otter, Craig Johnson BLM



Netleaf hackberry grows in the basalt columns(above), and ponderosa pines cling to granite (below), A. Hedrick BLM.



# **PLANT LIFE**

Most of the Lower Salmon River rolls through arid Canyon Grassland, a relatively small yet distinctive vegetative region of the Pacific Northwest that is home to many native and rare or special plants. The semi-arid climate features hot, dry summers and mild, moist winters with the longest growing season and most frost-free days of any region in Idaho. Elevations within the river canyon range from 900 feet to over 5,000 feet, enabling many unique plant communities to thrive. Native species common to the Lower Salmon River include bluebunch wheatgrass, Idaho fescue, prickly pear cactus, poison ivy, lupine, arrowleaf balsamroot, yarrow, mullein, willow, curl leaf mahogany, netleaf hackberry, and ponderosa pine. Some rare plants of interest are Palouse thistle, Palouse goldenweed, broad-fruit Mariposa lily, Salmon River sedum and Idaho phacelia.



Bluebunch wheatgrass with arrowleaf balsamroot (yellow) and lupine (purple), courtesy Matt Lavin, MSU



Native mullein (Verbascum thapsus), courtesy Matt Lavin, MSU



Native prickly pear cactus (Opuntia ficus-indica), A. Hedrick BLM

Much of the easily accessible land surrounding the river canyon has been disturbed by grazing, logging, or fire, facilitating the invasion of non-native or introduced plant species. Non-native species include yellowstar thistle, Dalmation toadflax, cheatgrass, teasel, knapweed, and horticultural species such as apricot, apple, and walnut trees. Due to disturbance, the expansion of non-native plant species, and the conversion or loss of suitable habitat, two species, the showy, magenta-flowered MacFarlane's four o'clock, and the white-green flowered, sticky, nondescript Spalding's catchfly, have become so rare that they receive protection as threatened species under the Endangered Species Act.

Floods, which vary widely in frequency and duration on free-flowing rivers like the Salmon, have created distinct bands of lichen and moss on the canyon walls. Four distinct zones are normally apparent. The low water zone, usually underwater, contains lichen and algae. The normal flood zone, covered by water only during normal high flow periods, contains whitish-gray lichen and eddy moss. The high flood zone, covered by water only during extreme high flow periods, contains two types of flood moss. This zone occurs more consistently than any other. The extreme flood zone supports terrestrial vegetation and is predominantly barren of any lichen or moss.



Biocontrol beetle on dalmation toadflax, Lynn Danly BLM



Biocontrol effects stiffling yellow starthistle (noxious weed) growth, BLM



Beetles, a biocontrol agent, are released on dalmation toadflax-a noxious weed, Lynn Danly BLM

## RIVER OF NO RETURN

Men have floated on your waters, they've explored from end to end.
Still they never return homeward, by the way they did descend.
For your waterfalls and canyons, and your rapids, swift and strong, find them weak and quite bewildered, as your might they would disarm.

Roll on, roll on, mighty Salmon,
mystic "River of No Return."

Through these mighty hills, eternal,
let your ways be ever stern.

Buried in the deepest canyons,
gliding on with no concern—
ever Idaho's greatest treasure
valiant "River of No Return."

Robert G. Bailey, Lewiston, Idaho, 1939



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