LOW-IMPACT HYDROPOWER POWER INSTITUTE CERTIFICATION APPLICATION

White River Lock and Dam No. 1, No. 2 and No. 3 Hydroelectric Projects

(FERC Nos. 4204, 4660, 4659)

March 10, 2021

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Hydroelectric Projects

1.0 FACILITY DESCRIPTION

The White River Lock and Dam No. 1, Lock and Dam No. 2 and the "Shelby M. Knight" Lock and Dam No. 3 Hydroelectric Projects (LD1, LD2, LD3, or Projects) collectively known as the "White River Hydroelectric Project", are located on the White River in Independence County (LD1 and LD2) and Stone County (LD3) in north central Arkansas (Figure 1).

The Projects are located at existing and no longer used US Army Corps of Engineers (USACE) locks and dams on the 722-mile-long White River. The locks were decommissioned in the 1950s and the dams were sold.

The river begins in northwestern Arkansas in the Boston Mountains and flows east toward Fayetteville where it then turns north. Near Eureka Springs, the river enters Missouri. It then flows southeast back into Arkansas past Bull Shoals, Mountain Home, and Calico Rock. At Batesville, the second section of the river, known as the Lower White begins. From Batesville, the river flows south for 295 miles through Arkansas's Delta region before emptying into the Mississippi River. The White River is a major tributary of the Mississippi River (Figure 2) and has a drainage basin of 27,765 square miles. The watershed drainage area is 10,703 square miles at LD3 and 11,070 square miles at LD1.

Along the river's path, it goes through multiple lakes created by eight USACE dams. Six lakes are operated together as a system to reduce the frequency and severity of floods. These lakes are Beaver, Table Rock, Bull Shoals, Norfork, Greers Ferry and Clearwater. The Beaver, Table Rock and Bull Shoals lakes are in a row along the main stem of the White River in Arkansas and Missouri. Beaver and Bull Shoals have hydropower as do Norfork Lake located on the North Fork River a tributary that discharges to the White River upstream of LD3, and Greer Ferry Lake on the Little Red River. Both Greer Ferry Lake and Clearwater Lake on the Black River discharge to the White River well downstream of LD1.

LD1 is located in Batesville, AR at river mile (RM) 299.2. LD2 is about 8 miles upstream at RM 308.3, and LD3 is another 12 miles upstream at RM 320.2 (Figure 3). The USACE Bull Shoals Dam is located approximately 99 miles upstream of LD3. Discharges from Bull Shoals and Norfork Lakes as well as inflows from numerous tributaries control flows to the Projects.

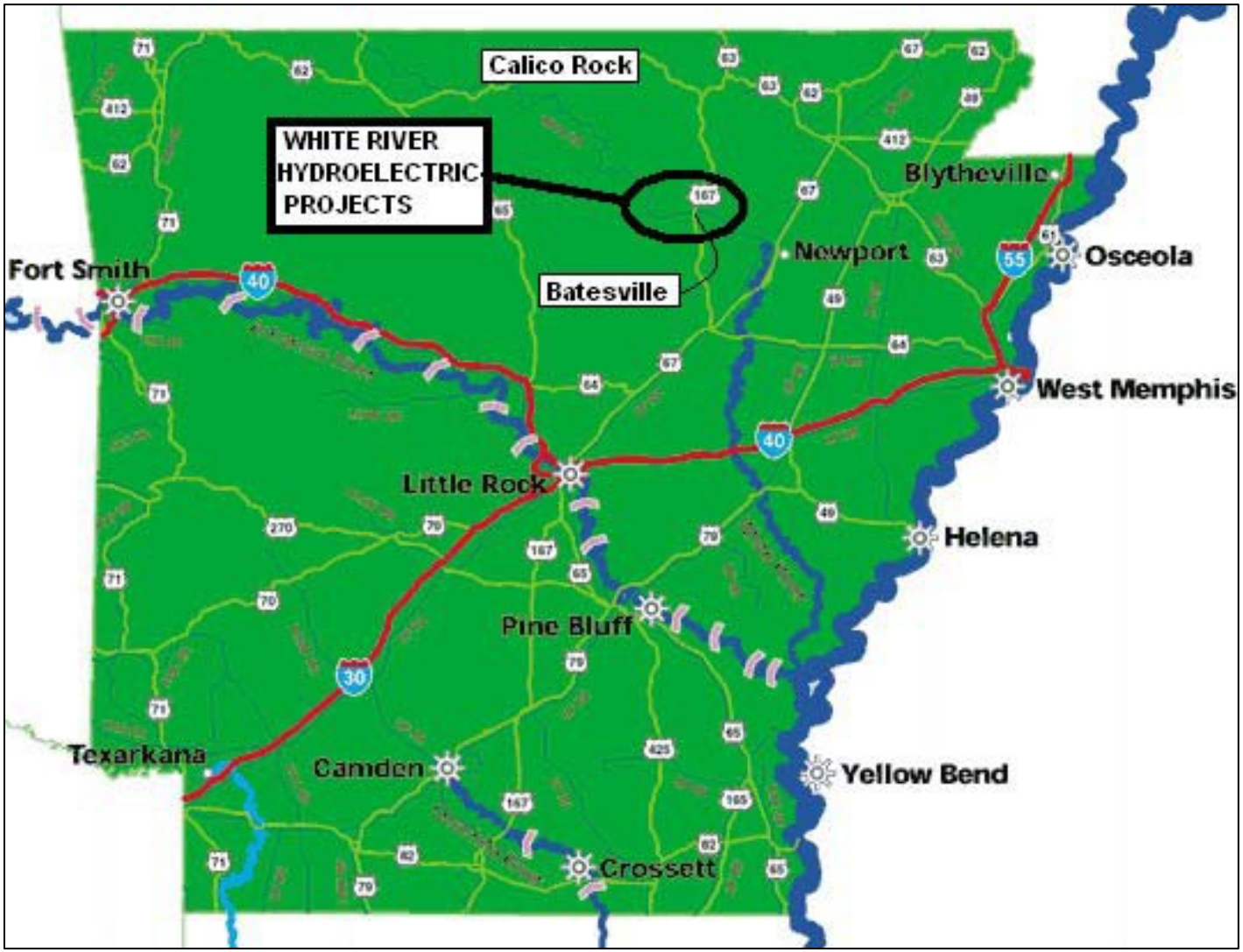

Figure 1. Project Locus

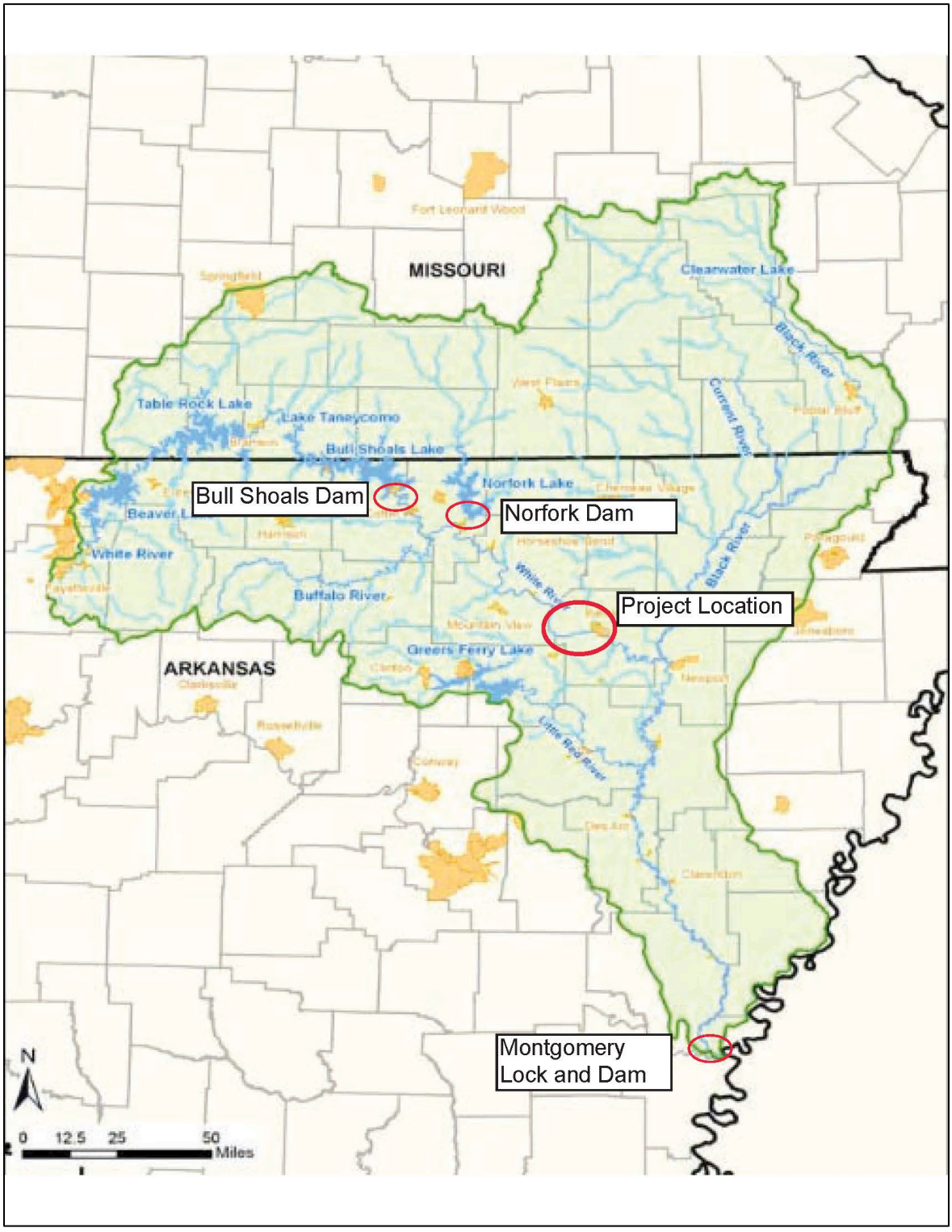

Figure 2. White River Basin and Dams

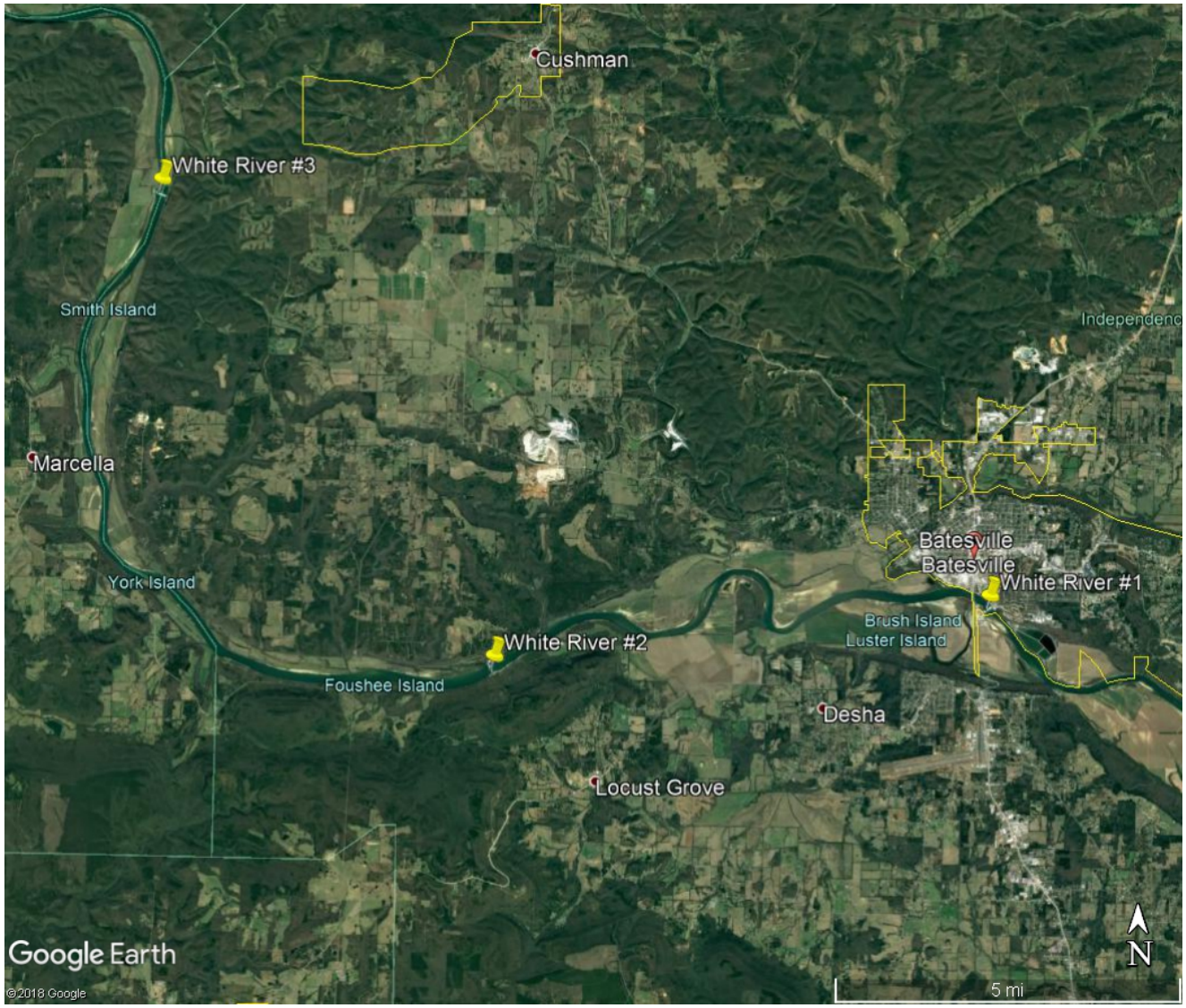

Figure 3. Project Locations

The LD1 Project is owned by the City of Batesville, and LD2 and LD3 are owned by Independence County, Arkansas. The Projects were originally licensed by the Federal Energy Regulatory Commission (FERC) prior to construction on November 8, 1985 (LD2)[1] and February 28, 1986 (LD1, LD3)[2,3] for terms of 50 years which expire in 2035 and 2036, respectively, having been extended by 10 years by FERC order dated January 22, 2001.[4]

Project History

Between 1900 and 1908, USACE built the three timber-crib and concrete dams and locks associated with the Projects. The locks were used for navigation, moving boats containing shipments of timber, cotton, and mining products such as limestone and silica. By the mid-1950s, trains had replaced boats as the primary method for transporting these products. USACE decommissioned the locks and sold the properties. The locks were decommissioned and have not operated since. The city of Batesville purchased LD1 for $1 and LD2 and LD3 were sold to private interests, which also did not operate the locks. Those Projects were subsequently resold to the current owners. No maintenance occurred from the 1950s to 1997 when the county, through the hydro project, did extensive remedial work on LD1. Development of the new hydropower capacity involved a utility, a college, a city, a county, the U.S. Congress, 27 years, a myriad of engineers and lawyers, and lots of tenacity and perseverance by a dedicated group of individuals.[5]

All three Projects received FERC license amendments in 1989[6] and in 2001[7] to change the size of the originally licensed planned generating units. Additional amendments were issued in 2002 related to routing of a 20.6-mile-long, 25-kV transmission line in an 80-foot-wide right of way along the north side of the river between LD1 and LD3 and a substation located about 2 miles east of LD2.[8]

Project construction began in 2003 and the Projects came on line in 2006-2007. The Projects operate in run-of-river mode with inflow dependent upon releases from the upstream USACE storage dams along with tributary inflows.

Throughout this application, the Projects are described from upstream to downstream (LD3, LD2, LD1).

The LD3 Project includes a concrete and timber crib dam approximately 750 feet long and 21 feet high with 3-foot-high concrete cap added in 2010 that raised the dam height to a spillway crest elevation of 275.5 feet (NGVD). The dam creates an impoundment with approximately

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[1] LD2 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13666602
[2] LD1 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13597290
[3] LD3 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13708480
[4] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8011546
[5] Information from http://www.hydroworld.com/content/hydro/en/articles/hr/print/volume-27/issue-3/feature-articles/new-development/adding-hydro-to-existing-dams-the-story-of-arkansasrsquo-white-river-projects.html
[6] LD3
LD2 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=3452554
LD1 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=3452551
[7] LD3 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6004809
LD2 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10335680
LD1 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6005041
[8] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9591790

10,242 acre-feet of storage capacity and a surface area of 787 acres. The powerhouse contains a single vertical Kaplan generating unit rated at 4.3 MW (FERC authorized at 3.9 MW) with a design flow of 3,163 cubic feet per second (cfs). The average annual generation is approximately 18,700 MWh. An open-flume tailrace returns flow to the river 300 feet downstream of the dam. The Project boundary encompasses the high-water mark and about 42 acres of land around Project structures.

Figure 4. LD3

LD2 includes a concrete and timber crib dam approximately 658 feet long and 29 feet high with an integral navigation lock approximately 175 feet long and 36 feet wide on the right side of the dam. A multi-level intake flume, approximately 120 feet long and 100 feet wide is located within the lock structure. The dam creates an impoundment with approximately 8,581 acre-feet of storage capacity and a surface area of approximately 1,072 acres at maximum pool elevation of 260.2 ft (msl). The powerhouse contains a single vertical Kaplan generating unit with a capacity of 3.9 MW (FERC authorized at 3.5 MW) and a design flow of 3,180 cfs. The average annual generation is approximately 15,400 MWh. An open flume tailrace, approximately 120 feet long conveys water back to the river. The Project boundary encompasses the high-water mark and about 10 acres of land around Project structures.

Figure 5. LD2

LD1 consists of a 660-foot-long, 27.6-foot-high dam that creates an impoundment with approximately 12,500 acre-feet of storage and a surface area of 773 acres. The powerhouse contains a single vertical Kaplan generating unit with a capacity of 4.3 MW (FERC authorized at 3.9 MW) and a design flow of 3,180 cubic feet per second (cfs) and estimated annual generation of 17,200 MWh. An open-flume tailrace conveys water back to the river about 280 feet downstream of the dam. The Project boundary encompasses the high-water mark and about 25 acres of land around Project structures.

Figure 6. LD1

Table 1. Facility Description

Item	*Information Requested*	*Response (include references to further details)*
Name of the Facility	Facility name (use FERC project name or other legal name)	White River Lock and Dam No. 3, No. 2, and No. 1 (aka White River Hydroelectric Project)
Reason for applying for LIHI Certification	1. To participate in state RPS program 2. and specify the state and the total MW/MWh associated with that participation (value and % of facility total Mw/MWh). 3. To participate in voluntary REC market (e.g., Green-e) 4. To satisfy a direct energy buyer's purchasing requirement 5. To satisfy the facility's own corporate sustainability goals 6. For the facility's corporate marketing purposes Other (describe)	To participate in voluntary REC market.
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	100% of total generation, approximately 50,000 MWh annually
Location	River name (USGS proper name)	White River
	Watershed name (select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html)	Middle White River (HUC8 code 11010004)
	Nearest town(s), county(ies), and state(s) to dam	LD3: Marcella LD2: Locust Grove LD1: Batesville
	River mile of dam	LD3: RM 320.2 LD2: RM 308.3 LD1: RM 299.2
	Geographic latitude of dam Geographic longitude of dam	LD3: 35.843674°, -91.851248° LD2: 35.744169°, -91.765513° LD1: 35.756742°, -91.637840°
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Jack Tobin ACA Financial Guaranty
	Facility owner company and authorized owner representative name.	Independence County, Arkansas County Judge Robert T. Griffin

Item	*Information Requested*	*Response (include references to further details)*
	FERC licensee company name (if different from owner)	LD3: Independence County, AR LD2: Independence County, AR LD1: City of Batesville, AR
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	LD3: P-4659, issued 02/28/1986 expires 01/31/2036 LD2: P-4660, issued 11/08/1985, expires 10/31/2035 LD1: P-4204, issued 02/28/1986 expires 01/31/2036 All license terms extended by 10 years on 01/22/2001 All licenses were amended in 1989 to change installed capacity.
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	Major licenses
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	WQCs were originally issued on May 3, 1983 for LD1 and LD2, and on July 6, 1983 for LD3 (not on the FERC elibrary but referenced in the licenses). A single WQC was issued on April 9, 2001 as part of license amendments by Arkansas Department of Environmental Quality. The WQC does not contain any terms and conditions.
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	See footnotes throughout application.
Powerhouse	Date of initial operation (past or future for pre-operational applications)	LD3: August 2006 LD2: March 2007 LD1: June 2007
	Total installed capacity (MW)	Total = 12.5 MW LD3: 4.3 MW (FERC authorized 3.9 MW) LD2: 3.9 MW (FERC authorized 3.5 MW) LD1: 4.3 MW (FERC authorized 3.9 MW)
	Average annual generation (MWh) and period of record used	Total = 51,410 MWh (last three years) LD3: 18,764 MWh LD2: 15,423 MWh LD1: 17,222 MWh (NOTE: not individually metered; rough allocation per operator).
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)	Instantaneous run of river

Item	*Information Requested*	*Response (include references to further details)*
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	All facilities: Manufacturer - VA TECH Bouvier Hydro S.A. Fontaine, France Type - Horizontal Pit-type Kaplan Turbine Runner Diameter - 4000 mm Speed - 100 rpm Number of Runner Blades - 3 Number of Wicket Gates – 16 Minimum hydraulic capacity ~ 1,200 cfs *Maximum/Rated Turbine Conditions*: LDs 1 & 3 - 4,540 kW Turbine Output - 4,329 cfs (122.6 m3/s) Discharge - 14 ft (4.27 m) of Net Head - 88.4% turbine efficiency LD 2 - 3,692 kW Turbine Output - 4,135 cfs (117.1 m3/s) Discharge - 12.1 ft (3.69 m) of Net Head - 87.1% turbine efficiency
	Trashrack clear spacing (inches), for each trashrack	LD3: 5” LD2: 5” LD1: 5”
	Intake velocity at each turbine, if known	unknown
	Dates and types of major equipment upgrades	None, routine repairs and mechanical upgrades only.
	Dates, purpose, and type of any recent operational changes	None
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	None
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	LD3: 1905-1908 LD2: 1905 LD1: 1900-1904
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	LD3: 21 ft plus 3-ft concrete cap LD2: 29 ft LD1: 27.6 ft There are no flashboards
	Spillway elevation and spillway hydraulic capacity	LD3: 276.0’. Spillway capacity unknown. LD2: 257.8’. Spillway capacity unknown. LD1: 243.8’. Spillway capacity unknown.
	Tailwater elevation (provide normal range if available)	LD3: 261.8’ LD2: 245.6 LD1: 230.5’

Item	*Information Requested*	*Response (include references to further details)*
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	No water conveyance structures.
	Dates and types of major infrastructure changes	LD3: none LD2: none LD1: New, rerouted transmission line, authorized 2002[9]
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	hydropower
	Source water	White River from Bull Shoals Lake
	Receiving water and location of discharge	White River at Batesville
Conduit	Date of conduit construction and primary purpose of conduit	n/a
Impoundment and Watershed	Authorized maximum and minimum water surface elevations	No limitations.
	Normal operating elevations and normal fluctuation range	LD3: 276.7'. Normal operating range: 276.5'-278' LD2: 258.6'. Normal operating range: 258'-260' LD1: 244.6'. Normal operating range: 244'-246'
	Gross storage volume and surface area at full pool	LD3: 10,242 acre-feet, surface area of 787 acres LD2: 8,581 acre-feet, surface area of approximately 1,072 acres LD1: 2,500 acre-feet, surface area of 773 acres
	Usable storage volume and surface area	Same, run of river operation
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	None, run of river operations are monitored
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Upstream: Bull Shoals Dam, USACE, RM ~ 419. Other USACE dams are farther upstream (Beaver, Table Rock) and Norfolk dam is on the North Fork River. All have hydropower, none have fish passage
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Montgomery Point lock/dam, USACE, RM 0.6. Fish passage unknown, but fish are likely to move through the lock.

[9] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9591778

Item	*Information Requested*	*Response (include references to further details)*
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None - no MOA or MOU with USACE
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	All projects have boundaries up to the high-water mark. In addition, lands in the project boundaries are: LD3: 42 acres LD2: 10 acres LD1: 25 acres
Hydrologic Setting	Average annual flow at the dam, and period of record used	12,079 cfs (2010-2020) at USGS 07060500 White River at Calico Rock, AR (upstream of LD3)
	Average monthly flows and period of record used	USGS 07060500 White River at Calico Rock, AR (upstream of LD3) 2010-2020 monthly average: Jan: 13,200 cfs Feb: 12,700 Mar: 13,900 Apr: 15,700 May: 16,300 Jun: 13,400 Jul: 10,400 Aug: 11,800 Sep: 11,100 Oct: 8,280 Nov: 6,470 Dec: 11,700
	Location and name of closest stream gauging stations above and below the facility	Upstream of LD3: USGS 07060500 White River at Calico Rock, AR Upstream of LD1: USGS 07061000 White River at Batesville, AR Downstream of LD1: USGS 07074500 White River at Newport, AR
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	LD3: 10,703 sq miles LD2: 10,816 sq miles LD1: 11,070 sq miles
Designated Zones of Effect	Number of zones of effect	6 in total
	Upstream and downstream locations by river miles	See Table 2

Item	*Information Requested*	*Response (include references to further details)*
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1: LD3 impoundment Zone 2: LD3 downstream reach Zone 3: LD2 impoundment Zone 4: LD2 downstream reach Zone 5: LD1 impoundment Zone 6: LD1 downstream reach
	Delimiting structures or features	Zone 1: upstream limit at Lafferty Creek Zone 2: downstream limit at Glenn Creek Zone 3: upstream limit at Betsey Gill Creek Zone 4: downstream limit at Rocky Branch Zone 5: upstream limit at Poke Bayou Zone 6: downstream limit at narrowing and bend in river

2.0 STANDARDS MATRICES

Zones of Effect are identified in Table 2 and illustrated in Figures 7 through 9 below.

Table 2. Standard Selections

		CRITERION							
Zone No., Zone Name, and Standard Selected (including PLUS if selected)	**River Mile at upper and lower extent of Zone**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***
		Ecological Flows	**Water Quality**	**Upstream Fish Passage**	**Downstream Fish Passage**	**Shoreline and Watershed Protection**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Recreation Resources**
Zone 1: LD3 Impoundment	RM 321.0 - RM 320.2	1	3	1	2	1	2	2	3
Zone 2: LD3 Tailrace	RM 320.2 – RM 319.3	1	3	2	1	1	2	2	3
Zone 3: LD2 Impoundment	RM 310.3 – RM 308.3	1	3	1	2	1	2	2	3
Zone 4: LD2 Tailrace	RM 308.3 – RM 307.6	1	3	2	1	1	2	2	3
Zone 5: LD1 Impoundment	RM 300.4 – RM 299.2	1	3	1	2	1	2	2	3
Zone 6: LD1 Tailrace	Rm 299.2 – RM 297.9	1	3	2	1	1	2	2	3

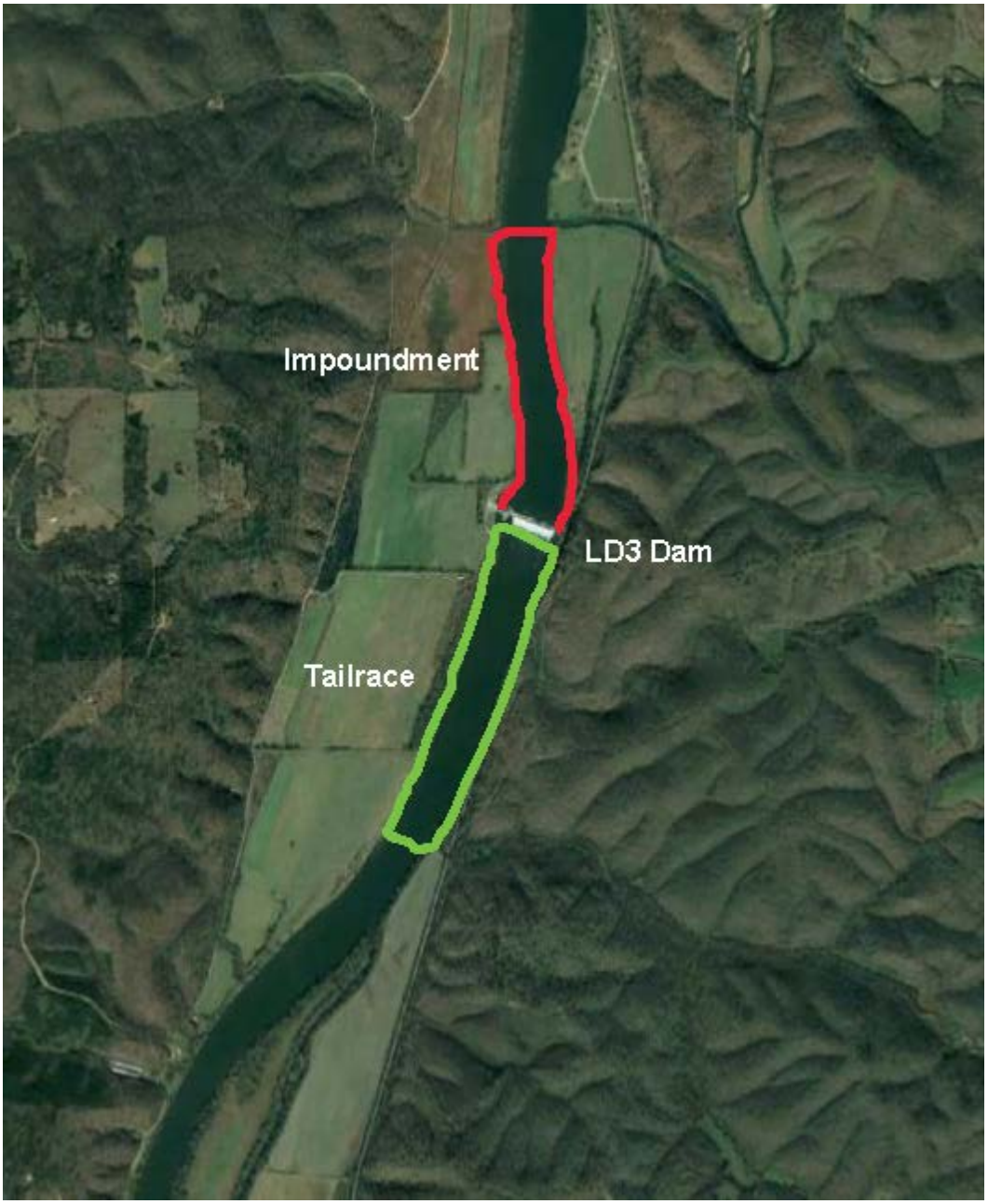

Figure 7. LD3 Zones of Effect

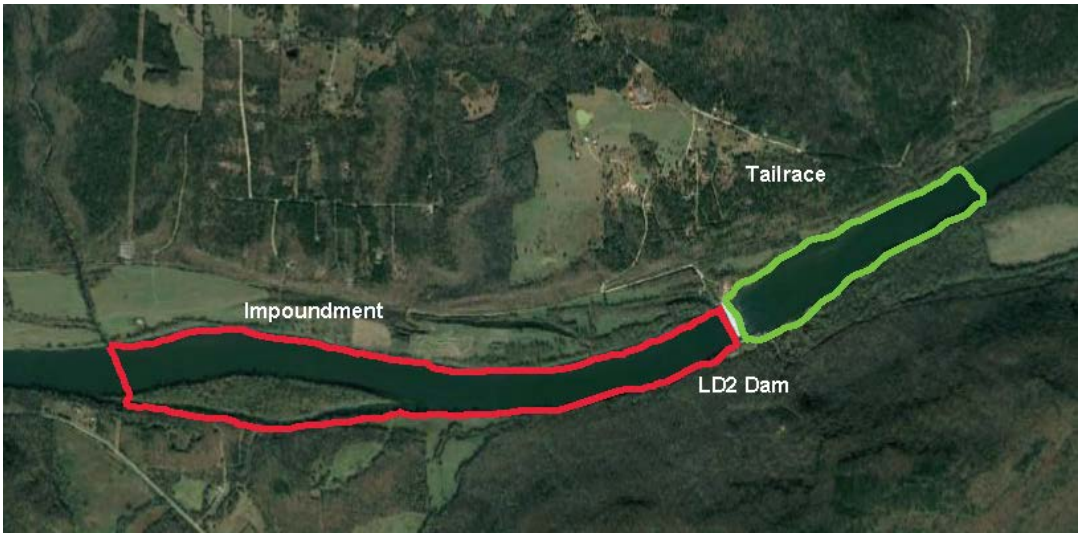

Figure 8. LD2 Zones of Effect

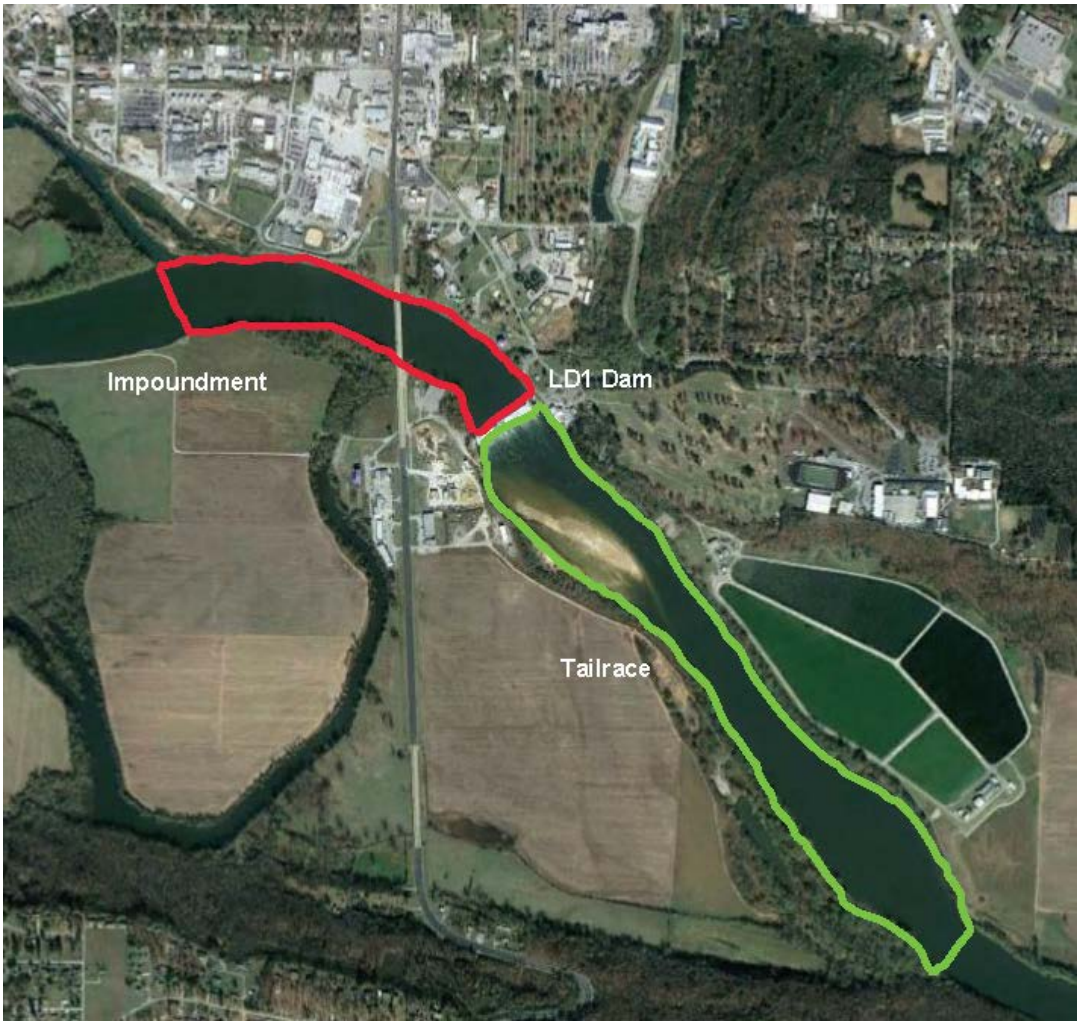

Figure 9. LD1 Zones of Effect

2.0 SUPPORTING INFORMATION

A. Ecological Flow Regimes

All Zones qualify for Standard A-1.

Criterion	*Standard*	*Instructions*
A	1	Not Applicable / De Minimis Effect: • Confirm the location of the powerhouse relative to dam/diversion structures and demonstrate that there are no bypassed reaches at the facility. • For run-of-river facilities, provide details on operations and demonstrate that flows, water levels, and operation are monitored to ensure such an operational mode is maintained. If deviations from required flows have occurred, discuss them and the measures taken to minimize reoccurrence. • n/a - In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed. ***NOTE:*** this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.

The three Projects operate in instantaneous run-of-river mode in accordance with Article 36 of each license. Inflows are dependent upon outflow from the far upstream USACE dams at Bull Shoals lake on the mainstem White River and from Norfork lake on the North Fork River, as well as inflows from various other tributaries. USACE manages lake levels and discharges under a water control plan for all six of their dams that are operated as a system to reduce frequency and severity of floods, provide water supply, generate hydroelectric power and provide minimum environmental flows downstream of Bull Shoals and Norfork lakes, subject to seasonal lake level requirements for recreation and/or flood control.

There are no spillway gates at any of the dams, and plant flow capacities are very low relative to river flow, so impoundment levels rarely drop to the tops of the spillways. Automatic pond-following controls ensure run-of-river operation and flows are monitored from the USGS gage 07061000, White River at Batesville, AR

There are no bypassed reaches associated with any of the Projects (see Figures 4 – 6 above).

B. Water Quality

All Zones qualify for Standard B-3.

Criterion	*Standard*	*Instructions*
B	3	Site-Specific Monitoring Studies: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Document consultation with appropriate water quality agency to determine what water quality parameters and sampling methods are required. • Present recent water quality data from the facility or from other sources in the vicinity of the facility (e.g., data collected from the state, watershed associations, or others who collected data under generally accepted sampling protocols and quality assurance procedures) and explain and demonstrate how it satisfies current applicable water quality standards including designated uses, or provide a letter from the appropriate state or other regulatory agency accepting the data.

State designated uses for waters in the Project area include primary and secondary recreation; domestic, industrial and agricultural water supply; and for fish and wildlife propagation.

The Project area is included in Segment 4F on the Arkansas 2016 impaired waters report[10] but this segment does not appear on the impaired waters list[11]. State mapping data[12] confirms no impairments in this section of the river.

Water Quality Certificates (WQCs) were initially issued for the Projects in 1983. The WQCs are not listed at all on the FERC website and only the LD3 WQC was found in paper files and is included in Appendix 1. Given that there are no specific conditions on the LD3 WQC, it is likely that WQCs for LD1 and LD2 are the same. A single WQC was issued on April 9, 2001 for all three Projects by Arkansas Department of Environmental Quality, as part of the FERC license amendment process and that WQC does not contain any terms and conditions.

Article 37 of each of the FERC licenses required annual water quality monitoring from May 1 to October 31 in the first five years of operation, for dissolved oxygen (DO) and water temperature immediately upstream and downstream of each dam. A water quality monitoring plan was filed with FERC in 2013[13] and approved on February 27, 2014. Annual results have consistently shown water quality to be within the state standards for DO (> 6.0 mg/l) and temperature (< 29^0 C, 84.2^0 F).[14] Six years of monitoring were completed, and results showed that the Projects were

[10] https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2016/final-2016-305b-report.pdf
[11] https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2016/final-2016-303d-list.pdf
[12] https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2016/maps/independence.pdf
[13] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13396922
[14] At water temperatures ≤10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen standard will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen standard may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

not negatively affecting water quality. A request was made to discontinue monitoring in 2019, with approval from USWFS, Arkansas Department of Pollution Control and Ecology, and Arkansas Game and Fish Commission (AGFC). On January 28, 2020 FERC issued an order terminating the monitoring program after the requirement had been met.[15]

C. Upstream Fish Passage

The impoundment Zones #1, 3 and 5 qualify for Standard C-1 since once above a dam there is no further facility barrier to upstream fish movement. The downstream Zones #2, 4 and 6 qualify for Standard C-2 as discussed below.

Criterion	*Standard*	*Instructions*
C	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.
C	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The Projects are located in a transition zone between the cold water fishery of the upper White River and the warm water fishery of the lower White River. The dams create slow moving lake type water in the impoundments; however, there is typical river habitat in the downstream reaches of LD3 and LD2 until flow slows down again in the next downstream impoundment. At Batesville, in the LD1 downstream reach the river begins a slower pace as it travels in snake-like fashion another 300 miles across the delta to the mouth.

There are no anadromous fish in the project area, although American eel may be present.

At the time of licensing, AGFC noted that the Project area is not suitable for trout year-round nor sufficiently warm enough for cool water fish due to the cold water discharges from the USACE dams. The transition zone provides habitat in which gradual adjustment to the varying thermal conditions protects fish resources from thermal shock that would occur when fish acclimatized to

[15] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15453628

the warmer water, move into reaches that receive cold water discharges from the USACE storage dams at Bull Shoals and Norfork, or vice versa when fish move from the colder waters downstream to warmer waters. The water quality monitoring program described above was intended to ensure that the transition zone characteristics are preserved.

The dams were originally constructed with fish ladders of which only remnants from before project construction remain. At LD3, the fishway is located at the dam near the right spillway abutment. At LD2 the fishway is located in the center of the spillway. At LD1 the fishway is located about 40 feet from the right abutment training wall on the southwest bank.

Standard article 15 of the Project licenses reserve agency authority to prescribe fishways. To date, no new or reconstructed upstream fishways have been ordered at the Projects. However, in comments included in the 2013 water quality monitoring plan (see link above) AGFC noted:

"*The dams are a barrier to natural fish movements…and we do see differences in fish populations above and below these dams*."

The comment stated that American eel and freshwater drum were reported to be seldom found from above the dams except following extended periods of high flows and flood events when they can be flushed downstream from the USACE dams. However, Chinese carp (an introduced invasive species of Asian carp) are found below the Project dams, but rarely above them suggesting that the dam may be of benefit by impeding this species movement. AGFC suggested, however, that reconstruction of the fish ladders for passage of species such as American eel should be considered. AGFC brought in a consultant to evaluate eel passage several years ago, but nothing ever came of that effort and there has been no request for eel passage since that time.

D. Downstream Fish Passage and Protection

The downstream Zones #2, 4 and 6 qualify for Standard D-1 since once below a dam there is no further facility barrier to downstream fish movement. The impoundment Zones #1, 3 and 5 qualify for Standard D-2 as discussed below.

Criterion	*Standard*	*Instructions*
D	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.
D	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Rainbow and cutthroat trout are stocked annually in Bull Shoals lake where crappie, black bass, white bass, catfish, brook trout, shad, and walleye are also present. Bonneville and Yellowstone cutthroats have also been introduced into the Norfork and White Rivers.

According to AGFC[16], trout are not native to Arkansas. Trout fisheries result from cold-water discharges from the USACE dams far upstream of the project. Before those dams were built, the White River contained smallmouth bass and other warmwater fish, but the discharges wiped out the smallmouth fisheries. The federal government mitigated the damage through the annual stocking of trout, which can handle much colder water temperatures. Brown trout can reproduce successfully in Arkansas, but rainbow trout populations require annual stockings. The river in the Project vicinity is a warmwater fishery.

[16] https://www.agfc.com/en/fishing/sportfish/trout/

The trash racks have 5-inch clear spacing which allow fish to avoid impingement but could entrain them in the turbines. Kaplan turbines are generally considered fish friendly, so mortality is expected to be low. Standard article 15 of the Project licenses reserve agency authority to prescribe fishways. To date, no downstream fishways have been ordered at the Projects. Run-of-river operations maintain flow levels for fish and aquatic resources.

E. Shoreland and Watershed Protection

All Zones qualify for Standard E-1.

Criterion	*Standard*	*Instructions*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary, and absence of critical habitat for protected species). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

The major land cover types at the Projects include agricultural grasslands and pastures, oak-hickory forest with white oak, northern red oak, bitternut hickory and shagbark hickory as the dominant species. Agricultural croplands of corn and sorghum are also present. At LD3 land use consists primarily of undeveloped, forested, and agricultural lands. Lands around LD2 are similar with some development on the north side of the river. At LD1, land use is urbanized with industrial uses. There are no critical habitats or ecologically significant lands.

The Project lands include the impoundments only up to the high water mark, small parcels on both sides of the river immediately surrounding project facilities, a 20.6-mile transmission line, and a substation. The transmission line corridor runs outside of the shoreline along the north side of the river from LD3 to a substation just upstream of LD2 and continues down to LD1. Much of it is along an existing railroad corridor and through pasture land. No shoreland management or similar plan is required although various plans were required to minimize erosion, and impacts to wildlife, vegetation, and wetlands and floodplains. Vegetation management in the form of physical removal is regularly performed along the transmission line corridor, at the dams and at the powerhouses.

F. Threatened and Endangered Species Protection

All Zones qualify for Standard F-2.

Criterion	*Standard*	*Instructions*
F	2	Finding of No Negative Effects: • Identify all federal and state listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZoE or is not impacted by facility operations.

Arkansas does not maintain a list of state threatened or endangered species and defers to the federal Endangered Species Act listed species. Based on USFWS IPaC searches conducted on October 28, 2019 (see Appendices 2-4), several federally-listed species that may be present in the Project areas. Species include three bat species - gray bat, Indiana bat (both endangered), and Northern long-eared bat (threatened).

Two plant species – Missouri bladderpod (threatened) and running buffalo clover (endangered) may also be found in the Project vicinity. Habitat for Missouri bladderpods is primarily open limestone or dolomite glades[17] which are not associated with Project facilities, but it could possibly exist along the transmission line. The 2002 FERC EA indicated that running buffalo clover is not present in Arkansas and in 2019 USFWS proposed removing the species from the ESA due to recovery where it is found.[18]

Two mussel species – pink mucket (endangered) and rabbitsfoot mussel (threatened). There are no critical habitats for any of these species in the Project areas. A mussel survey was conducted in 2002 at 49 sites in the mainstem and at 7 sites in Lafferty Creek upstream of LD3, all reaches that would be affected by Project construction.[19] The study focus was on two federally endangered species, pink mucket (*Lampsilis abrupta*) and scaleshell (*Leptodea leptodon*). Live specimens of 15 species and of the invasive Asian clam were collected in Lafferty Creek, a tributary at the top of the LD3 impoundment, and along the left bank downstream of LD3. Relict shells only were collected of another 15 species were collected at some survey sites. No live specimens of the two target species and only a single relict shell of pink mucket was found. The federally threatened rabbitsfoot mussel (*Quadrula cylindrica cylindrica*) was subsequently listed in 2013 but was not found in the 2002 survey.

Even if found at the Projects, the run of river operation would not effect any mussel species.

The federally protected bald eagle and three bird species of conservation concern - blue-winged warbler, cerulean warbler, and red-headed woodpecker, are or may be present near LD1. In

[17] https://www.fws.gov/midwest/endangered/plants/mo_blad/bladderp_fs.html
[18] https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1
[19] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=1021913

2002, USWFS determined that no federally listed species occurred in the proposed transmission line and substation footprint area but requested that the transmission line be designed in accordance with accepted raptor protection guidelines. Article 402 of the amended licenses required filing of the protective design plan which was filed[20] and approved by FERC in 2004.

G. Cultural and Historic Resources Protection

All zones qualify for Standard G-2.

Criterion	*Standard*	*Instructions*
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

According to the 2002 FERC EA for the transmission line[21], Native Americans once inhabited the area around the Projects and scattered artifacts and archaeological sites have been found. The City of Batesville is one of the oldest settlements in Arkansas with archaeological remains and historic structures still present.

The Project area was surveyed for cultural and historic resources prior to the hydroelectric construction. The locks and dams were determined to be eligible for listing on the National Register of Historic Places. Since portions of the existing lock and dam structures were to be removed, the Arkansas State Historic Preservation Officer (SHPO) determined that removal would constitute an adverse impact on the eligible property and recommended that those sites be documented prior to demolition. At LD3 documentation included creation of a public scale map and an educational film in accordance with article 40 of the license. Documentation at LD2 (article 38) included creation of a map, and at LD1 (article 39) creation of s scale model of the lock and dam and an educational film. The license articles also require consultation with the SHPO prior to future construction and discovery of any new cultural or historic resources. Those license articles also require consultation with the SHPO in the event of discovery of any future unrecorded archaeological or historic sites. As with other old project documents, confirmation of completion of these measures was not found. We requested a Section 106 review by the SHPO as part of this application and will forward the information when it becomes available during the application review.

In 2001, a Phase 1 cultural resource survey was conducted along most of the transmission corridor where 37 sites were discovered, 24 of them potentially eligible for listing on the National Register of Historic Places. No cultural or historic features were found at the substation and associated access road in a subsequent survey in 2002 although a new site was found in the transmission corridor. In 2002 a Memorandum of Agreement (MOA) [22] was executed among FERC, SHPO and the federal Advisory Council on Historic Preservation for the new

[20] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10073002
[21] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14765797
[22] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10681460

transmission line and substation, and FERC required implementation of the MOA under article 406 of the amended 2002 licenses. The MOA and licenses required development of an Historic Properties Treatment Plan (HPTP) for the transmission line. It was approved by the SHPO and by FERC in 2005[23] to mitigate adverse effects on historic properties under the amended (2005) transmission line route and substation construction.

H. Recreational Resources

All zones qualify for Standard H-3.

Criterion	*Standard*	*Instructions*
H	3	Assured Accessibility: • In lieu of existing recommendations and plans for recreational uses, document the facility's current and future commitment to accommodate reasonable requests from recreation interests for adequate public access for recreational use of lands and waters of the facility, including appropriate recreational water flows and levels, without fees or charges.

There is no license requirement for recreational facilities at LD2. Article 39 of the LD1 and LD3 licenses required a canoe portage and picnic area with picnic tables and outdoor cooking facilities at those Projects but Article 39 was later rescinded. There was a May 27, 1988 request for exemption from this requirement, but no FERC elibrary record of subsequent approval. However, FERC environmental inspection reports do not list an Article 39 so apparently FERC approved the exemption or rescinded the requirement.

Article 17 of each license requires "reasonable recreation facilities and infrastructure" as well as future development if a need is demonstrated. Article 18 requires free public access for recreation where safety concerns do not preclude access.

At LD3 there is very limited public access. The powerhouse and lock are fenced for public safety and due to land ownership, there is no sanctioned public access to other project works. A temporary path is cleared annually around the lock and powerhouse and used as a canoe portage. Path clearing is timed with an annual Boy Scouts canoe race that is attended by hundreds of scouts from around the country. The path is not otherwise maintained so as to prevent its use as a boat ramp. Other canoeing use is very infrequent. The state has developed sites for public boating access upstream and downstream of the Project.

At LD2 there is also limited access. The powerhouse and lock are fenced for public safety. Upstream of the spillway on a small side stream there is an undeveloped site that the public uses to gain boating access. The site is privately owned. Informal camping and river access occur on the sandy shoreline on both banks below the spillway and powerhouse. A temporary canoe portage path is cleared annually as at LD3.

At LD1 there are public boat ramps upstream and downstream of the dam, that were developed

[23] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10872642

and are maintained by AGFC. The upstream ramp is on the right bank about 900 feet from the spillway and the downstream ramp is located outside the Project boundary on the left bank. Both areas have parking spaces and bank fishing. The public also has fishing access at the lock wall on the downstream side of the powerhouse (Figure 7). There are small city parks on both banks next to the dam that have playgrounds, picnic areas, shoreline fishing access, as well as swimming on a gravely beach along the right bank below the spillway.

Figure 7. LD1 Fishing Access

FERC environmental inspections were last conducted in 2015[24] and had been conducted in 2001 and 2009 as well. The 2015 inspections determined that the Projects were in compliance with license requirements generally, with some minor items that needed correction. All corrections were made, and documentation submitted in FERC by December 5, 2015.

[24] LD3 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13988452;
LD2 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13988464;
LD1 https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13988453

3.0 FACILITY AND STAKEHOLDER CONTACTS FORMS

Project Owner:	
Name and Title	County Judge Robert T. Griffin
Company	Independence County, Arkansas
Phone	(870) 793-8800
Email Address	countyjudgefriffin@swbell.net
Mailing Address	192 E. Main St., Batesville, AR 72501
Project Operator (if different from Owner):	
Name and Title	Chuck Ahlrichs, President
Company	Northbrook Power Management, LLC
Phone	(480) 551-1991
Email Address	cahlrichs@nbenergy.com
Mailing Address	14550 N Frank Lloyd Wright Blvd, Suite 210, Scottsdale, AZ 85260
Consulting Firm / Agent for LIHI Program (if applicable):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Jack Tobin, Vice President
Company	ACA Financial Guaranty
Phone	(212) 375-2330
Email Address	jtobin@aca.com
Mailing Address	555 Theodore Fremd Avenue, Suite C-205, Rye, NY 10580
Party responsible for accounts payable:	
Name and Title	Joe Barclay, Chief Operating Officer
Company	Greenlight Energy Group, LLC
Phone	(917) 387-4908
Email Address	joe@gltenergy.com
Mailing Address	1732 1st Avenue, Suite 29139, New York, NY 10128

Agency Contacts

Agency Contact		*Area of Responsibility*
Agency Name	US Fish and Wildlife Service	☐ Flows ☐ Water Quality X Fish/Wildlife ☐ Watershed X T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Lindsey Lewis, FERC Coordinator	
Phone	(501) 513-4489	
Email address	lindsey_lewis@fws.gov	
Mailing Address	110 S. Amity Road, Suite 300 Conway, AR 72032	

Agency Contact		*Area of Responsibility*
Agency Name	Arkansas Game and Fish Commission	☐ Flows ☐ Water Quality X Fish/Wildlife ☐ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Justin Stroman, Federal Regulatory Program Biologist	
Phone	501-747-4034	
Email address	justin.stroman@agfc.ar.gov	
Mailing Address	2 Natural Resources Drive Little Rock, AR 72205	

Agency Contact		*Area of Responsibility*
Agency Name	Arkansas Division of Water Quality	X Flows X Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Jim Wise, Surface Water Monitoring Brie Olsen	
Phone	501-682-0663	
Email address	wise@adeq.state.ar.us, olsen@adeq.state.ar.us	
Mailing Address	5301 Northshore Drive North Little Rock, AR 72118-5317	

Agency Contact		*Area of Responsibility*
Agency Name	Arkansas Historic Preservation Program	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species X Cultural/Historic ☐ Recreation
Name and Title	Eric Mills, Archaeologist and Section 106 Manager	
Phone	(501) 324-9784	
Email address	eric.mills@arkansas.gov	
Mailing Address	1100 North Street, Little Rock, AR 72201	

Stakeholder Contacts

Stakeholder Contact		***Area of Responsibility***
Organization Name	Caddo Nation	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species X Cultural/Historic ☐ Recreation
Name and Title	Tamara Francis, Tribal Historic Preservation Officer	
Phone	(405) 656-2344	
Email address	caddochair.cn@gmail.com	
Mailing Address	PO Box 487 Binger, OK 73009	

Stakeholder Contact		***Area of Responsibility***
Organization Name	Osage Nation	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species X Cultural/Historic ☐ Recreation
Name and Title	Dr. Andrea A. Hunter, Director/ THPO	
Phone	918-287-5328	
Email address	ahunter@osagenation-nsn.gov	
Mailing Address	627 Grandview Ave. Pawhuska, OK 74056	

Stakeholder Contact		***Area of Responsibility***
Organization Name	Quapaw Nation	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species X Cultural/Historic ☐ Recreation
Name and Title	Everett Bandy, QNHPP Director & Preservation Officer	
Phone	(918) 238-3100	
Email address	ebandy@quapawnation.com	
Mailing Address	P.O. Box 765 Quapaw, OK 74363	

1.0 SWORN STATEMENT

As an Authorized Representative of White River Hydroelectric, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: ACA Financial Guaranty

Authorized Representative:

Name: Jack Tobin

Title: Vice President

Authorized Signature: 

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the Undersigned attests that the material presented in the application is true and complete.

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Company Name: Independence County, Arkansas

Authorized Representative:

Name: Robert T. Griffin

Title: County Judge

Authorized Signature: by County Judge

APPENDICES

File: 401 permit:

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 9583
LITTLE ROCK, ARKANSAS 72209

PHONE: (501) 562-7444

CERTIFICATE OF APPROVAL
No. 144

Date: July 6, 1983

Project Description: Hydroelectric Project at Lock and Dam No. 3 on the White River

Applicant: Mr. Gary P. Halliwell
Halliwell Associates, Inc.
865 Waterman Avenue
E. Providence, Rhode Island 02914

The plans and information submitted for the above project have been reviewed and are approved by this office.

It is hereby certified that if any wastewaters are to be generated by this project, the same will receive adequate treatment prior to discharge into a surface waterway in accordance with applicable water quality standards of the state.

This certification is issued in reliance upon the statements, representations and information submitted to this Department. If required, this agency will inspect any wastewater treatment facilities involved in this project at least annually for the first three (3) years after completion of construction and periodically thereafter.

This certification is subject to all of the following conditions: This run of the river project shall not maintain water storage for other purposes.

Sincerely,

Mac Faulkner
Engineer
Permits Branch

MF:czp

cc: Arkansas Department of Health
State Clearinghouse

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Independence and Stone counties, Arkansas

Local office

Arkansas Ecological Services Field Office

(501) 513-4470
(501) 513-4480

110 South Amity Suite 300
Conway, AR 72032-8975

http://www.fws.gov/arkansas-es

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Pink Mucket (pearlymussel) Lampsilis abrupta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7829	Endangered

Flowering Plants

NAME	STATUS
Missouri Bladderpod Physaria filiformis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5361	Threatened
Running Buffalo Clover Trifolium stoloniferum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2529	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of

these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

- R2UBH
- R2USA

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A

margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

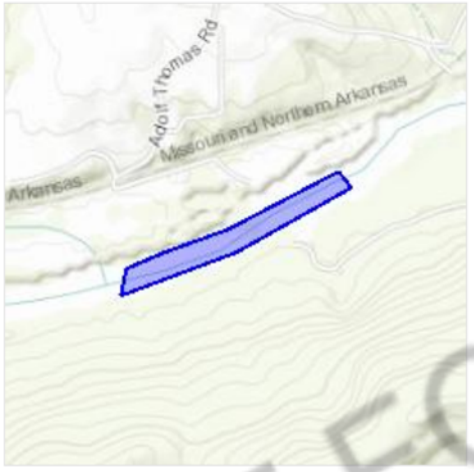
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Independence County, Arkansas



Local office

Arkansas Ecological Services Field Office

(501) 513-4470
(501) 513-4480

110 South Amity Suite 300
Conway, AR 72032-8975

http://www.fws.gov/arkansas-es

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Pink Mucket (pearlymussel) Lampsilis abrupta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7829	Endangered

Flowering Plants

NAME	STATUS
Missouri Bladderpod Physaria filiformis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5361	Threatened
Running Buffalo Clover Trifolium stoloniferum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2529	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of

these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R2UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries

or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Independence County, Arkansas

Local office

Arkansas Ecological Services Field Office

(501) 513-4470
(501) 513-4480

110 South Amity Suite 300
Conway, AR 72032-8975

http://www.fws.gov/arkansas-es

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Pink Mucket (pearlymussel) Lampsilis abrupta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7829	Endangered
Rabbitsfoot Quadrula cylindrica cylindrica There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5165	Threatened

Flowering Plants

NAME	STATUS
Missouri Bladderpod Physaria filiformis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5361	Threatened

Running Buffalo Clover Trifolium stoloniferum — Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2529

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Blue-winged Warbler *Vermivora pinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 23 to Jul 20

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

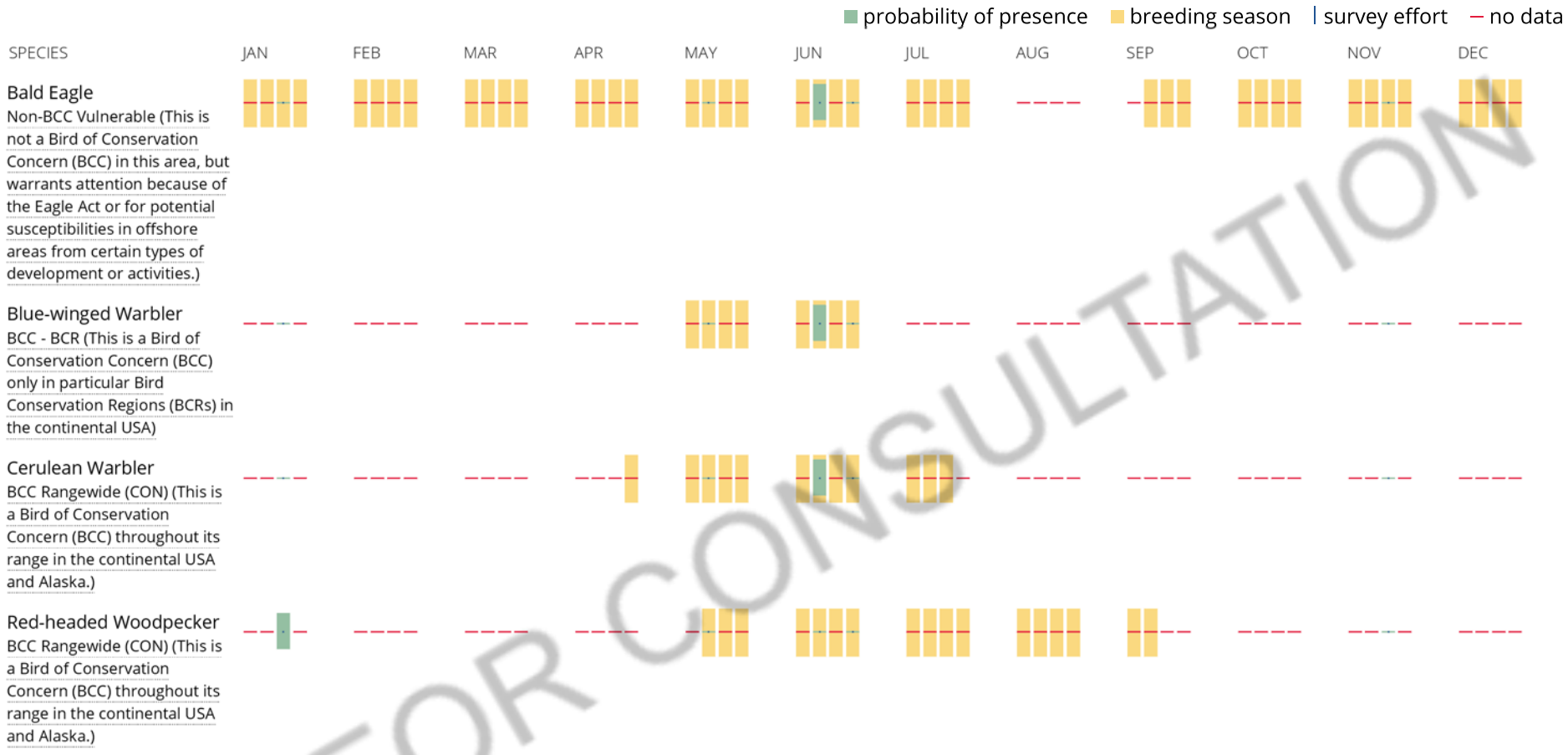
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be

breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline

fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PFO1F

RIVERINE

- R2UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.