

Tallassee Shoals Hydroelectric

Application for renewal to the Low Impact Hydropower Institute

FERC Project 6951



Prepared by

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Tallassee Shoals, LLC

February 18, 2019

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INTRODUCTION

This is an application to the Low Impact Hydropower Institute for recertification of the Tallassee Shoals Hydroelectric Project. Originally, the Tallassee Shoals dam was constructed between 1898 and 1902 and was operated by Athens Railway and Electric, then the Georgia Power Company until 1962. After a dam breach in 1964, the project was restored by replacing the dam and powerhouse superstructure in 1985. It resumed operating by Oglethorpe Power in 1986. Ownership was transferred to Fall Line Hydro in 2003 and subsequently to Tallassee Shoals LLC in 2008. FERC issued the order approving the license transfer to Tallassee Shoals, LLC on August 18, 2008.

Conditions, structures, and operation have experienced no changes since our last LIHI recertification in 2013. There have been no changes in facility requirements, obligations or agreements.

There have been no violations of our FERC license requirements or LIHI compliance criteria.

We are currently in our first year of the FERC relicensing process so any new documentation from state and federal agencies will be provided if received before the LIHI review process is complete.

PART I. FACILITY DESCRIPTION

The project consists of: a concrete dam; a 100-kW fixed Kaplan unit within the dam; a 1,400-foot long headrace from the dam to the powerhouse; one 11-ft diameter penstocks; a powerhouse with 2.3-MW adjustable Kaplan unit; and a 750-ft long tailrace. There is a 2,100-ft bypass reach of the Middle Oconee River between the dam and the tailrace confluence.

The project dam creates a narrow, 23-acre reservoir extending 1.1 mile upstream. The project operates in a run-of-river mode and provides a continuous minimum flow release of 70 cubic feet per second (cfs) to the bypass reach and an interim continuous flow of 138 cfs during the month of May as measured below the tailrace confluence to protect sunfish and bass spawning habitat.

The FERC project boundary for the TSHP encompasses 24.1 acres around the dam, project works, tailrace, bypass reach, and a portion of the reservoir to 200 ft upstream of the dam. The project boundary contains about 10.2 acres of the river and 13.9 acres of land. No federal lands or reservations are occupied by the project. In summary, the TSHP consists of:

- Dam: 365-ft concrete dam; 45-ft wide at the base and 3-ft thick at the top, 25-ft high at maximum.
- Turbines: a variable-pitch Kaplan 2.2MW unit located at the end of the headrace downstream and a fixed Kaplan 100KW unit within the dam.
- Impoundment: 23 acres with 230 acre-feet storage. The impoundment has a maximum depth of 25 ft, a mean depth of 10 ft, and 2.4 miles of shoreline.
- Headrace: 60-ft wide and 1400-ft long used to channel water to the powerhouse and gain an additional 15-ft of head elevation without increasing the size of the dam and pool.

- Penstocks: one steel structures 11-ft in diameter 80 ft long.
- Trashracks: clear spacing of 2 inches in front of the dam and 4 inches in front of the penstocks.
- Powerhouse: located 1400-ft downstream from the dam.
- Tailrace: 750-ft long tailrace.
- Transmission line: connected via a 42kV power line less than 100-ft in length interconnected with Georgia Transmission Company.

A facility overview photo is located in *Appendix A* page 28 and a map of the project location in *Appendix A* page 30.

Table I-I Facility Description Information for: Tallassee Shoals LLC LIHI # 12

Information Type	Variable Description	Response (and reference to further details)
Name of the Facility	Facility name (use FERC project name if possible)	Tallassee Shoals Project 06951
Location	River name (USGS proper name)	Middle Oconee River
	River basin name	Oconee Basin
	Nearest town, county, and state	Athens, GA
	River mile of dam above next major river	17.7 miles to confluence w/N. Oconee (minor) 21.8 miles to Barnett Shoals Dam 39.5 miles to Lake Oconee 66.6 miles to Wallace Dam on Lake Oconee 89.2 miles to Sinclair Lake Dam 220 miles to Altamaha River (major)
	Geographic latitude	33.992583
	Geographic longitude	-83.502424
Facility Owner	Application contact names (IMPORTANT: you must also complete the Facilities Contact Form):	Walter Puryear
	- Facility owner (individual and company names)	Walter Puryear Tallassee Shoals LLC
	- Operating affiliate (if different from owner)	none
	- Representative in LIHI certification	Walter Puryear
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates	P- 6951 Oct 24, 1983 to Oct 23, 2023 Transferred to Tallassee Shoals Feb 2, 2009
	FERC license type or special classification (e.g., "qualified conduit")	Traditional
	Water Quality Certificate identifier and issuance date, plus source agency name	none

	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	http://www.ferc.gov/docs-filing/elibrary.asp
Power Plant Characteristics	Date of initial operation (past or future for operational applications)	March 2009
	Total name-plate capacity (MW)	2.3 MW
	Average annual generation (MWh)	5,200 MWH
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	One Fixed Kaplan 100 KW 70 cfs One Variable Kaplan 2.2 MW 200-900 cfs
	Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.)	run-of-the-river
	Dates and types of major equipment upgrades	none
	Dates, purpose, and type of any recent operational changes	none
	Plans, authorization, and regulatory activities for any facility upgrades	none
Characteristics of Dam, Diversion, or Conduit	Date of construction	1985
	Dam height	23 ft
	Spillway elevation and hydraulic capacity	645 ft 35,500 cfs
	Tailwater elevation	603 ft
	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	1400 ft concrete headrace 60 ft steel penstock 750 ft tailrace
	Dates and types of major, generation-related infrastructure improvements	none
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	power
	Water source	Middle Oconee River
	Water discharge location or facility	Middle Oconee River
Characteristics of Reservoir and Watershed	Gross volume and surface area at full pool	230 acre-feet & 23 acres
	Maximum water surface elevation (ft. MSL)	645 ft
	Maximum and minimum volume and water surface elevations for designated power pool, if available	200 to 900 cfs 645.2 ft
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile	none
	Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile	Barnett Shoals Dam, Star Thread Energy Partners on Oconee River, no FERC, 21.8 miles Wallace Dam FERC 2413, Ga Power on Oconee River 67 miles Sinclair Dam FERC 1951, Ga Power on Oconee River 94 miles

	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation	None
	Area inside FERC project boundary, where appropriate	24.1 acres
Hydrologic Setting	Average annual flow at the dam	414 cfs
	Average monthly flows	Jan 567 Apr 512 Jul 311 Oct 290 Feb 660 May 375 Aug 229 Nov 366 Mar 699 Jun 266 Sep 224 Dec 464
	Location and name of relevant stream gauging stations above and below the facility	Middle Oconee @ Arcade 02217475 Middle Oconee @ Athens 02217500
	Watershed area at the dam	358 sq. mi.
Designated Zones of Effect	Number of zones of effect	Three
	Upstream and downstream locations by river miles	Zone 1: 1.07 to 0 miles Zone 2: 0 to .4 miles (2,080 ft) Zone 3: 0 to .5 miles (2,580 ft)
	Type of waterbody (river, impoundment, by-passed reach, etc.)	Zone 1: Impoundment Zone 2: Bypass reach Zone 3: Diversion
	Delimiting structures	Zone 1: Impoundment headwater to Tallassee Dam Zone 2: Tallassee Dam to confluence with Tailrace Zone 3: Tallassee Dam to 500 after confluence with bypass reach
	Designated uses by state water quality agency	Drinking water, municipal/industrial water supply, recreation, fishing, aquatic life, and hydropower
Additional Contact Information	Names, addresses, phone numbers, and e-mail for local state and federal resource agencies	Refer to Part V page 25
	Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders	Refer to Part V page 26
Photographs and Maps	Photographs of key features of the facility and each of the designated zones of effect	Refer to Part II and <i>Appendix A</i> page 28
	Maps, aerial photos, and/or plan view diagrams of facility area and river basin	See <i>Appendix A</i> pages 28 - 30

PART II. STANDARDS SELECTION

The Tallassee Shoals Project site offers three designated zones of effect for this application.

Zone 1 is defined as the Impoundment covering 23 acres extending from the dam 1.1 miles upstream to the headwaters.



Zone 2 is defined as the Bypass Reach beginning at the dam and extending downstream 750 feet to the confluence with the tailrace.



Zone 3 is defined as the Diversion which encompasses the headrace, tailrace, and 500 feet of the Middle Oconee River past the tailrace/bypass reach confluence.



Table II-1. LIHI standards selected for Zone of Effect No. 1 (Impoundment)

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes	X				
B	Water Quality	X				
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources		X			

Table II-2. LIHI standards selected for Zone of Effect No. 2 (Bypass Reach)

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes		X			
B	Water Quality	X				
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources		X			

Table II-3. LIHI standards selected for Zone of Effect No. 3 (Diversion)

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes	X				
B	Water Quality	X				
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources	X				

PART III. Supporting Information

This section contains information that explains and justifies the standards selected to pass LIHI certification criteria.

III.A Ecological Flow Standard

Zone 1 (Impoundment)

Table III-A-1 Information Required to Support Ecological Flow Standards

Criterion	Standard	Instructions
A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility. If Run-of-River operation, provide details on how flows, water levels, and operation are monitored to ensure such an operational mode is maintained. In a conduit project, identify the water source and discharge points for the conduit system within which the hydropower plant is located. For impoundment zones only, explain 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

Criterion	Standard	Instructions
		has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.

There are no bypass reaches within Zone 1 as evidenced by the annotated photo in Part II defining the area encompassed.

Tallassee Shoals operates as a true run-of-the-river plant with computerized controls to maintain a minimum flow of 70 cfs into the bypass zone. The result is flow out of the impoundment zone is identical to flow into the impoundment zone. This maintains the natural flow for fish and wildlife habitat.

Zone 2 (Bypass Reach)

Table III-A-2 Information Required to Support Ecological Flow Standards

A	2	<p><u>Agency Recommendation (see Appendix A for definitions):</u></p> <ul style="list-style-type: none"> • 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 stringent). • 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. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).
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Flow in the bypass reach of 70 cfs is specified by FERC “Order Approving Transfer of License” August 18, 2008. Data from USGS sites equidistant above (Arcade 02217475) and below (Athens 02217500) were utilized to verify 70 cfs corresponds to 1.9 to 2.0 inches reservoir level above the dam crest. Computerized controls are used to maintain a 2 inch level and are recorded electronically on 15 minute intervals. A graph of the most recent months flow recording is presented in *Appendix A* page 33 along with a more detailed graph of the last three days of that period.

Electronic equipment calibration is verified monthly against physical gauges, recorded and reported to FERC via the DSSMR program.

We have proposed in our FERC license renewal application to evaluate a secondary method of flow verification using standard USGS Pierce AA meters.

Comments from the US Fish and Wildlife Service in a letter dated April 2, 2004 state that there are no concerns with minimum flow rates or threatened aquatic species (*Appendix B* page 43). Tallassee Shoals has no violations of the minimum flow requirements.

Zone 3 (Diversion)

Table III-A-3 Information Required to Support Ecological Flow Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility. • If Run-of-River operation, provide details on how flows, water levels, and operation are monitored to ensure such an operational mode is maintained. • In a conduit project, identify the water source and discharge points for the conduit system within which the hydropower plant is located. • For impoundment zones only, explain 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.

Please refer to Zones 1 information above as conditions are the same.

III.B Water Quality Standard

Zone 1 (impoundment)

Table III-B-1 Information Required to Support Water Quality Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation. • Explain rationale for why facility does not alter water quality characteristics below, around, and above the facility.

GAEPD (2016) classifies the water use of the Middle Oconee River, from the Mulberry River (upstream of Project) to Big Bear Creek (downstream of Project) as fishing. In addition to general criteria applicable to all waters, specific criteria apply to these classified water uses, including criteria for bacteria (fecal coliform), dissolved oxygen (DO), pH, and temperature, as set forth in the Rules and Regulations for Water Quality Control, Chapter 391-3-6 (GEPD, 2015).

GAEPD (2016) lists the same segment of the Middle Oconee River as not supporting its designated use due to fecal coliform violations and macroinvertebrate community impacts. The elevated levels of fecal coliform are unrelated to the Project operations and are likely the result of urban runoff and non-point source pollution.

At full pool elevation of 645-ft msl, the Project dam creates a narrow, 23-acre reservoir with an official storage capacity of 230 acre-feet. The following data sources were utilized to characterize the water quality in the vicinity of the TSHP:

- USGS Station, Middle Oconee River near Arcade, Georgia (USGS No. 02217475) – about 8 river miles upstream of Tallassee Shoals dam at the Highway 82 bridge; intermittent and limited water quality data from 1994, 1996, 1999, 2000, and 2004.
- GAEPD Station, Middle Oconee River at Mitchell Bridge Road near Athens, Georgia (GAEPD No. 0301030709) – about 8 river miles downstream of Tallassee Shoals dam; intermittent and limited water quality from 2009

The overall river water quality is good except for elevated concentrations of fecal coliform bacteria related to urban runoff and non-point source pollution. Dissolved oxygen concentrations in the Middle Oconee River, both upstream and downstream of the Project, never dropped below 7 mg/L. The specific water quality criteria for dissolved oxygen in Georgia for waters classified as fishing is a greater than 5 mg/L daily average. Water quality data is detailed in *Appendix A* pages 34 and 35.

Zone 2. (Bypass Reach)

Table III-B-2 Information Required to Support Water Quality Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> • If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation. • Explain rationale for why facility does not alter water quality characteristics below, around, and above the facility.

Same as Zone 1

Zone 3. (Diversion)

Table III-B-3 Information Required to Support Water Quality Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> • If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation. • Explain rationale for why facility does not alter water quality

		characteristics below, around, and above the facility.
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Same as Zone 1

III.C Upstream Fish Passage Standard

Zone 1 (impoundment)

Table III-C-1. Information Required to Support Upstream Fish Passage Standards.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	1	<ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. • 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.

The Oconee River basin supports a diverse fish fauna, consisting of about 79 species of warm-water fishes in 17 families (Straight et al., 2009; GEPD, 1998; Lee et al., 1980). The Middle Oconee River and its tributaries in the vicinity of the TSHP support about 40 species of fish (Appendix A page xx). The families with the most species include minnows, catfishes, sunfishes, and suckers. The principal sport fishes inhabiting the Middle Oconee River and its tributaries in the vicinity of the Project include largemouth bass, spotted bass, black crappie, channel catfish, and a variety of sunfishes (Jennings et al., 2009).

The TSHP is located about 400 river miles upstream of the Atlantic Ocean and more than 100 river miles upstream of the Fall Line Hills District between the Piedmont and Coastal Plain provinces. Wallace Dam and Sinclair Dam, located about 70 and 100 river miles downstream respectively, and also situated above the Fall Line, which impedes or blocks diadromous and other migratory riverine fishes from migrating upstream into the project area (Appendix A page 30).

Of the eight highly migratory and/or diadromous species presently occur in portions of the Altamaha River basin, no species are known to occur within the project boundary, however as identified by the FWS and GDNR, the American eel and robust redhorse are two aquatic species of interest in the Middle Oconee (LIHI, 2009).

American eels historic range likely included the Middle Oconee River in the Project vicinity (Appendix B page 36), however, two large hydroelectric dams, Wallace Dam and Sinclair Dam, are barriers to passage of this fish to upstream location, including the Middle Oconee River. No American eels have been reported from the Middle Oconee River.

The robust redhorse (*Moxostoma robustum*), a Georgia endangered species, is another migratory riverine species that inhabits the Oconee and Ocmulgee Rivers in the Altamaha River basin. A population currently

occurs in the Oconee River downstream of Sinclair Dam and the species is not known to occur upstream of Wallace Dam. Robust Redhorse recovery efforts are ongoing through the Robust Redhorse Conservation Committee and a management plan has been developed for this species, which may include reintroducing this species to the Middle Oconee River.

Zone 2. (Bypass Reach)

Table III-C-2. Information Required to Support Upstream Fish Passage Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	1	<ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. • 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.

Upstream fish passage, fish distributions, and migratory fish management issues in Zone 1 are identical to Zone 2 and are detailed above.

Zone 3. (Diversion)

Table III-C-3. Information Required to Support Upstream Fish Passage Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	1	<ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. • 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.

Upstream fish passage, fish distributions, and migratory fish management issues in Zone 1 are identical to Zone 2 and are detailed above.

III.D Downstream Fish Passage Standard

Zone 1 (Impoundment)

Table III-D-1. Information Required to Support Downstream Fish Passage Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none">• 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).• 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.

Currently there are no diadromous, anadromous, or catadromous species in the TSHP area as detailed in the section above (III.C Upstream Fish Passage Standards). Fish distribution is also documented in *Appendix A* “Fishes Known to Occur in Project Vicinity” page 36.

Zone 2 (Bypass Reach)

Table III-D-2. Information Required to Support Downstream Fish Passage Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none">• 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).• For riverine fish populations that are known to move downstream, explain• 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.

Same as Zone 1.

Zone 3 (Diversion)

Table III-D-3. Information Required to Support Downstream Fish Passage Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • 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). • For riverine fish populations that are known to move downstream, explain • 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.

Same as Zone 1.

III.E Information Required to Support Shoreline and Watershed Protection Standards

Zone 1 (Impoundment)

Table III-E-1. Information Required to Support Shoreline and Watershed Protection Standards.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • 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 project boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

The Tallassee Shoals Zone1 shoreline is characterized by diverse landforms including steeply sloped mountain-like terrain (*Appendix A* page 31) to gently rolling topography in most areas. Significant stretches of undeveloped, forested shoreline occur along the left and right bank of the Middle Oconee River within and upstream the Project. The Middle Oconee River near Tallassee Shoals is shallow, moderately wide, with strong meanders produced by underlying geology. The Middle Oconee River exhibits riffle channel morphology in slow to moderately flowing reaches.

The shorelines exhibit low potential for erosion or other forms of instability due to a high degree of vegetative cover and/or the presence of rock outcroppings that function as naturally occurring shoreline stabilization features. Land use around the Project, is generally a rural residential mix composed of low-intensity urban, forested lands, and row crop/pasture lands.

There have been no shoreline management plans or similar protection programs required of Tallassee Shoals.

Zone 2 (Bypass Reach)

Table III-E-2. Information Required to Support Shoreline and Watershed Protection Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> • 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 project boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

Same as Zone 1.

Zone 3 (Diversion)

Table III-E-3. Information Required to Support Shoreline and Watershed Protection Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> • 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 project boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

The headrace is concrete lined. The tailrace and portion of the Middle Oconee River after the confluence of bypass reach and tailrace are identical to Zone 1.

III.F Threatened and Endangered Species Standards for Zone 1 (impoundment)

"In all cases, the applicant shall identify all listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies."

Zone 1 (Impoundment)

Table III-F-1. Threatened and Endangered Species Standards

Criterion	Standard	Instructions
F	1	<p>Not Applicable / De Minimis Effect:</p> <ul style="list-style-type: none">• Document that there are no listed species in the facility area or affected riverine zones downstream of the facility.• If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species.• If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

Information on rare, threatened, and endangered species potentially occurring in the upper Oconee River basin of Clarke and Jackson Counties, Georgia was obtained from rare species databases maintained by the GDNr Nongame Conservation Section, FWS (Environmental Conservation Online System), and Nature Serve (2017). Literature review also included manuals on Georgia's rare plants (Patrick et al., 1995; Chafin, 2007) and recovery plans and recent species evaluations completed by FWS for federally listed species.

Based on known element of occurrence records (historic or present) and species range and habitat data, 13 state and/ or federally protected species of plants and wildlife potentially occur in the vicinity of the Project. *Appendix A* page 39 briefly describes known habitat for each of the 13 species as well as 17 other species of concern being tracked by GDNr.

Four federally threatened and endangered species potentially occur within the 2-county project vicinity. These include 3 plant species and 1 mammal species:

Pool sprite (or little amphianthus) (*Amphianthus pusillus*) – threatened

Black-spored quillwort (*Isoetes melanospora*) – endangered

Mat-forming quillwort (*Isoetes tegetiformans*) – endangered.

Gray bat (*Myotis grisescens*) – endangered

Critical habitat has not been designated for any of these species. Three of the plant species, are not presently known to occur within the project boundary or within the Middle Oconee watershed. There are no known occurrences of the gray bat within the project boundary.

Eight other Georgia listed plants potentially occur in the project vicinity, including two listed as endangered, two as threatened, three as rare, and one as unusual. Of the eight Georgia listed plants, only two are known to occur within the Middle Oconee watershed of the Project. Based on available information, no state protected plant species are known to occur within the project boundary.

One state protected wildlife species, the Altamaha shiner, potentially occurs in the project vicinity. The Altamaha shiner, a Georgia threatened species, is endemic to the Piedmont of the upper Altamaha River Basin in north-central Georgia and inhabit small streams and rivers, where they are most often found in small pools with rocky and sandy substrates (Freeman, 2008). It presently occurs in the Upper Oconee River basin and has been reported from relatively recent collections in the Middle Oconee River in the vicinity of Tallassee Shoals and tributary streams upstream, including the Mulberry River and Walnut Creek (Table 6) (Straight et al., 2009, LIHI, 2009; GDNr, 2014). GDNr indicated that although the Altamaha shiner persists upstream and downstream of Tallassee Shoals, the continued operation of the Project would not negatively affect this species (*Appendix A “US Fish and Wildlife”* page 43).

An additional 14 species tracked by GDNr as species of special concern potentially occur in the project vicinity. These include four plants, two fish, one amphibian, two reptiles, one bird, and four mammals. The Altamaha bass are found above the fall line in the Oconee, Ocmulgee, and Ogeechee river basins. The brassy jumprock has been reported from tributary streams to the Middle Oconee River including the Mulberry River. The four plant species are listed as species of concern in Clarke County. The broadleaf bunchflower occurs in moist shady habitats like gorges whereas the glade windflower occurs on the edges of granite outcrops in the Piedmont. The porcupine sedge is an obligate wetland plant that occurs in wet meadows, marshes, pond shores, and edges of bogs and swamps. Yellow harlequin occurs in open woods and slopes and requires disturbance to thrive. Based on reasonably available information, the state species of concern are not presently known to occur within the project boundary.

Presently, there are no known occurrences of federally threatened or endangered species of plants or wildlife within the project boundary that would be affected by continued project operation. The USFWS stated they do not expect the Project to affect federally listed species in Clarke and Jackson counties (*Appendix A* page 48).

Zone 2 (Bypass Reach)

Table III-F-2. Threatened and Endangered Species Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
<i>F</i>	<i>1</i>	<p>Not Applicable / De Minimis Effect:</p> <ul style="list-style-type: none"> • Document that there are no listed species in the facility area or affected riverine zones downstream of the facility. • If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

Information on threatened and endangered species for Zone 2 is identical to Zone 1 and is treated in detail in the previous section.

Zone 3 (Diversion)

Table III-F-3. Threatened and Endangered Species Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
<i>F</i>	<i>1</i>	Not Applicable / De Minimis Effect: <ul style="list-style-type: none"> • Document that there are no listed species in the facility area or affected riverine zones downstream of the facility. • If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

Information on threatened and endangered species for Zone 2 is identical to Zone 1 and is treated in detail in the previous section.

III.G Cultural and Historic Resources Standards

Zone 1 (Impoundment)

Table III-G-1. Information Required to Support Cultural and Historic Resources Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
<i>G</i>	<i>1</i>	Not Applicable / De Minimis Effect: <ul style="list-style-type: none"> • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility. • Document that the facility construction and operation have not in the past adversely affected any cultural or historic resources that are present on facility lands.

The TSHP area was used for thousands of years before European settlers arrived at the Middle Oconee River. The cultural resources of the project area were studied on lands adjacent to the Project, which have helped develop on overall cultural context for the project area. Although the general project region was dominated by Creek and Cherokee Indians, detailed information indicates a group of European settlers established a community near Tallassee Shoals in 1786 (Oglethorpe Power Corporation, 1982). Historic examination of the area indicates the area was of great agricultural importance to early settlers.

Oglethorpe Power Corporation (1982) conducted a thorough investigation and inventory of cultural resources within the project area during the initial license application. During this investigation, the State

Historic Preservation Office files contained no record of significant sites in the vicinity of the project area, however a number of prehistoric and historic sites in Jackson and Clarke counties were listed in the University of Georgia files and four historic mills, including Puryear's Mill, Princeton Paper Mill, Epps Gin, and Skyes Mill, were listed in Clarke County files, none of which were within the project vicinity. During the archaeological survey of the project area, two small aboriginal sites were found, but no evidence of midden or subsurface features were found at either site and neither was determined to be eligible for listing on the National Register (Oglethorpe Power Corporation, 1982).

Tallassee Shoals dam and powerhouse was one of three turn-of-the-century hydroelectric facilities built in the area. Constructed between 1898 and 1902, the dam and powerhouse was originally built to provide electricity to the electric street railway, but was soon providing power to Athens businesses and residents (Oglethorpe Power Corporation, 1982). Tallassee Shoals represents the beginning of electrical power usage in Athens, therefore the dam and powerhouse complex were judged to be eligible for listing on the National Register at the local level of historic significance (Oglethorpe Power Corporation, 1982).

Presently there are no known potential impacts to historic properties that would result from Tallassee Shoals LLC's proposal to continue operating the TSHP. The GDNr Historic Preservation Division confirmed in a letter dated 05 March 2004 to LIHI (*Appendix B* page xx) that "no historic properties or archaeological resources that are listed or eligible for listing in the National Register will be affected by this undertaking [project]" (LIHI, 2009).

Zone 2 (Bypass Reach)

Table III-G-2. Information Required to Support Cultural and Historic Resources Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
<i>G</i>	<i>1</i>	Not Applicable / De Minimis Effect: <ul style="list-style-type: none"> • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility. • Document that the facility construction and operation have not in the past adversely affected any cultural or historic resources that are present on facility lands.

Same as Zone 1

Zone 3 (Diversion)

Table III-G-3. Information Required to Support Cultural and Historic Resources Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
<i>G</i>	<i>1</i>	Not Applicable / De Minimis Effect: <ul style="list-style-type: none"> • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility. • Document that the facility construction and operation have not in the past adversely affected any cultural or historic

		resources that are present on facility lands.
--	--	---

Same as Zone 1

III.H Information to Support Recreational Resources Standards

Zone 1 (Impoundment)

Table III-H-2. Information to Support Recreational Resources Standards

H	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none"> • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.
---	---	--

Zone 1, the impoundment area, is only accessible through private property or from locations further upstream. In coordination with FERC, public access to waters within the project boundary was best served by providing access to the bypass reach (Zone 2). However public usage of the Impoundment is not restricted except an area within 200 feet of the dam for safety reasons.

Tallassee Shoals, American Whitewater and the Upper Oconee Water Trail are jointly planning to construct a portage path around the West side of the dam if feasible. Our required 70 cfs overflow provides adequate water for canoes; however when we are aware of passage, additional water is released to enhance the experience.

Zone 2 (Bypass Reach)

Table III-H-2. Information to Support Recreational Resources Standards

H	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none"> • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.
---	---	--

Tallassee Shoals provides a small fenced public parking area, a pathway along the Ga Power right of way, and stairs at the steepest decent giving access to the shoals region to fishermen and others who wish to enjoy the river (*Appendix A* page 32). There is light to moderate traffic for fishing, mostly in the spring months, and moderate to heavy traffic of youth groups exploring the river.

Tallassee Shoals is in compliance with all FERC recommendations for public access including filing of the required FERC Form 80 recreation report.

Zone 3 (Diversion)

Table III-H-3. Information to Support Recreational Resources Standards

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none">• Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

The headrace and tailrace are not publically accessible for safety and security reasons. The 500 foot section of the Oconee River after the tailrace/bypass reach confluence is the same as Zone 2.

PART IV Sworn Statement and Waiver

As an Authorized Representative of Walter A. Puryear, 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: Tallassee Shoals LLC

Authorized Representative:

Name: Walter A Puryear

Title: Managing Partner

Authorized Signature: Walter A. Puryear

Date: 18 FEB 2019

PART V Contacts

Applicant related Contacts

Facility Owner:	
Name and Title	Walter A Puryear Chief Operating Officer
Company	Tallassee Shoals LLC
Phone	706 353 1520
Email Address	wpuryear32@gmail.com
Mailing Address	2399 Tallassee Rd Athens, GA 30607
Facility Operator (if different from Owner):	
Name and Title	Same as facility owner
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	None
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Same as facility owner
Company	
Phone	
Email Address	
Mailing Address	
Party responsible for accounts payable:	
Name and Title	Same as facility owner
Company	
Phone	
Email Address	
Mailing Address	

Contacts

Agency Contact (Check areas of responsibility): Flows <u>x</u> , Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation <u>x</u> .	
Agency Name	FERC
Name and Title	Christopher Owen
Phone	678.245.3074
Email address	christopher.owen@ferc.gov
Mailing Address	3700 Crestwood Parkway, Suite 950 Duluth, GA 30096

Agency Contact (Check areas of responsibility): Flows __, Water Quality <u>x</u> , Fish/Wildlife Resources __, Watersheds <u>x</u> , T/E Spp. __, Cultural/Historic Resources __, Recreation __.	
Agency Name	Georgia DNR Environmental Protection Division Watershed Protection Branch
Name and Title	Mike Phipps
Phone	404.651.8461
Email address	mike.phipps@dnr.ga.gov
Mailing Address	2 Martin Luther King Dr Suite 1152 Atlanta, GA 30334

Agency Contact (Check areas of responsibility): Flows __, Water Quality __, Fish/Wildlife Resources <u>x</u> , Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __.	
Agency Name	Georgia DNR Wildlife Resources Division
Name and Title	Chris Nelson
Phone	706.557.3344
Email address	chris.nelson@dnr.ga.gov
Mailing Address	2123 US Hwy 278 SE Social Circle, GA 30025

Agency Contact (Check areas of responsibility): Flows __, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. <u>x</u> , Cultural/Historic Resources __, Recreation __.	
Agency Name	Georgia DNR Wildlife Resources Division
Name and Title	Chris Canalos
Phone	706.557.3225
Email address	chris.canalog@dnr.ga.gov
Mailing Address	2067 US Hwy 178 SE Social Circle, GA 30025

Agency Contact (Check areas of responsibility): Flows __, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation <u>x</u> .	
Agency Name	Georgia DNR Historic Preservation Division
Name and Title	Dr. David Crass
Phone	770.389.7844
Email address	daved.crafts@dnr.ga.gov
Mailing Address	2610 Ga Hwy 155, SW Stockbridge, GA 30281

Non-Governmental Stakeholders

Upper Oconee Watershed Network
Diane Windham
PO Box 531
Athens, GA 30603
info@uown.org
windham.diane@gmail.com

American Whitewater
Alex Harvey
PO Box 1540
Cullowhee, NC 28723
kevin@americanwhitewater.org
ajharvey34@gmail.com

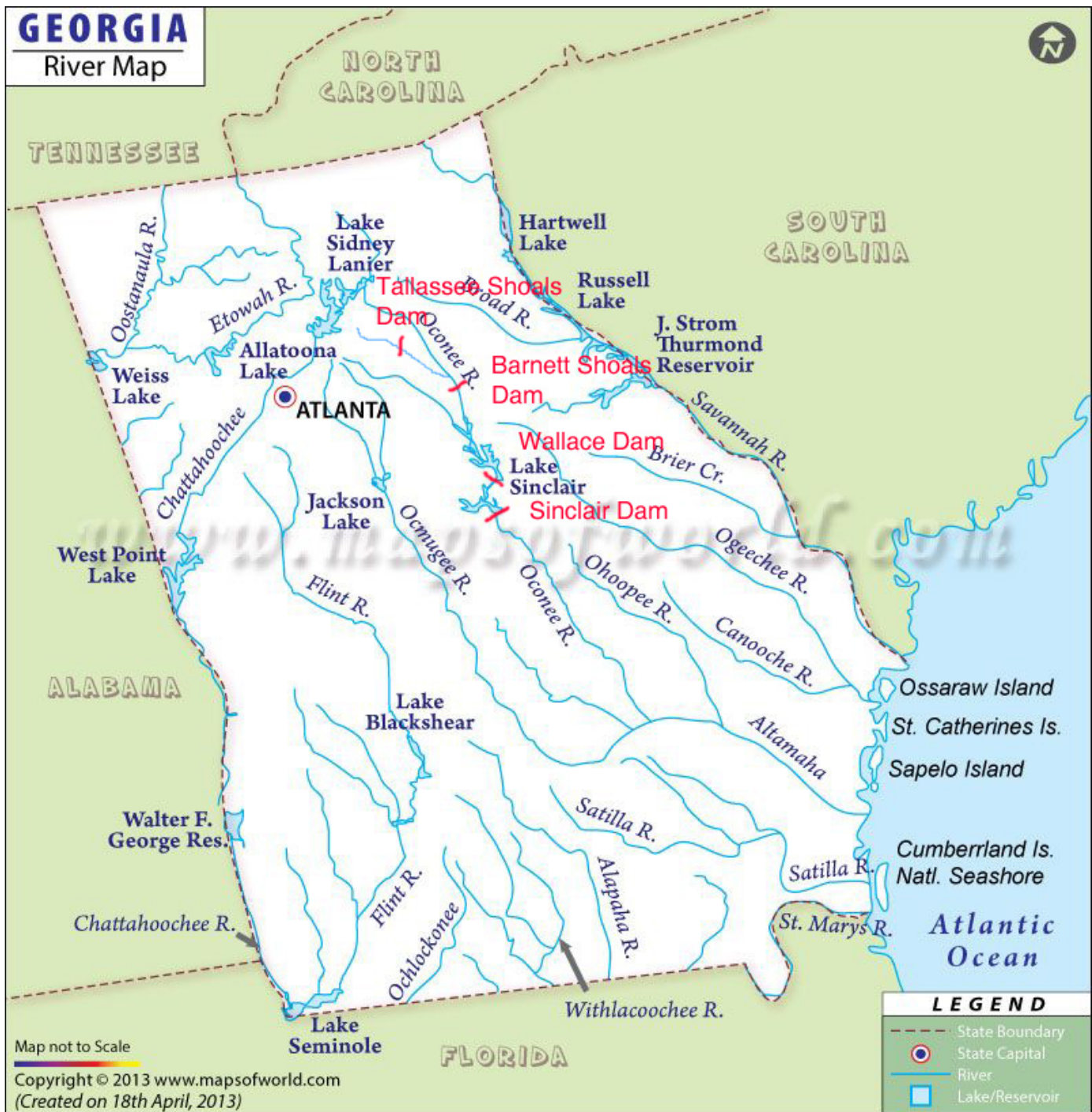
Athens Land Trust
Nancy Stangle
245 Three Oaks Dr.
Athens, GA 30607
nancywstangle@gmail.com

Appendix A

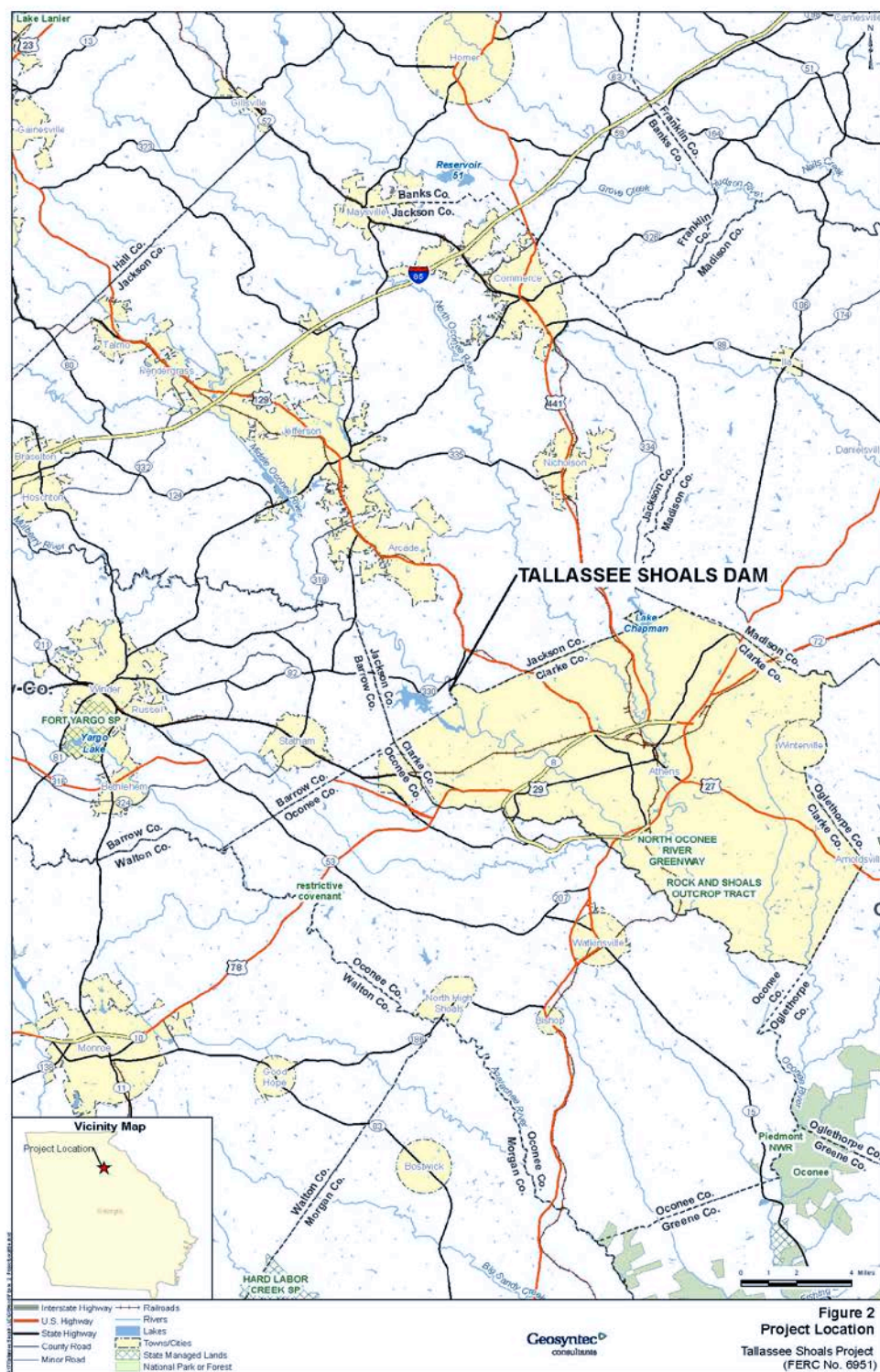
Plant Overview



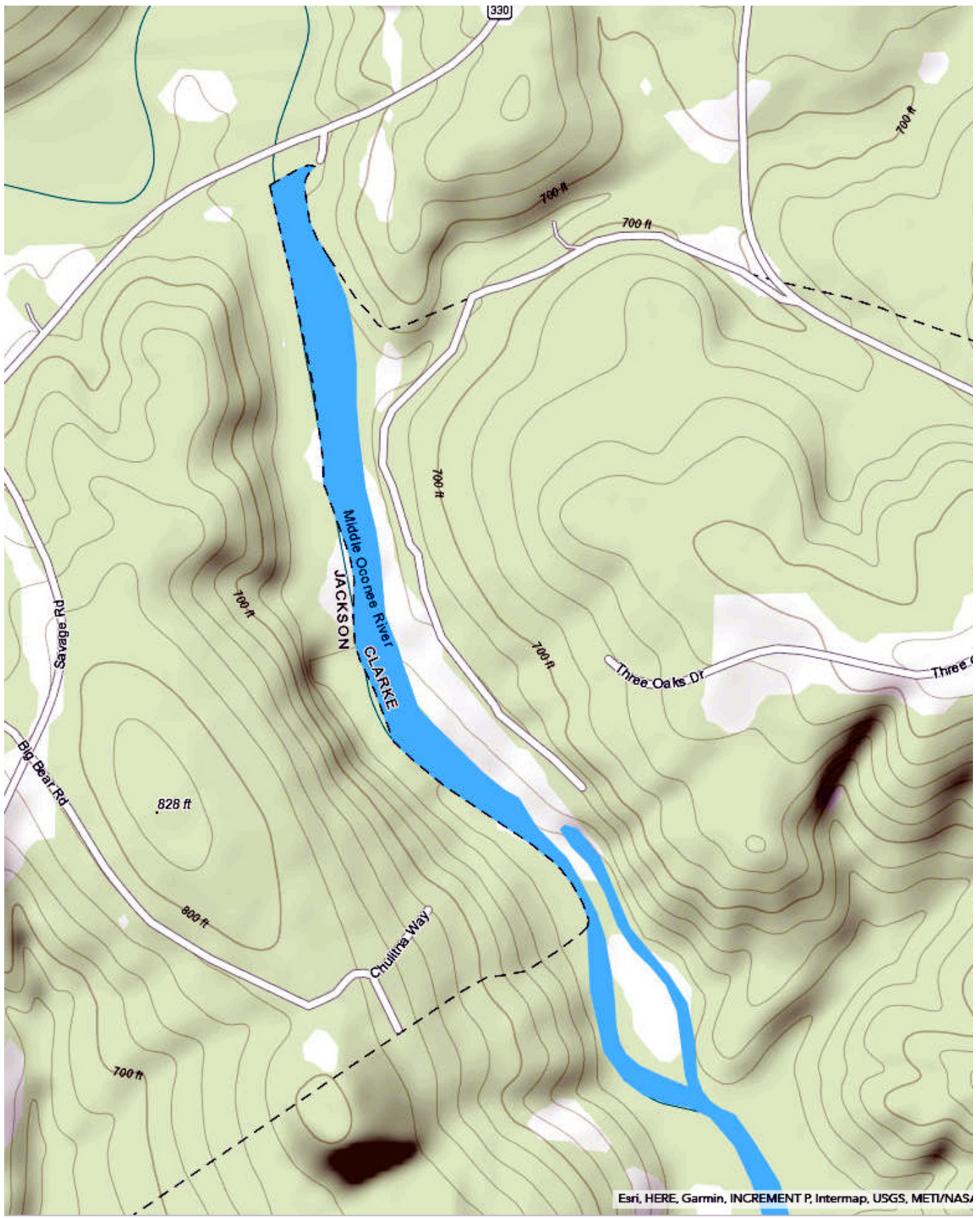
Altamaha Basin Dam Locations



Project Location



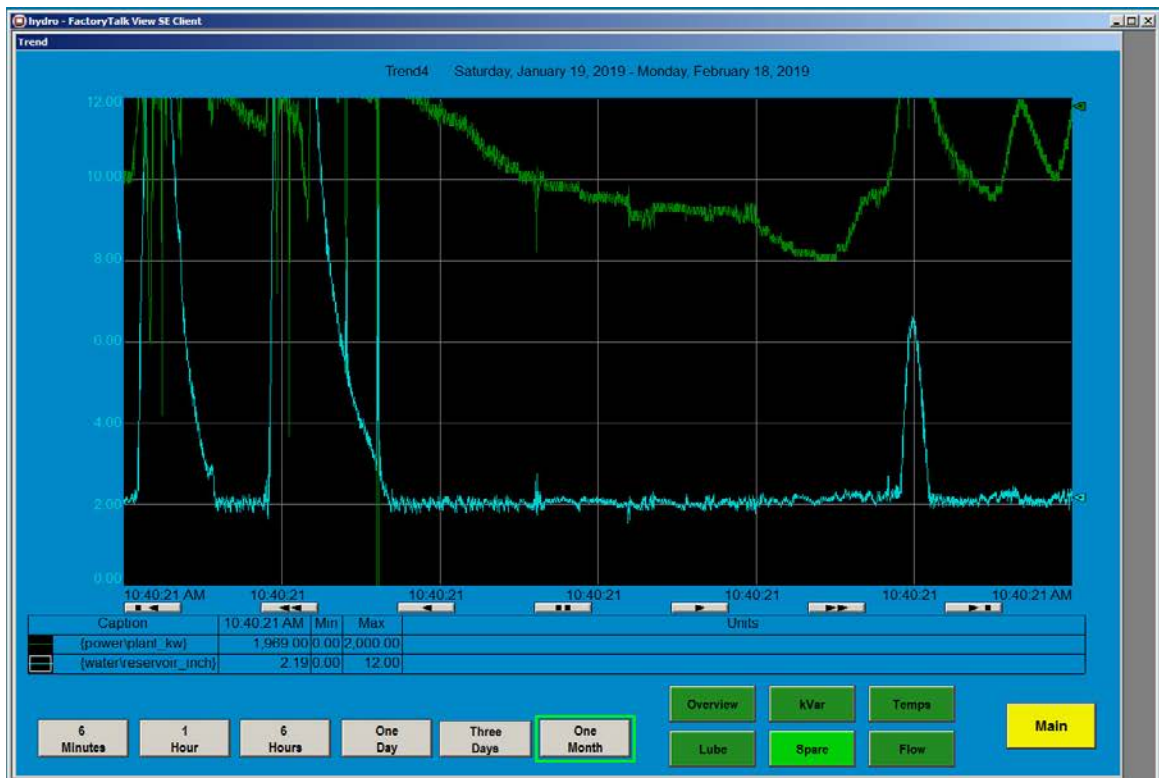
Topographical Map



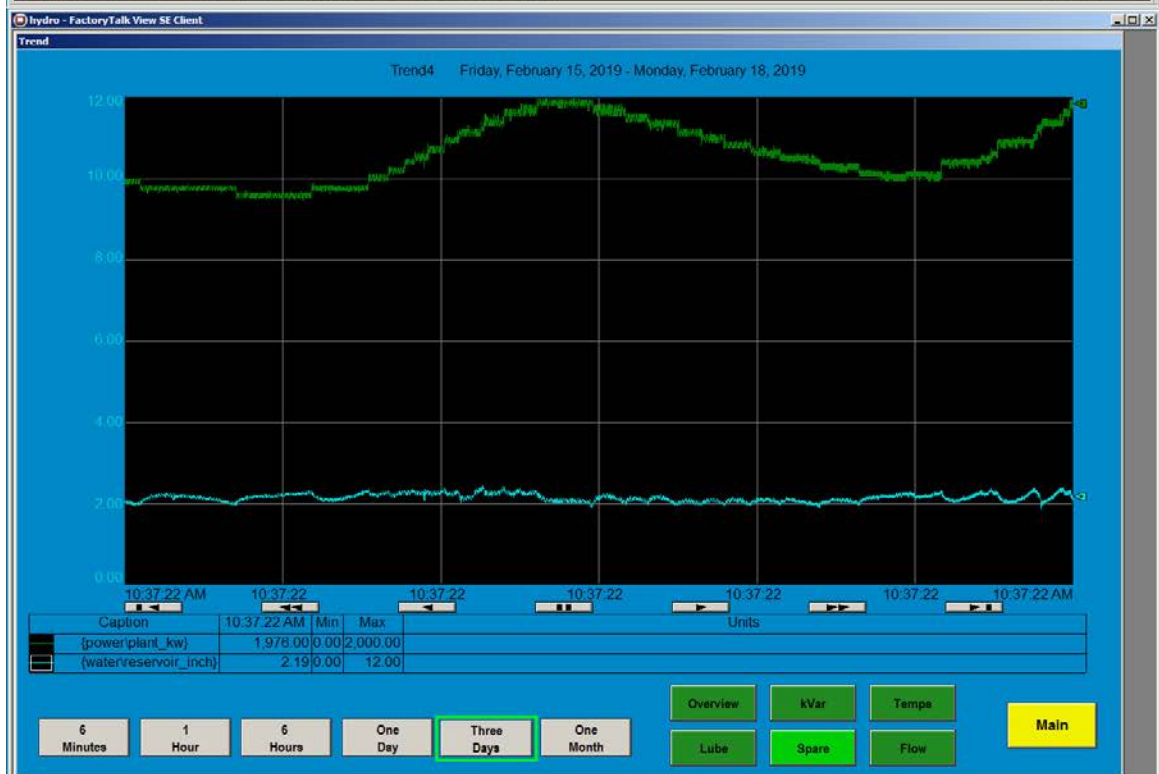
Public Access Map



Bypass Flow 30 day and 3 day period Jan 19 – Feb 18, 2019



VBA Code has been halted. Reason: Run-time error - Unable to process request because of pending historical data load.



VBA Code has been halted. Reason: Run-time error - Unable to process request because of pending historical data load.

Summary of Water Chemistry Data from USGS Station 02217475

(Middle Oconee near Arcade, Ga)

		1994		1996		1999		2000		2004	
Analyte	Units	Count	Average	Count	Average	Count	Average	Count	Average	Count	Average
Alkalinity, total	mg/L	4	22.25	12	19.75	12	26				
Ammonia and ammonium (as N)	mg/L	2	0.025	4	0.1075	12	0.0833				
Ammonia and ammonium (as NH4)	mg/L	2	0.0325	4	0.1385	12	0.1074				
BOD (biological oxygen demand)	mg/L			4	2.125	12	0.8833				
Calcium	mg/L	2	3.9					2	5		
Fecal Coliform	MPN/100 ml			12	3350	16	869.37			16	497.5
Hardness, Ca, Mg	mg/L	2	16.7								
Inorganic nitrogen (nitrate and nitrite)	mg/L	2	0.615	12	0.7975	12	0.7775				
Iron	ug/L	2	320								
Magnesium	mg/L	2	1.7					2	1.95		
Manganese	ug/L	2	45								
Nitrate (as N)	mg/L	3	0.41								
Nitrate (as N03)	mg/L	3	1.811								
Nitrite											
Nitrogen, mixed forms	mg/L	2	0.865								
Organic carbon	mg/L			9	2.4444	12	1.4167				
Organic carbon (dissolved)	mg/L	2	2.1								
Organic carbon (suspended)	mg/L	2	0.45								
Organic Nitrogen	mg/L	2	0.225								
Oxygen (%)	%	2	88.5	12	82.25	20	89.55	2	94.5	16	92.562
Oxygen (mg/L)	mg/L	2	8	12	8.175	20	8.92	2	10.1	16	9.125
pH	std units	4	7.025	24	6.921	32	7.144	2	7.1	16	7.1
Specific conductance	uS/cm	4	61	24	66.083	32	81.063	2	74.5	16	85.25
Temperature, water	deg C	2	19.25	12	15.25	20	15.625	2	12.8	16	16.175
Total suspended solids	mg/L			12	70.417	12	19.75				
Turbidity	NTU			12	44.083	12	13.25				

Summary of Water Chemistry Data from GAEPD Station 0301030709
(Middle Oconee at Mitchell Bridge)

Analyte	Units	2009	
		Count	Average
Alkalinity, total	mg/l CaCO ₃	12	22.31
Ammonia-nitrogen	mg/l	7	0.08
Biochemical oxygen demand, standard conditions	mg/l	6	1.59
Dissolved oxygen (DO)	mg/l	12	9.99
Hardness, Ca, Mg	mg/l	13	24.49
Inorganic nitrogen (nitrate and nitrite)	mg/l	13	0.66
pH	None	12	7.33
Phosphorus	mg/l	13	0.10
Specific conductance	umho/cm	11	85.73
Temperature, water	deg C	12	17.60
Total suspended solids	mg/l	13	84.29
Turbidity	NTU	12	98.28

Fishes Known to Occur in the Vicinity of the Tallassee Shoals Project

Based on Historical and Recent Records

		Project Boundary	Tributaries to Lake Oconee Upstream of Project Boundary				
Family/Scientific Name	Common Name	Middle Oconee River	Mulberry River	Walnut Creek	Allen Creek	Pond Fork	Opossum Creek
MINNOWS:							
<i>Ctenopharyngodon idella</i>	grass carp ^a		x				
<i>Cyprinella callisema</i>	Ocmulgee shiner	x	x	x	x	x	x
<i>Cyprinella xaenura</i>	Altamaha shiner ^b	x	x	x	x	x	x
<i>Cyprinus carpio</i>	common carp ^a	x					
<i>Hybopsis rubrifrons</i>	rosyface chub	x	x	x	x	x	x
<i>Nocomis biguttatus</i>	bluehead chub	x	x	x	x	x	x
<i>Nocomis micropogon</i>	river chub	x					
<i>Notemigonus crysoleucas</i>	golden shiner	x	x				
<i>Notropis hudsonius</i>	spottail shiner	x	x	x	x	x	x
<i>Notropis lutipinnis</i>	yellowfin shiner	x	x	x	x	x	x
SUCKERS:							
<i>Erimyzon oblongus</i>	creek chubsucker		x				
<i>Hypentelium nigricans</i>	northern hog sucker	x	x	x	x	x	x
<i>Moxostoma anisurum</i>	silver redhorse	x					
<i>Moxostoma collapsum</i>	notchlip redhorse	x	x	x	x	x	x
<i>Moxostoma erthrurum</i>	golden redhorse	x					
<i>Moxostoma sp. cf. lachneri</i>	brassy jumprock		x				
NORTH AMERICAN CATFISHES:							
<i>Ameiurus brunneus</i>	snail bullhead	x	x	x	x	x	x
<i>Ameiurus melas</i>	black bullhead	x					

		Project Boundary	Tributaries to Lake Oconee Upstream of Project Boundary				
Family/Scientific Name	Common Name	Middle Oconee River	Mulberry River	Walnut Creek	Allen Creek	Pond Fork	Opossum Creek
<i>Ameiurus natalis</i>	yellow bullhead	x	x				
<i>Ameiurus nebulosus</i>	brown bullhead	x	x				
<i>Ameiurus platycephalus</i>	flat bullhead	x					
<i>Ictalurus punctatus</i>	channel catfish	x	x				
<i>Noturus gyrinus</i>	tadpole madtom	x					
<i>Noturus insignis</i>	marginated madtom	x	x	x	x	x	x
<i>Noturus leptacanthus</i>	speckled madtom	x					
PIKES:							
<i>Esox americanus</i>	redfin pickerel	x	x				
<i>Esox niger</i>	chain pickerel	x	x	x	x	x	x
LIVEBEARERS:							
<i>Gambusia holbrooki</i>	eastern mosquitofish ^c	x	x				
SUNFISHES:							
<i>Centrarchus macropterus</i>	flier	x					
<i>Lepomis auritus</i>	redbreast sunfish	x	x	x	x	x	x
<i>Lepomis cyanellus</i>	green sunfish ^a	x	x	x	x	x	x
<i>Lepomis gulosus</i>	warmouth	x	x				
<i>Lepomis macrochirus</i>	bluegill	x	x	x	x	x	x
<i>Lepomis microlophus</i>	redeer sunfish	x	x				
<i>Micropterus punctulatus</i>	spotted bass	x					
<i>Micropterus salmoides</i>	largemouth bass	x	x	x	x	x	x
<i>Micropterus sp. cf. coosae</i>	redeye bass	x					
<i>Pomoxis nigromaculatus</i>	black crappie	x	x				
PERCHES:							
<i>Etheostoma</i>	turquoise darter	x	x	x	x	x	x

		Project Boundary	Tributaries to Lake Oconee Upstream of Project Boundary				
Family/Scientific Name	Common Name	Middle Oconee River	Mulberry River	Walnut Creek	Allen Creek	Pond Fork	Opossum Creek
<i>inscriptum</i>							
<i>Pecina nigrofasciata</i>	blackbanded darter	x					
Estimated Number of Taxa^d		37	28	16	16	16	
Data Sources^e		1,2	1	1	1	1	1

^a Introduced, non-native to the Altamaha River basin (Lee et al., 1980).

^b Altamaha shiner is Georgia state-listed as “threatened.”

^c Western mosquitofish (*Gambusia affinis*) may also have been introduced in the basin.

^d Total excludes hybrids.

^e Data sources:

1 = Fishes of Georgia website; includes historical and recent documented occurrences (Straight et al., 2009)

2 = Original License Application Fisheries Study (Oglethorpe Power Corporation, 1982)

Rare, Threatened, and Endangered Species with Know Records of Occurrence in Project Vicinity

Scientific Name	Common Name	Federal Status ^b	Georgia Status ^c	Global Rank ^d	Habitat ^e	County
PLANTS:						
<i>Amphianthus pusillus</i>	Pool sprite	LT	T	G2	Shallow, flat-bottomed depressions (solution pits, vernal pools) on granite outcrops, with thin gravelly soils and winter-spring inundation.	Jackson
<i>Isoetes melanospora</i>	Black-spored quillwort	LE	E	G1	Shallow, temporarily flooded, flat-bottomed pools formed by natural erosion on granite outcrops.	Jackson
<i>Isoetes tegetiformans</i>	Mat-forming quillwort	LE	E	G1	Shallow pools formed by natural erosion on granite outcrops.	Jackson
<i>Draba aprica</i>	Sun-loving draba		E	G3	Shallow soils on and near granite outcrops and near edges of eastern red cedar stands.	Clarke
<i>Nestonia umbellula</i>	Indian olive		R	G4	Dry, open, upland woods with mixed hardwood-pine canopy.	Clarke
<i>Veratrum woodii</i>	Ozark bunchflower		R	G5	Slopes and stream terraces in moist, hardwood forests; typically over basic soils.	Jackson
<i>Cypripedium acaule</i>	Pink ladyslipper			G5	Upland pine and mixed pine-hardwood forests with acidic soils; in the mountains, near edges of rhododendron thickets and mountain bogs.	Clarke
<i>Symphyotrichum georgianum</i>	Georgia aster		T	G3	Edges and openings in rocky, upland oak-hickory-pine forests and rights-of-way through these forests; typically with circumneutral soils.	Clarke
<i>Eriocaulon koernickianum</i>	Dwarf hatpins		E	G2	Seepage areas and wet depressions on granite outcrops, often with horned bladderwort.	Clarke
<i>Veratrum hybridum</i>	Broadleaf Bunchflower			G5	Mesic deciduous hardwood forests in shady habitats.	Clarke
<i>Anemone berlandieri</i>	Glade Windflower			G4?	Edges of Piedmont granite outcrops and openings in upland forests in the Coastal Plain and lower Piedmont.	Clarke
<i>Carex hystericina</i>	Porcupine Sedge			G5	Wet areas including spring runs, wet meadows, lake and pond shores, ditches, marshes, and edges of bogs and swamps; typically over calcareous soils.	Clarke
<i>Corydalis flavula</i>	Yellow Harlequin			G5	Floodplains and rocky mafic slopes under relatively open forest canopy.	Clarke
<i>Sedum pusillum</i>	Granite stonecrop		T	G3	Granite outcrops, usually in mats of moss beneath cedar trees	Clarke
<i>Silene ovata</i>	Mountain		R	G3	Rich, deciduous forests over limestone or amphibolite in the	Clarke

Scientific Name	Common Name	Federal Status ^b	Georgia Status ^c	Global Rank ^d	Habitat ^e	County
	catchfly				Coastal Plain and in Fall Line Ravines.	
FISH:						
<i>Cyprinella xanura</i>	Altamaha shiner		T	G2G3	Small tributaries and rivers; often found in small pools with rocky to sandy substrates.	Clarke, Jackson
<i>Micropterus</i> sp. "Altamaha"	Altamaha bass			GNR	Rocky riffles and pools of creeks and small to medium rivers; shoal areas of rivers and creeks.	Clarke, Jackson
<i>Moxostoma</i> sp. 4	Brassy jumprock			G4	Silty to rocky pools and slow runs of large creeks; small to medium rivers; impoundments.	Clarke
AMPHIBIANS:						
<i>Hemidactylium scutatum</i>	Four-toed salamander			G5	Under objects or among mosses in swamps, boggy streams, and wet areas near quiet pools.	Jackson
REPTILE:						
<i>Lampropeltis calligaster rhombomaculata</i>	Mole kingsnake			G5T5	Areas of soft soil, including abandoned or cultivated fields; adept burrowers and rarely encountered aboveground.	Clarke, Jackson
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard			G5	Swamps; boggy streams and ponds; hardwood forests.	Jackson
BIRDS:						
<i>Tyto alba</i>	Barn owl			G5	Nests in large hollow trees or old barns in areas with pasture, grassland, or open marsh.	Clarke, Jackson
MAMMAL:						
<i>Myotis grisescens</i>	Gray Myotis	LE	E	G4	Caves with flowing water or with large creeks or waterbodies nearby; sometime in storm sewers and artificial caves.	Clarke
<i>Spilogale putorius</i>	Eastern Spotted Skunk			G4	Brushy, rocky, wooded habitats; prefers dense cover like fencerows, embankments, and gullies.	Clarke, Jackson
<i>Myotis austroriparius</i>	Southeastern Myotis			G4	Buildings and other structures, mines, and hollow trees for spring and summer roosts; also found in small number of caves in Georgia.	Clarke
<i>Condylura cristata</i>	Star-nosed Mole			G5	Moist meadows, woods, and swamps.	Clarke, Jackson
<i>Perimyotis subflavus</i>	Tri-colored bat			G2G3	Forested landscapes and along waterways; foraging occurs in riparian areas and roosting occurs near openings.	Clarke, Jackson
Sources:						

Scientific Name	Common Name	Federal Status ^b	Georgia Status ^c	Global Rank ^d	Habitat ^e	County
^a This list is for rare species with known element of occurrence records in Hancock, Greene, Morgan, and/or Putnam Counties, Georgia.						
^b Federal status: LE = listed endangered; LT = listed threatened.						
^c Georgia state status: E = Georgia endangered; T = Georgia threatened; R = Georgia Rare; U = Georgia unusual.						
^d Global ranks: G1 = critically imperiled, at very high risk of extinction due to extreme rarity; G2 = imperiled, at high risk of extinction due to very restricted range; G3 = vulnerable, at moderate risk of extinction due to restricted range; G4 = apparently secure, uncommon but not rare; G5 = secure – common, widespread, abundant; ? = denotes inexact numeric rank.						
^e Habitat descriptions from GDNR (2013), Chafin (2007), NatureServe (2017)						

Appendix B

Georgia Department of Natural Resources

Lonice C. Barrett, Commissioner

Historic Preservation Division

W. Ray Luce, Division Director and Deputy State Historic Preservation Officer
156 Trinity Avenue, S.W., Suite 101, Atlanta, Georgia 30303-3600
Telephone (404) 656-2840 Fax (404) 657-1040 <http://www.gashpo.org>

MEMORANDUM

TO: Robert A. Davis
Project Manager
Fall Line Hydro Company, Inc.
390 Timber Laurel Lane
Lawrenceville, Georgia 30043

FROM: Serena G. Bellew SGB
Environmental Review Coordinator
Historic Preservation Division

RE: **Finding of "No Historic Properties Affected"**

PROJECT: **Tallassee Shoals Hydroelectric Plant, FERC NO. 6951**
Federal Agency: FERC
HP 040217-008

COUNTIES: **Clarke and Jackson Counties, Georgia**

DATE: March 5, 2004

The Historic Preservation Division has reviewed the information received concerning the above-referenced project. Our comments are offered to assist federal agencies and project applicants in complying with the provisions of Section 106 of the National Historic Preservation Act.

Based on the information submitted, HPD has determined that no historic properties or archaeological resources that are listed in or eligible for listing in the National Register of Historic Places will be affected by this undertaking. Please note that historic and/or archaeological resources may be located within the project's area of potential effect (APE), however, at this time it has been determined that they will not be impacted by the above-referenced project. Furthermore, any changes to this project as proposed will require further review by our office for compliance with the Section 106 process.

If we may be of further assistance contact me at (404) 651-6624. Please refer to the project number assigned above in any future correspondence regarding this project.

SGB:mcv

cc: Burke Walker, Northeast Georgia RDC



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

247 South Milledge Avenue
Athens, Georgia 30605

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4270 Norwich Street
Brunswick, Georgia 31520

APR 02 2004

Mr. Robert Davis
Fall Line Hydro Company Incorporated
390 Timber Laurel Lane
Lawrenceville, GA 30043

Re: Tallassee Shoals Hydroelectric Project, FERC # 6951
FWS Log No. NG-04-277-FERC

Dear Sir:

The U.S. Fish and Wildlife Service (Service) has reviewed your February 9, 2004, request regarding the Tallassee Shoals Hydroelectric Project (TSHP). Fall Line Hydro Company, Inc., the licensee of the TSHP, requested comments on March 31, 2004 from the Service regarding the eligibility of this project for certification as a "Low Impact Hydroelectric Facility" by the Low Impact Hydro Institute (LIHI). The LIHI is a non-governmental, non-profit organization. Certification would allow electricity produced by the facility to be marketed and sold as "green power." The project is located on the Middle Oconee River in Clarke and Jackson Counties, Georgia. We submit the following comments and recommendations under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), and the Federal Power Act (16 U.S.C. 791a, *et seq.*).

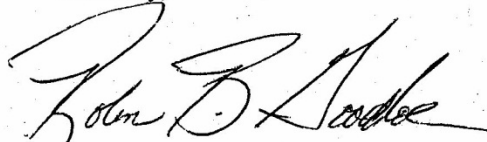
Your February 9, 2004, letter requests our comments concerning minimum flow rates, threatened and endangered species, and the presence (or non-presence) of migrating fish in the project area. There are no federally-listed aquatic species in the project area. Additionally, it seems that several dams downstream of the TSHP serve as present-day barriers to upstream passage of migratory fish species. The American eel (*Anguilla rostrata*) is a migratory species that in many cases can eventually achieve passage past hydroelectric facilities, although passage is not safe, timely, or effective. American eel occupy a diversity of habitats, including headwater streams (Helfman, Bozeman, and Brothers, 1984), and are able to reach the extreme upper portions of river systems (ASMFC, 1999). We are not aware of post-construction location records for American eel or any other diadromous fish species above a series of large hydroelectric facilities that are located downstream of the project (Sinclair and Wallace Dam Projects), and it is thought that these dams and associated large reservoirs are serving as a barrier to American eel upstream migration (Freeman and Marcinek, 2002; John Biagi, GDNr, 2004, pers. comm.).

Our office does not have a file on the TSHP, and therefore we have limited information on minimum flow violations and protectiveness of these flows on downstream resources. All of the following information was obtained from electronic documents accessible through the Federal Energy Regulatory Commission's (FERC) website. However, many documents are not of public domain because they contain confidential critical energy infrastructure information. In addition, electronic documents pertaining to TSHP on FERC's website cannot be accessed prior to 1995. Therefore, as stated before, our knowledge is limited.

In the October 24, 1983, TSHP license, Article 29 provides for a permanent minimum flow release of 70 cubic feet per second (cfs) from the project dam; an interim release of 138 cfs as measured below the project tailrace during the month of May; and a minimum flow study to assess the relationship between streamflows and available aquatic habitat below the project. The study results were meant to provide the basis for further instream flow negotiations between the licensee at that time, Oglethorpe Power Corporation (OPC), and the resource agencies. In the FERC's August 20, 1990, Order Denying Request To Amend Article 29, FERC states that the licensee submitted a May 21, 1984, minimum flow study report, and requested the minimum flow requirement be reduced to 53 cfs. In a September 18, 1989, letter, the Service disagreed with the licensee, and stated the data from the study did not support the licensee's request to amend the minimum flows. After reviewing the variable study conditions in the licensee's study plan that resulted in variable fish capture efficiency, and the October 24, 1983, license conditions, FERC denied the licensee's request to amend Article 29, and ordered the original license requirements to stay in effect due to a lack of data. By accessing FERC's electronic documents, the Service is aware of one minimum flow requirement violation reported to FERC by OPC in a December 15, 1997 Flow Report. The flow was 30-40 cfs for a duration of 39 minutes.

We appreciate the opportunity to comment on this project. If you have any questions, please contact staff biologist Alice Palmer at (706) 613-9493 ext. 22.

Sincerely,



Sandra S. Tucker
Field Supervisor

cc: file
Magalie R. Salas, FERC, Washington, DC
Fred Air, LIHI, Portland, ME
John Biagi, GDNR, Social Circle, GA
Sue Cielinski, USFWS, Atlanta, GA
Prescott Brownell, NMFS, Charleston, SC



United States Department of the Interior
Fish and Wildlife Service
105 West Park Drive, Suite D
Athens, Georgia 30606

West Georgia Sub Office
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Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Dr.
Townsend, Georgia 31331

May 29, 2014

Ms. Dana Hall, Deputy Director
Low Impact Hydropower Institute
P.O. Box 194
Harrington Park, New Jersey 07640

Re: Tallassee Shoals Hydroelectric Project, FERC # 6951
FWS Log No. 41460-2009-FA-0731

Dear Ms. Hall:

The U.S. Fish and Wildlife Service (Service) has reviewed your April 14, 2014, request for comments regarding the eligibility of the Tallassee Shoals Hydropower Project (TSHP) for re-certification as a "Low Impact Hydroelectric Facility" by the Low Impact Hydro Institute (LIHI). The LIHI is a non-governmental, non-profit organization. Certification would allow electricity produced by the facility to be marketed and sold as "green power." The project is located on the Middle Oconee River in Clarke and Jackson Counties, Georgia. We provide comments that address three of your eight criteria for LIHI certification: 1) river flows, 2) fish passage and protection, and 3) threatened and endangered species protection. We submit the following comments and recommendations under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), and the Federal Power Act (16 U.S.C. 791a, *et seq.*).

River Flows

In the October 24, 1983, TSHP license, Article 29 provides for a permanent minimum flow release of 70 cubic feet per second (cfs) from the project dam; an interim release of 138 cfs as measured below the project tailrace during the month of May; and a minimum flow study to assess the relationship between streamflows and available aquatic habitat below the project. The study results were meant to provide the basis for further instream flow negotiations between the licensee at that time, Oglethorpe Power Corporation (OPC), and the resource agencies. In the Federal Energy Regulatory Commission (FERC)'s August 20, 1990, Order Denying Request To Amend Article 29, FERC states that the licensee submitted a May 21, 1984, minimum flow study report, and requested the minimum flow requirement be reduced to 53 cfs. In a September 18, 1989, letter, the Service disagreed with the licensee, and stated the data from the study did not support the licensee's request to amend the minimum flows. After reviewing the variable study conditions in the licensee's study plan that resulted in variable fish capture efficiency, and the October 24, 1983, license conditions, FERC denied the licensee's request to amend Article 29,

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and ordered the original license requirements to stay in effect due to a lack of data.

The Service does not have a copy of the 1984 minimum flow study, nor do we have new information available to evaluate if the licensee is meeting their instream flow requirements. The closest United States Geological Survey (USGS) gage is 9 miles downstream (USGS Gage 02217500, Middle Oconee River near Athens, Georgia); flows at the gage encompass tributary inflow between the TSHP and the USGS gage and are not an accurate estimator of TSHP releases. For the project to be re-certified, we recommend the applicant provide documentation to LIHI regarding how minimum flows are calculated at the TSHP as well as records of their compliance with those minimum flows. As stated above, we do not have a copy of the 1984 flow study and cannot comment on the protectiveness of minimum flow requirements on downstream aquatic resources.

Fish Passage and Protection

Several dams downstream of the TSHP serve as present-day barriers to upstream passage of migratory fish species. We are not aware of post-construction location records for diadromous fish species above a series of hydroelectric facilities that are located downstream of the project. Native populations of American shad (*Alosa sapidissima*), American eel (*Anguilla rostrata*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and striped bass (*Morone saxatilis*) are currently located below Sinclair Dam. Striped bass are also stocked in Lake Oconee, formed by Wallace Dam, but their upstream spawning migrations are limited by Barnett Shoals Dam, which is located downstream of TSHP. The robust redhorse (*Moxostoma robustum*), a Federal species of concern and a State-endangered species, is currently located below Sinclair Dam between Milledgeville and Dublin, Georgia. A small population may also be present in the Little River, below Wallace Dam.

The Service, along with the Georgia Department of Natural Resources and the National Marine Fisheries Service, has developed an American Shad Management Plan for the Altamaha River Basin, Georgia (GDNR, NMFS, and USFWS 2013). Likewise, the Robust Redhorse Conservation Committee (RRCC), of which the Service is a member, has developed a Robust Redhorse Management Plan for the Oconee River (RRCC Oconee TWG 2010). While the robust redhorse and American shad are not currently in the project area but likely could have been in the area historically, future recovery activities may include reintroducing these species to the Oconee River drainage above Wallace Dam. If the project is re-certified, we recommend the applicant continue to submit documentation relating to the status of the robust redhorse and American shad recovery activities as they may or may not affect the facility.

Threatened and Endangered Species Protection

The Service would not expect the continuing operations of this existing project to affect federally-listed species in Clarke and Jackson Counties, Georgia. The State-threatened Altamaha shiner (*Cyprinella xaenura*) is found in the Middle Oconee River, both above and below the TSHP. The Service has been petitioned to list this species and the robust redhorse under the ESA, and has issued a positive 90-day finding stating that a status review is warranted (76 FR 59836).

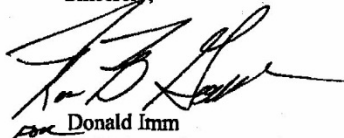
The TSHP and other reservoirs have cumulatively contributed to elimination of riverine habitat, fragmentation of habitat and aquatic populations, and/or altered flows. As such, riverine species including the Altamaha shiner are at greater risk. We reiterate the need for LIHI to verify compliance with the FERC minimum flow requirements at this facility.

Summary

In summary, we are not able to evaluate the protectiveness of instream flows for aquatic resources at the TSHP. Although migratory fishes including as the American shad, American eel, and robust redhorse likely were present in the project area historically, they are blocked from currently reaching the TSHP by several hydropower projects located downstream. Lastly, the Service would not expect the continuing operations of this existing project to affect federally-listed species in Clarke and Jackson Counties, Georgia.

We appreciate the opportunity to comment on this project. If you have any questions, please contact staff biologist Alice Lawrence at (706) 613-9493 ext. 222.

Sincerely,



Donald Imm
Field Supervisor

cc: file

Kimberly D. Bose, FERC, Washington, DC
Thom Litts, GDNR, Social Circle, GA
Chris Nelson, GDNR, Social Circle, GA
Jimmy Evans, GDNR, Fort Valley, GA

References

Georgia Department of Natural Resources, National Marine Fisheries Service, and United States Fish and Wildlife Service. 2013. Priority Restoration and Management Actions for the American shad in the Altamaha River Basin, Georgia. 32 pp.

Robust Redhorse Conservation Committee Oconee River Technical Working Group. 2010. Management Plan for the Oconee River Robust Redhorse Population. 22 pp.

United States Fish and Wildlife Service. 2011. Endangered and threatened wildlife and plants; partial 90-day finding on a petition to list 404 species in the southeastern United States as endangered or threatened with critical habitat; proposed rule. September 27, 2011. Federal Register 76 (187): 59836-59862.

Georgia Department of Natural Resources

Environmental Protection Division, Water Protection Branch
4220 International Parkway, Suite 101, Atlanta, Georgia 30354
Water Protection Branch
404/675-6232
FAX: 404/675-6245

March 25, 2004

Mr. Robert A. Davis
Project Manager
Fall Line Hydro Company, Inc.

Re: Tallassee Shoals Hydroelectric Plant
FERC Project No. 6951
Clarke/Jackson Counties

Dear Mr. Davis:

The Georgia Environmental Protection Division (EPD) has reviewed your request to provide comment regarding operational compliance of the referenced FERC licensed facility.

In reply to your request, EPD provides the following comments:

B.1.b)

The river reach of the Middle Oconee River is designated as "Fishing" in the Georgia Water Quality Rules and Regulations. Operation of the facility does not require the FERC licensee to obtain a NPDES from the Georgia EPD. The facility is operated within the parameters dictated in the FERC permit and therefore meets necessary water quality standards and provides adequate flows to support and protect aquatic species downstream.

B.2)

The project lies within a river reach of the Middle Oconee River that has been identified as failing to meet water quality standards for fecal coliform bacteria and is subsequently listed for noncompliance pursuant to Section 303(d) of the Federal Clean Water Act.

B.3)

The existence and operation of the FERC licensed hydropower facility is not a cause, nor does it contribute to the determination of noncompliance of water quality standards.

References

- Chafin, L.G. 2007. Field Guide to the rare plants of Georgia. State Botanical Garden of Georgia and University of Georgia Press, Athens.
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- Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer Jr., eds. 1980 et seq. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, Raleigh. X+854 pp.
- Low Impact Hydropower Institute. 2009. Application review LIHI re-certification: Tallassee Shoals Hydroelectric Project (GA).
- Oglethorpe Power Corporation. 1982. Application for license for a major water power project, 5 megawatts or less; Tallassee Shoals Hydro Project.
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