Proposal for Information Collection
Plant Scholz

Submitted in Compliance with
Section 316 (b) Phase II Rules

40 CFR Part 125.95(b)(1)

Submitted to:

Florida Department of Environmental Protection

Submitted By:

Gulf Power Company

GULF POWER
A SOUTHERN COMPANY

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List of Abbreviations and Acronyms

CDS	Comprehensive Demonstration Study
CFR	Code of Federal Regulations
CWIS	cooling water intake structure
FDEP	Florida Department of Environmental Protection
IM&E	impingement and entrainment
MACTEC	MACTEC Engineering and Consulting, Inc.
mm	millimeter
PIC	Proposal for Information Collection
QA/QC	Quality Assurance/Quality Control
RIS	representative important species

1.0 INTRODUCTION

1.1 Project Background and Description

Gulf Power is an investor owned electric utility with all common stock owned by Southern Company. The service area is bordered on the North and West by Alabama, the Apalachicola River on the East and the Gulf of Mexico to the South.

The Scholz Electric Generating Center is located on the Apalachicola River 3.5 miles downstream of the Jim Woodruff Lock and Dam near Chattahoochee, Florida. The plant has a 98 MW capacity and a once-through cooling system. It is operating as a peaking plant. The plant's Intake consists of a ~1000 foot long canal cut between the plant and the river. The canal is 31 feet deep with 2.5:1 slopes and is angled slightly upstream. The canal extends into the river channel and is cut slightly deeper than the river channel depth. There are 2 generating units which are fed by 4 continuously operating intake pumps which withdraw water at 191 cfs. Each intake unit has its own bar rack and screens.

1.2 Applicable Performance Standards

Gulf Power's Plant Scholz is located on a non-tidal portion of Apalachicola River. Given its setting, the plant is obligated to meet only the impingement mortality reduction performance standards. Consequently, the performance standards of 40 CFR Section 125.94(b)(1) is considered to be applicable. Accordingly, at Plant Scholz Gulf Power is obligated to demonstrate that it has or will reduce impingement mortality between 80 to 95 percent of calculation baseline.

As per results of a 1970's 316(b) study, it is believed that during low flow this plant withdraws a maximum of 1.7% of the river volume for its cooling water. Because this plant is freshwater, located above any tidal influence, and does not withdraw greater than 5% of the mean annual flow, Gulf Power believes that additional entrainment reduction requirements do not apply.

1.3 Purpose of this Document

In response to the new Section 316(b) rules in 40 Code of Federal Regulations (CFR) Part 125.95(b)(1), Gulf Power has prepared this Proposal for Information Collection (PIC). The objective of this PIC is to inform FDEP as to Gulf Power's intended approach to the Comprehensive Demonstration Study, provide a review of available information specific to Plant Scholz, and provide details of Gulf Power's proposed sampling plan. Specific elements of the PIC as required in the rules include the following:

- ✓ Description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Comprehensive Demonstration Study (CDS);
- ✓ A list and description of historical studies characterizing impingement and entrainment (IM&E) and/or physical and biological conditions in the vicinity of the CWIS and their relevance to the Study.
- ✓ A summary of past or ongoing consultation with federal, state, and Tribal fish and wildlife agencies and their relevance to the Study; and
- ✓ A sampling plan for any new field studies proposed to estimate IM&E rates at the site.

Each of the following sections corresponds to required elements of the Proposal for Information Collection.

2.0 DESCRIPTION OF TECHNOLOGIES AND MEASURES TO BE EVALUATED

2.1 IM Technologies in Place

Plant Scholz's intake canal is narrow and at a right angle to the swiftly moving river. Although fish are known to use the canal as nursery habitat, the channelized canal is poorer habitat than the open river, thus indicating that any impingement which may occur does so at lower levels than would occur if the intake were cited in the open river (see Figure 2-1).

Each of the two generating units has its own bar rack and traveling screen. Each screen has a spray for cleaning, but no fish return system.

Scholz Intake Canal

2.2 Description of Technologies and/or Supplemental Restoration Measures to be Evaluated

Entrainment: Plant Scholz is located on a fresh water river and that the intake flow is less than 5 percent of the average annual mean flow. Therefore, Gulf Power believes that entrainment standards do not apply.

Impingement Mortality: If impingement mortality is applicable, Gulf Power will evaluate compliance Alternatives 2, 3, 4 and 5 to comply with the impingement mortality standard. Alternatives to be considered include expanding the existing screens to increase width or modify the design to incorporate a double entry design. Fish return systems would be included, or alternatively to provide restoration measures to offset loss of fishery. If cost effective, pre-approved technologies may be proposed. If impingement morality is low, a cost benefit test may be applied to determine a site specific BTA.

A variety of successful restoration projects have been sponsored by Gulf Power in recent years. These will be evaluated for possible restoration crediting, and additional projects will be similarly evaluated. The emphasis on restoration evaluations will be on permanent, rather than recurring, habitat restorations and/or water quality improvements.

3.0 HISTORICAL STUDIES

Gulf Power has initiated the literature review portion of the project in an effort to properly understand the physical and biological characteristics of the source water body and develop appropriate sampling methodologies. Results of this review are presented in Appendix A.

According to the Florida Fish and Wildlife Conservation Commission, the Upper Apalachicola River/Lake Seminole is the number one area in the state for *Morone* (striped bass, sunshine bass, etc) fishing. From this it can be concluded that the impacts on these fisheries due to Gulf Power operations is negligible. These historical studies also allow for the summary of taxonomic identifications and characterizations of all life stages of fish and shellfish known to occur in the vicinity of Plant Scholz CWIS.

3.1 Previous Impingement Mortality Studies

A 1970's evaluation of entrainment and impingement potential concluded that these were probably unimportant at this site based upon a literature review of the life history characteristics of fish in the system (and inference that the intake canal would provide poor habitat for them), the low velocity in the intake channel, and the siting of the intake itself which discourages fish from entering the canal. (The intake canal joins the river at approximately a right angle to the river channel but angled slightly upstream.)

Entrainment mortality was estimated to be (worst case) 2.2% of fish production based upon mass-balance calculations of river water passing through the plant. In that study impingement was also considered and assumed to be insignificant since velocities in the intake channel are lower than the EPA criteria of 0.5 fps.

Plant personnel responsible for cleaning the intake screens indicate that fish impingement is almost never observed. The screens require infrequent cleaning, and then mostly due to accumulation of deciduous leaves.

3.2 Representativeness

Prior impingement characterization has been qualitative because during the initial studies both the regulatory reviewers and Gulf Power agreed that impingement at Plant Scholz was *de minimus*. Conditions have not changed, and thus, impacts due to impingement remain *de minimus*. Figure 5-2 shows mean daily average river levels for the Apalachicola River in 2004 and 2005. Mean river levels are consistently above 40 ft (MSL) throughout the year and velocities at the intake channel are lower than 0.5 fps. Gulf Power is prepared to provide records to more formally quantify this conclusion.

Information contained in the sources listed in Appendix A allows for the characterization of fishery populations in the Upper Apalachicola River surrounding Plant Scholz. Several different resources were utilized to ensure an accurate representation of the fishery. Additionally, the resources provide information relative to fish distribution, habitat, and physical characteristics of the water body. Therefore, the resources provide representative information with respect to taxonomic presence of fish within the Upper Apalachicola River and vicinity of Plant Scholz. Gulf Power believes that the data available in the resources are representative of current conditions in the river and may be relied upon to characterize the biological conditions of the river.

3.3 Quality Assurance/Quality Control

Calculations for the IM&E study calculations were based upon observational data from the plant, actual river flow and plant operating data, and literature values for biological aspects. The majority of the information reported in Appendix A was documented from the U.S. Fish and Wildlife Service, The Fish and Wildlife Research Institute, Florida Fish and

Wildlife Conservation Commission, and the Florida Game and Fresh Water Fish Commission. The Federal and State agencies follow internal Quality Assurance/Quality Control (QA/QC) measures.

4.0 SUMMARY OF CONSULTATIONS

A variety of protected species are anticipated to occur within the upper Apalachicola River environment (Table 4-1). Prior relevant studies for Plant Scholz have concluded that these protected species have not been adversely affected by the facility and its operation.

Gulf Power has had no agency consultations associated with this plant.

Table 4-1. Protected Species in the Vicinity of Plant Scholz from Florida Natural Areas Inventory for Gadsen and Jackson Counties

Common Name	Scientific name
Fish	
Alligator gar	*Atractosteus spatula*
Apalachicola Redhorse	*Moxostoma sp.*
Bandfin Shiner	*Luxilus zonistius*
Bannerfin Shiner	*Cyprinella leedsi*
Bluenose shiner	*Pteronotropis welaka*
Bluestripe Shiner	*Cyprinella callitaenia*
Dusky Shiner	*Notropis cummingsae*
Gulf sturgeon	*Acipenser oxyrhynchus desotoi*
Mountain mullet	*Agonostomus monticola*
Shoal Bass	*Micropterus cataractae*
Snail Bullhead	*Ameiurus brunneus*
Spotted Bullhead	*Ameiurus serracanthus*
Suwannee Bass	*Micropterus notius*

Common Name	Scientific name
Clams and Mussels	
Apalachicola Floater	*Anodonta heardi*
Chipola Slabshell	*Clliptio chipolaensis*
Fat Three ridge	*Amblema neislerii*
Florida Floater	*Utterbackia peggyae*
Gulf moccasinshell	*Medionidus penicillatus*
Ochlockonee Arc-mussel	*Alasmidonta wrightiana*
Ochlockonee Moccasinshell	*Medionidus simpsonianus*
Oval Pigtoe	*Pleurobema pyriforme*
Purple bankclimber	*Clliptoideus sloatianus*
Rayed Creekshell	*Anodontoides radiatus*
Round Pearlshell	*Glebula rotundata*
Shiny-rayed Pocketbook	*Lampsilis subangulata*
Southern Creekmussel	*Strophitus subvexus*
Triangle Floater	*Alasmidonta undulata*
Washboard	*Megalonaias nervosa*

5.0 SAMPLING PLAN

5.1 Source Waterbody Flow and Physical Information

Physical characteristics of the source water body (e.g. Figure 5-1, Figure 5-2) as required by 40 CFR Section 122.21(r)(2) will be presented in narrative, tabular and graphical formats and will be used in consideration of biological sampling plan development, interpretation of impingement mortality data, and engineering analysis of the CWIS and the plant cooling water use. Information that will be presented will include 1.) narrative description and scaled drawings of the source water body that illustrate aerial dimensions, depths, and temperature ranges; and 2.) general hydrologic characteristics (volume, river stage fluctuations, etc.), and geomorphological features.

Representative water quality characteristics of the source water will also be presented using recorded information and ancillary data collected over the course of any field sampling. Previously recorded information shall be obtained from sources as listed in Appendix A and others as appropriate.

The results from this work will be correlated with biological sampling results to aid in understanding the dynamics of the Apalachicola River and the potential effects of the physical characteristics of the source water body and fish vulnerability to impingement (i.e., depth, temperature, etc.). Results of these findings will be reported in the CDS as part of the Impingement Mortality Characterization Study.

According to the final rules, geomorphologic features of the source water body must also be presented as part of the physical characterization. Verification of depths under current conditions will be undertaken by making periodic depth soundings in the vicinity of the CWIS during other field sampling events. Results of these findings will also be reported in the CDS as part of the Impingement Mortality Characterization Study.

The area of influence will be assessed during the completion of the CDS. This assessment will include limited instream velocity measurements in the vicinity of the cooling water intake structure (such as in front of the intake bays) and/or modeling using a two dimensional hydrodynamics model. For this evaluation, the area of influence will be defined as the zone where the velocity of the source water exceeds 0.5 fps above the background water velocity in the direction of the intake structure. A velocity of 0.5 fps is considered the threshold for fish to be subject to impingement or entrapment. For entrainment, the area of influence will be defined as that portion of the river that feeds water to the CWIS.

5.2 Impingement Mortality Characterization Studies

Impingement mortality studies at Plant Scholz will entail the collection of impingement samples from the CWIS traveling screens coupled with field studies in the source water body and the intake canal. The earlier 316(b) study did not compare the fishery in the canal with the river in order to quantify relative abundance as well as differences in the fisheries resources in those adjacent habitats. Gulf Power proposes to complete a limited survey of the fishery in these two habitats and simultaneously complete impingement sampling. Specific objectives of these studies will be to:

- ✓ Properly identify all stages of fish, shellfish, and other protected species in the intake canal and in the vicinity of the cooling water intake structure,
- ✓ Provide a characterization of all life stages of fish with respect to temporal and spatial abundance, and
- ✓ Establish a Calculation Baseline for impingement mortality.

5.2.1 Taxonomic Identification of Fish in the Vicinity of the CWIS

In accordance with 40 CFR Section 125.95(b)(3)(i) a taxonomic identification of all life stages of fish and shellfish in the vicinity of the CWIS of Plant Scholz will be presented using available published and unpublished data, in

conjunction with the results of the impingement mortality study (see Table 5-1). This taxonomic listing shall focus on those species and life stages that are susceptible to impingement and shall consider life stage, swimming ability and distribution within the lake. This listing however, will not address those life stages that are vulnerable to entrainment (i.e., those that do not become entrapped on the traveling screens of the CWIS).

Table 5-1. List of Fish Documented in the Vicinity of the Scholz Power Plant

Common Name	Scientific Name
Black crappie	*Pomoxis nigromaculatus*
Blue catfish	*Ictalurus furcatus*
Bluegill	*Lepomis macrochirus*
Brown bullhead	*Ameiurus nebulosus*
Chain pickerel	*Esox niger*
Channel catfish	*Ictalurus punctatus*
Common Carp	*Cyprinus carpio*
Flathead catfish	*Pylodictis olivaris*
Largemouth bass	*Micropterus salmoides*
Longnose gar	*Lepisosteus osseus*
Quillback	*Carpiodes cyprinus*
Redbreast	*Lepomis auritus*
Redear sunfish	*Lepomis microlophus*
Shoal bass	*Micropterus cataractae*
Spotted bass	*Micropterus punctulatus*
Spotted gar	*Lepisosteus oculatus*
Spotted sunfish	*Lepomis punctatus*
Striped bass	*Morone saxatilis*
Sunshine bass	*Morone chrysops saxatilis*
Warmouth	*Chaenobryttus gulosus*
White bass	*Morone chrysops*
White catfish	*Ameiurus catus*
Yellow bullhead	*Ameiurus natalis*

5.2.2 Characterization of Fishery Abundance in the Vicinity of the CWIS

In accordance with 40 CFR Section 125.95(b)(3)(ii) a characterization of all life stages of fish and shellfish [as identified pursuant to 40 CFR Section 125.95(b)(3)(i)] in the vicinity of the CWIS of Plant Scholz will be presented using available published and unpublished data, in conjunction with the results of the impingement mortality study. This characterization shall focus on those species and life stages that are susceptible to impingement and shall consider life stage, swimming ability and distribution within the canal and river. This characterization however, will not address those life stages that are vulnerable to entrainment (i.e., those that do not become entrapped on the traveling screens of the CWIS), but will include a description of the relative abundance and seasonal variability of these species.

5.2.3 Impingement Mortality Sampling

5.2.3.1 Sampling Frequency

In consideration of sampling frequency as part of the sampling plan, Gulf Power has evaluated the nature and extent of existing biological data within the source water body. Important considerations include:

- ✓ **Nature and extent of existing biological data.** As was discussed in Section 2.2, there is existing data that may be used to evaluate and describe the condition of the existing fishery in the Apalachicola River. These data include historical information that date back to the 1970s and 1980s along with more recent information.
- ✓ **Low observed impingement rates.** Observed impingement rates at Plant Scholz have been observed to be low. The Gulf Power employee who has emptied the trash rack baskets for 17 years reports that he occasionally has a shad, but usually has no impinged fish.
- ✓ **Intake canal can be considered part of intake structure.** Centrarchid fish do use the habitat in the canal, however it is presumed that the abundance is lower than in the river.

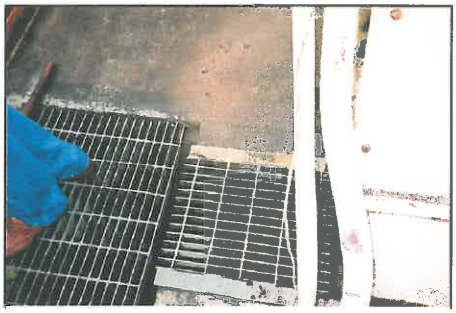
These factors taken together suggest that extensive impingement sampling is not warranted. It is therefore proposed that impingement sampling at Plant Scholz be conducted on a bi-weekly basis for a one-year period. Such a frequency and duration will be adequate to characterize seasonal variation in impingement mortality. Annual changes in the populations should be documentable from existing literature and data collected in this survey.

5.2.3.2 Field Impingement Sampling Procedures

Impingement sampling at Plant Scholz will be conducted on a bi-weekly basis for a one-year period (26 sampling events) (Table 5-2) with 8 additional samples (twice per season) collected to evaluate diel variability in impingement rates. Impingement sampling will be conducted by utilizing collection basket fitted with 3/8" mesh placed under the screen wash discharge located at the CWIS. Sampling procedures will be conducted using the protocol provided below:

1. Sampling will be conducted by qualified field personnel through the conclusion of the sampling program. Impingement samples will be collected for a 24-hour period.

2. Plant flow data for the sample period(s) will be recorded in order to calculate the volume of water withdrawn for cooling during a given sampling period. It is proposed that impingement sampling be conducted for a one-year period in order to encompass the spawning and/or migratory patterns of fish located in the vicinity of the CWIS.



Scholz Sampling Point of Entry

3. Prior to the initiation of an impingement sampling event the traveling screens shall be operated and backwashed to remove any trash or debris that may have accumulated on the screens or in the screen wash trough.

4. Impingement samples will be collected using collection baskets fitted with 3/8-inch mesh. The baskets will be placed under the screen wash discharge at the on-set of each 24-hour sampling event such that it is partially immersed in the water. If required, an additional fish collection basket will be placed in the sampling area as each basket is emptied so that the water is continuously filtered.

5. At the end of each 24-hour sampling event, contents of the baskets will be emptied into holding containers and will be cleaned of all organisms.

6. Competent fisheries biologists will process the impingement sample by identifying the collected fish to species, enumerating any impinged fish by species, and recording the total length and total weight and relevant or notable physical condition of each impinged fish.

7. Sub sampling of numerous specimens of a given taxon shall be allowed. However, a minimum of 30 specimens in each 50 millimeter (mm) size category shall be processed (weighed and measured). Thereafter, the remaining specimens in each 50 mm size category shall be counted and batch weighed.

8. At the end of the collection time period, time interval, water temperature, and dissolved oxygen, water quality instrument identification numbers, total weight, and scale number will also be recorded.

9. If and when numbers of fish impinged reach levels of potential concern, the frequency of sampling may be increased based on consultations between regulatory agency personnel, Gulf Power personnel, and the biological sampling team, as deemed appropriate.

10. During at least one sampling event, water velocities in the vicinity of the CWIS will be recorded as a verification of the structures area of hydraulic influence. The primary determination of the area of influence will be through a numerical model incorporating computational fluid dynamics.

Occasionally impingement studies cannot be conducted due to adverse weather conditions, and facility operations may delay or cancel sampling when intake pumps are secured or when screens cannot be rotated or washed.

Diel variation in impingement will be determined by conducting sampling at 12-hour intervals on a seasonal basis (twice per season for 4 seasons). On such occasions, the methodology will be the same as the 24-hour sampling as detailed above, but will entail the collection of two separate 12-hour sub-samples.

Table 5.2. Plant Scholz Impingement Sampling Schedule

Day	2005								2006					
	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Su	1								1				1	
M	2			1					2				2	
T	3			2			1		3				3	
W	4	1		3			2		4	1	1		4	1
H	5	2		4	1		3	1	5	2	2		5	2
F	6	3	1	5	2		4	2	6	3	3		6	3
S	7	4	2	6	3	1	5	3	7	4	4	1	7	4
Su	8	5	3	7	4	2	6	4	8	5	5	2	8	5
M	9	6	4	8	5	3	7	5	9	6	6	3	9	6
T	10	7	5	9	6	4	8	6	10	7	7	4	10	7
W	11	8	6	10	7	5	9	7	11	8	8	5	11	8
H	12	9	7	11	8	6	10	8	12	9	9	6	12	9
F	13	10	8	12	9	7	11	9	13	10	10	7	13	10
S	14	11	9	13	10	8	12	10	14	11	11	8	14	11
Su	15	12	10	14	11	9	13	11	15	12	12	9	15	12
M	16	13	11	15	12	10	14	12	16	13	13	10	16	13
T	17	14	12	16	13	11	15	13	17	14	14	11	17	14
W	18	15	13	17	14	12	16	14	18	15	15	12	18	15
H	19	16	14	18	15	13	17	15	19	16	16	13	19	16
F	20	17	15	19	16	14	18	16	20	17	17	14	20	17
S	21	18	16	20	17	15	19	17	21	18	18	15	21	18
Su	22	19	17	21	18	16	20	18	22	19	19	16	22	19
M	23	20	18	22	19	17	21	19	23	20	20	17	23	20
T	24	21	19	23	20	18	22	20	24	21	21	18	24	21
W	25	22	20	24	21	19	23	21	25	22	22	19	25	22
H	26	23	21	25	22	20	24	22	26	23	23	20	26	23
F	27	24	22	26	23	21	25	23	27	24	24	21	27	24
S	28	25	23	27	24	22	26	24	28	25	25	22	28	25
Su	29	26	24	28	25	23	27	25	29	26	26	23	29	26
M	30	27	25	29	26	24	28	26	30	27	27	24	30	27
T	31	28	26	30	27	25	29	27	31	28	28	25	31	28
W		29	27	31	28	26	30	28			29	26		29
H		30	28		29	27		29			30	27		30
F			29		30	28		30			31	28		
S			30			29		31				29		
Su			31			30						30		
M						31								

Impingement/Entrainment Potential Sampling Dates

Quarterly Report Due

5.2.3.3 Data Analysis and Presentation

Presentation and discussion of impingement data will also include tabular, graphical, and narrative discussion that will address:

- ✓ A complete tabulation of taxa impinged at the plant site;
- ✓ A narrative description of habitat characteristics of sample areas;
- ✓ A discussion of habitat preferences of impinged fish;
- ✓ Temporal patterns and trends in water quality;
- ✓ Overall impingement rates and trends (annual-total, seasonal, diel);
- ✓ An assessment of fish mortality as a result of impingement;
- ✓ Life history and vulnerability of collected species to impingement; and
- ✓ Fish condition (live, dead, moribund, etc) and survivability.

5.2.4 Quality Assurance/Quality Control

All field sampling and analyses of fisheries data in support of the Comprehensive Demonstration Study shall be conducted by Gulf Power personnel and Gulf Power's designated consulting representative, MACTEC Engineering and Consulting, Inc. (MACTEC). Accordingly, sample collection, processing and data analysis shall be subject to a project-specific Quality Assurance Program, as well as MACTEC's corporate QA/QC program. This program is multi-faceted and entails all phases of project management and performance. Major components of this program which have been specifically adapted to ensure proper sampling procedures and data integrity of the work performed at Plant Scholz include the following:

Field Sampling Protocols. Clearly written field sampling protocols shall be provided to all sampling personnel. Protocols shall ensure that specimen identification and processing are accurately and consistently performed by field personnel, and that appropriate ancillary measurements/data are taken and properly recorded (e.g., pumping rates, screen operation, water quality data, etc.). Dedicated sampling data sheets shall be included in the protocols for use in recording field data. Data sheets shall provide for recording of sampling gear type, date, time, weather, sampling technician, water quality measurements, depth, and information for each fish specimen collected (name, length, weight, condition).

Field Audits. A minimum of one field audit will be conducted by the Project Manager or other designated representative to ensure that field sampling protocols are properly followed. All aspects of field sampling shall be observed and evaluated as to conformance with established project protocols. Results of field audits shall be recorded on a separate field audit evaluation form. Any deficiencies observed shall be accompanied by corrective measures that shall be implemented immediately.

Data Analysis. Proper QA/QC of data entry and analysis is also an important part of ensuring overall data integrity. Field data packets shall be entered into the project database and will be reviewed to ensure accurate data entry. Similarly, statistical analysis of data shall be subject to internal peer review to ensure the validity of the data analysis and findings.

Reporting. Report preparation will include narrative descriptions, interpretations, tabular presentation of data, and graphical representations of the source water body, CWIS design, sampling locations, and sampling results. MACTEC's corporate policy is to conduct a thorough and proper review of all report materials and the proper documentation of such reviews as part of the report (see Table 5-2 for reporting schedule).

5.2.5 Calculation Baseline

5.2.5.1 Determination of Raw Calculation Baseline

According to 40 CFR Section 125.93, "calculation baseline" is defined as

> *"...an estimate of impingement mortality and entrainment that would occur at your site assuming that: the cooling water system has been designed as a once-through system; the opening of the cooling water intake structure is located at, and the face of the standard 3/8-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody..."*

The raw unmodified estimate of Calculation Baseline will be determined from the raw impingement mortality data (collected from the screenwash at the CWIS) and expressed as either number or biomass of fish impinged per volume of water withdrawn. Gulf Power has not yet made a determination as to how to express calculation baseline. We recognize the flexibility offered by the rules in the expression of calculation baseline as total number vs. biomass of biota impinged (69 FR p. 41618). Furthermore, we have not yet made a decision as to whether we will express calculation baseline as all species vs. representative important species (RIS). We expect to make a determination of the manner in which to express calculation baseline subsequent to conducting impingement studies and will inform FDEP accordingly.

5.2.5.2 Request to Modify Raw Calculation Baseline

Gulf Power requests that FDEP support Gulf Power's intent to determine the **true** calculation baseline using a modified approach by which adjustments to the raw impingement mortality data are made to account for the beneficial structural aspects of the CWIS as described in Section 2.1.1. The following sections provide a description of the sampling methodology and the data analysis techniques proposed to accomplish this adjustment of the raw "as built" calculation baseline that factors in the beneficial characteristics of the intake canal in reducing IM.

Sampling Methodology

In order to adjust the raw impingement mortality data, Gulf Power proposes to collect additional fisheries data from the source water body on a quarterly basis during periods of time that are concurrent with impingement mortality sampling. This effort proposes to utilize electroshocking methods within the intake canal and also in the river near the vicinity of the canal junction. This effort will entail the uses of paired data sets that will allow for the comparison of catch rates to evaluate differences between the fisheries resources in the intake canal vs. in the river.

To evaluate differences between canal and riverine locations, nearshore electrofishing passes will be completed until a minimum of approximately 60 minutes (6, 10-minute transects) of electrofishing effort has been completed in each habitat type. This procedure will be conducted during daylight hours and power (watts) will be standardized. At the end of each sampling period, the fish will be removed for processing. Processing of fish will entail identifying each specimen, and recording length and weight information using the same methodology as that used for impingement sampling.

Ancillary physical data collected at the time each net is run will include water depth, temperature, and dissolved oxygen.

Data Analysis

Results of the electrofishing sampling shall be compiled into tabular summaries that present the number of each species collected for each sampling event. Summary statistics shall be provided that will include total number of species, diversity, and catch rate.

Analysis of data shall entail the pooling of collections made from all seasons into three separate groupings to evaluate spatial data:

- ✓ Samples from intake canal
- ✓ Samples from Apalachicola River

Catch per unit effort (CPUE) shall be compared between each data set using appropriate statistical methods (e.g., correlation analyses, T-tests, Chi Square, ANOVA, ordination analysis, etc.) to evaluate between site differences in catch.

$$\textbf{Adjusted Calculation Baseline} = \frac{\text{CPUE Electrofishing River Habitats}}{\text{CPUE Electrofishing Canal Habitats}} \times \text{Raw IM Rate at intake screens}$$

5.2.5.3 Request to Evaluate Restoration Benefits

Gulf Power has participated in restoration efforts in the Apalachicola River through sponsorship of various habitat improvement programs. If Gulf Power elects to pursue a compliance alternative that includes restoration, Gulf Power will seek FDEP's approval of our intent to demonstrate the benefit of such past restoration efforts in support of the fishery of the river.

Figures

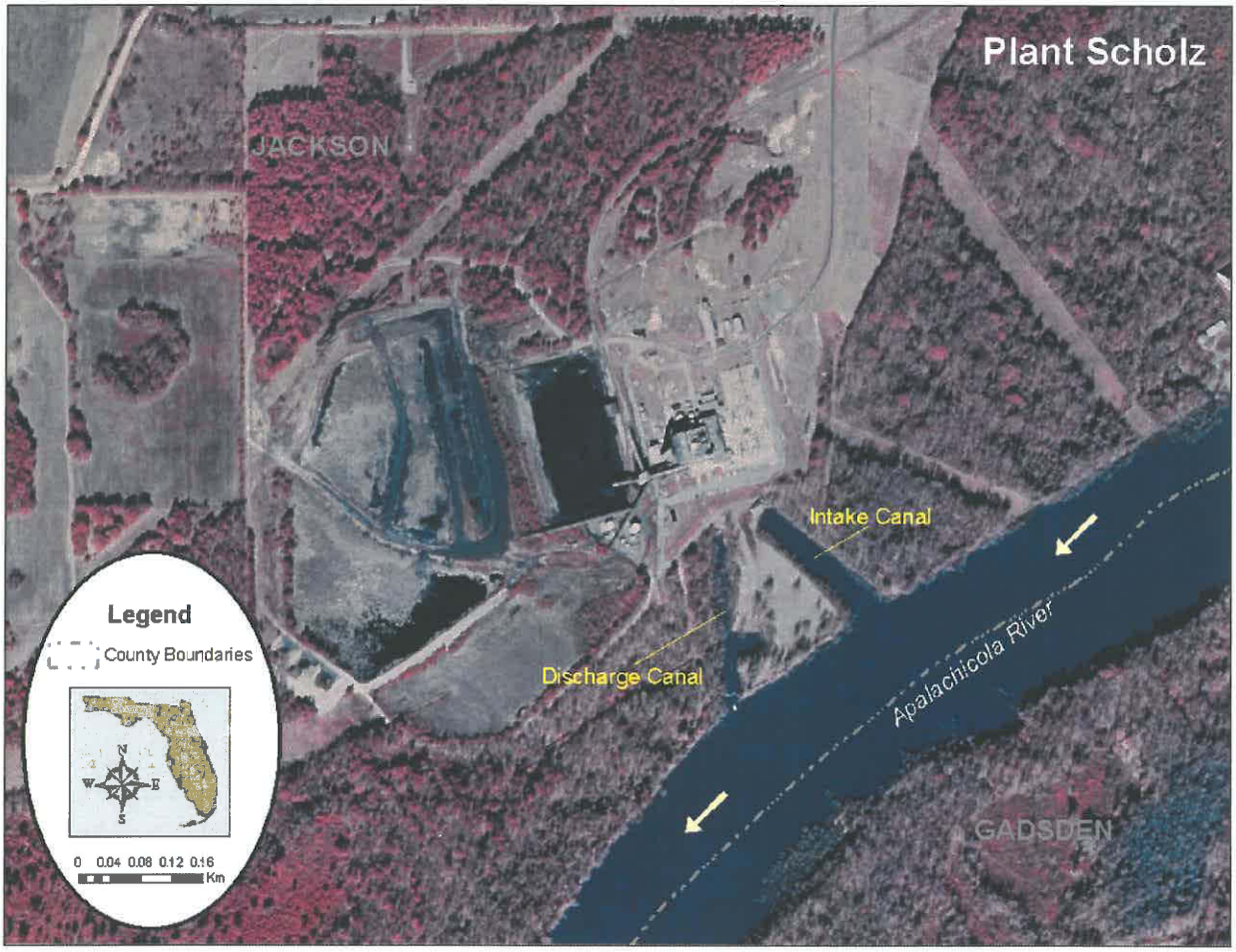


Figure 2-1. Aerial Photo Showing Plant Scholz Location

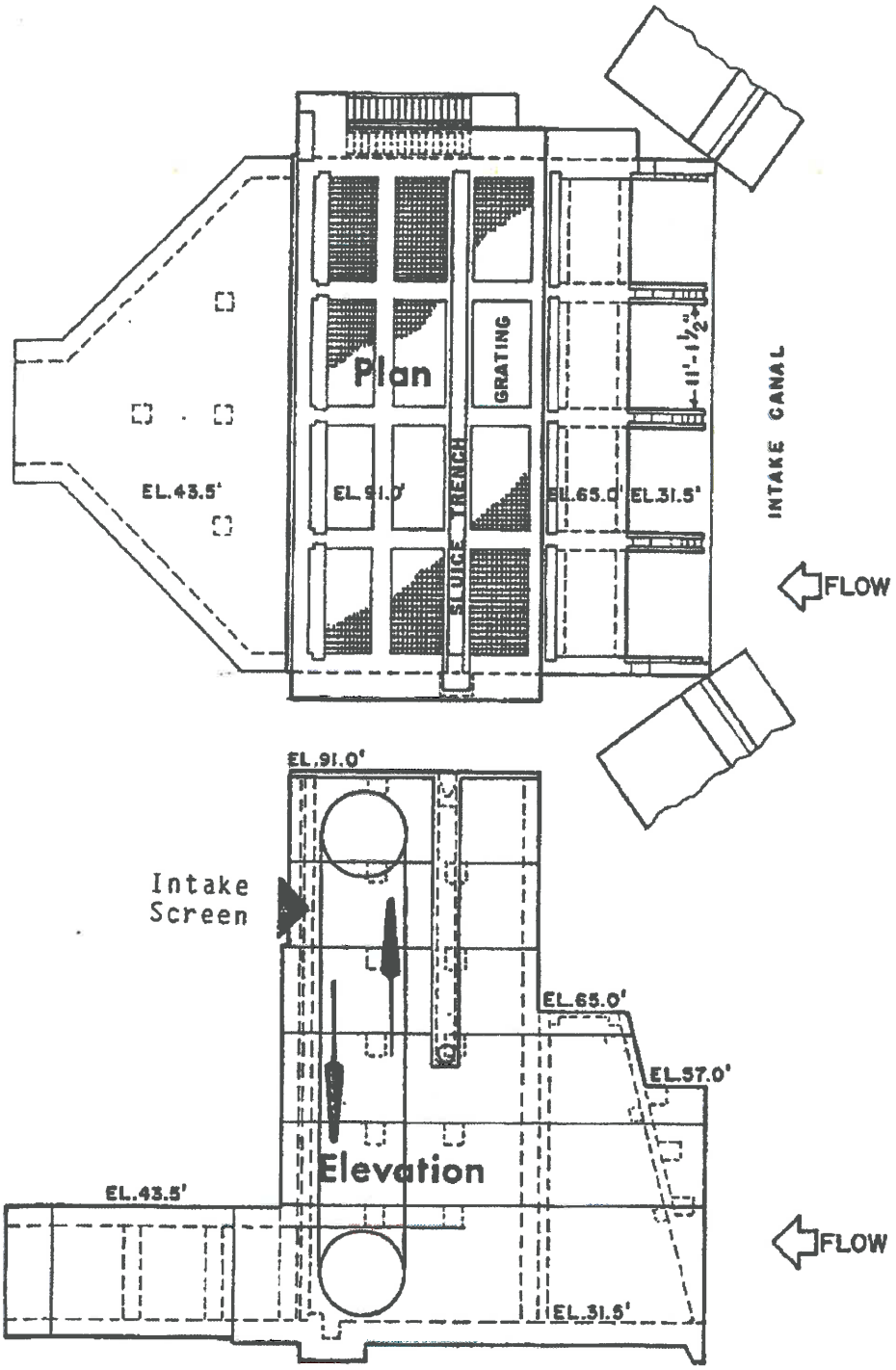


Figure 2-2. Cooling Water Intake Structure Side-View at Plant Scholz.

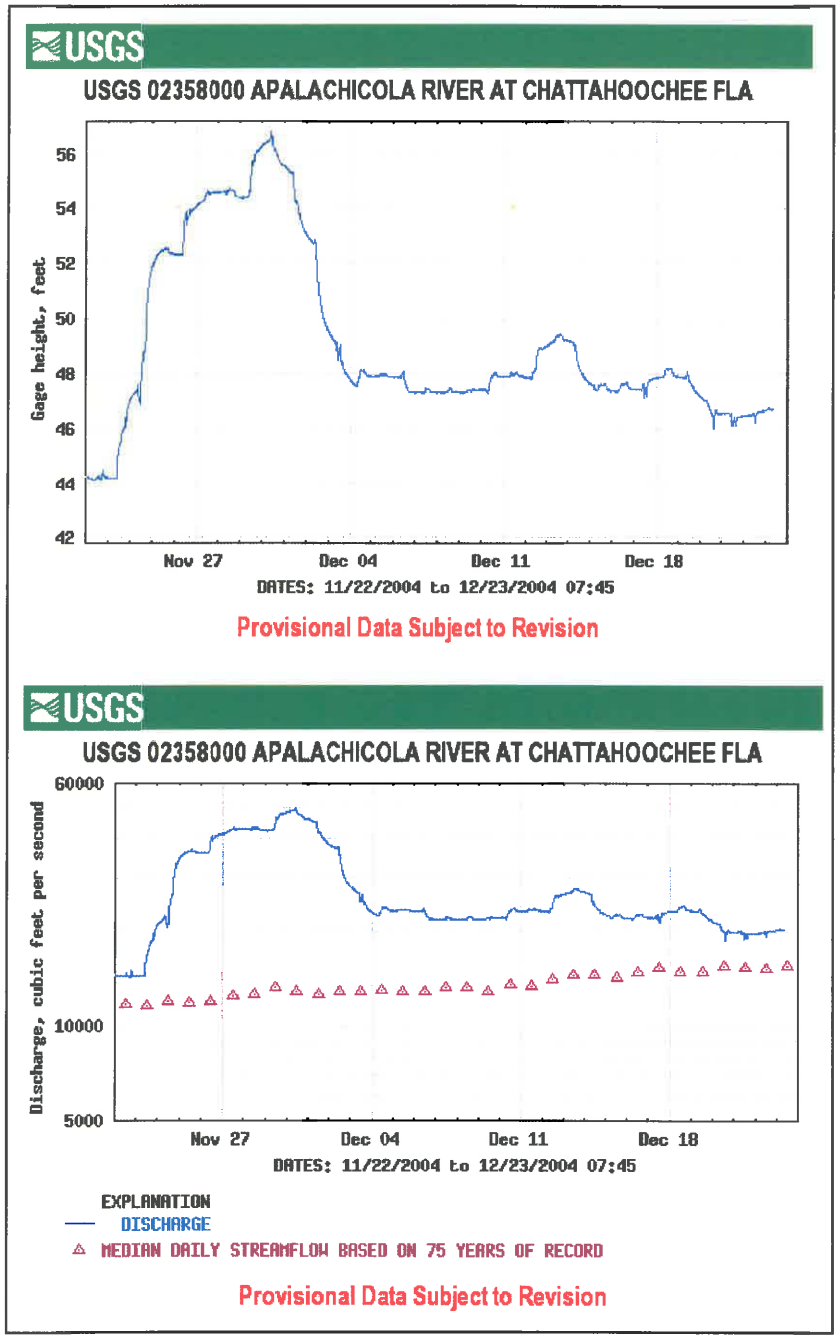
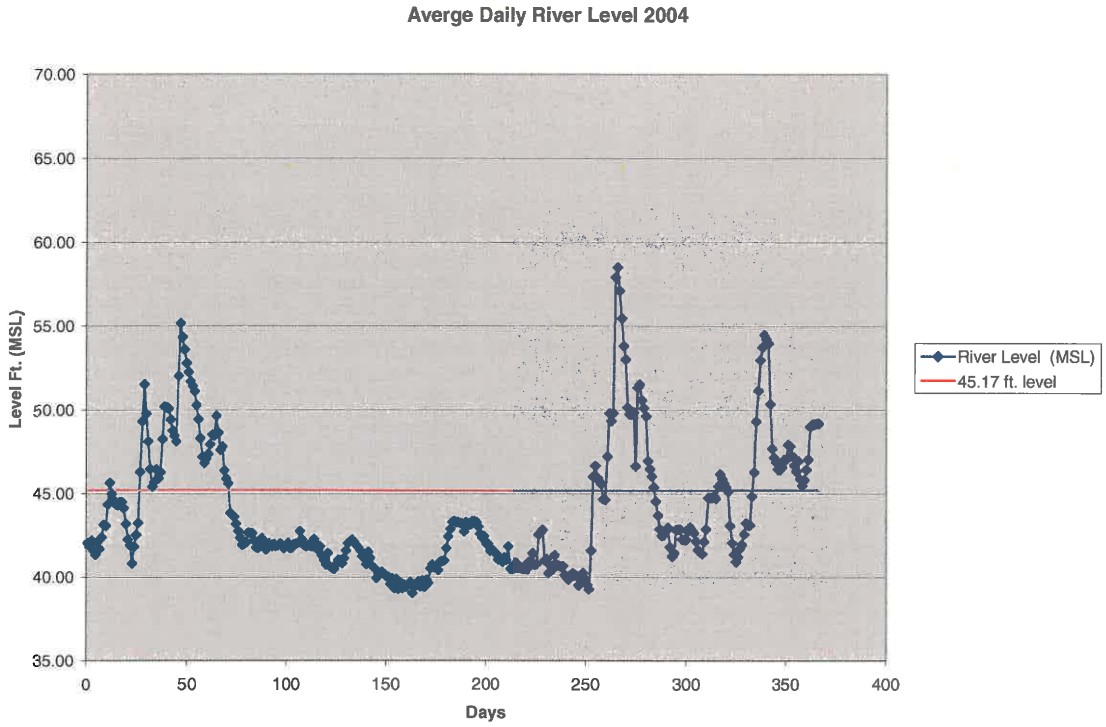


Figure 5-1. 30-day Gage and Discharge Information for Apalachicola River



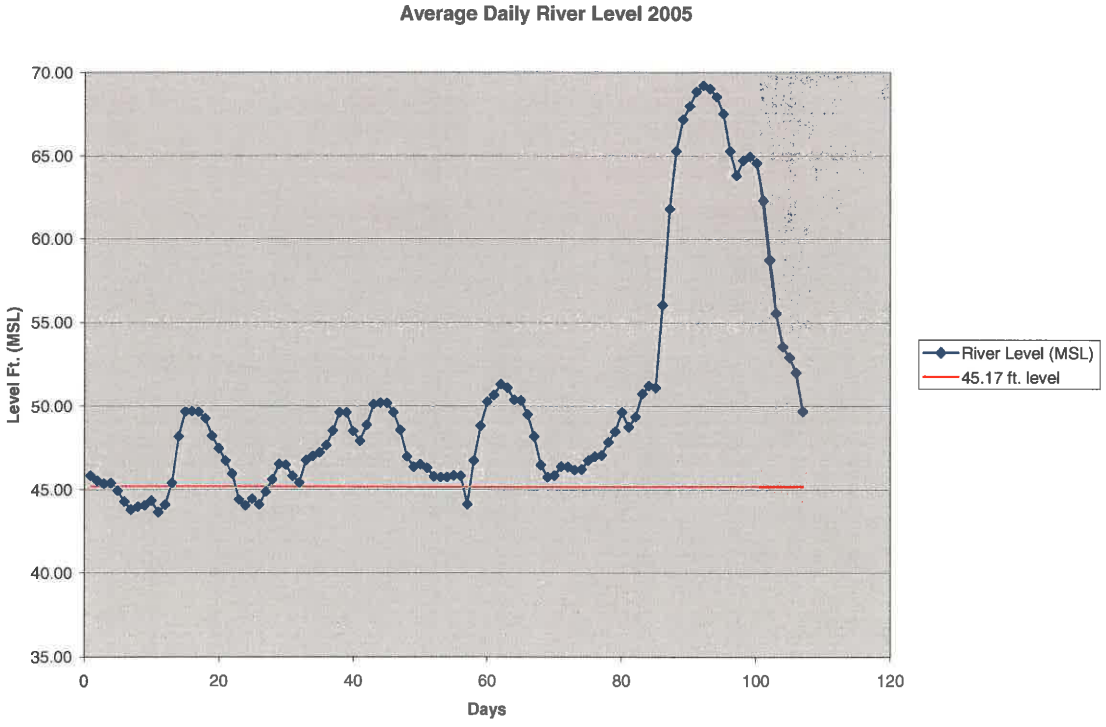


Figure 5-2. Average daily river level for Apalachicola River in 2004 and 2005.

Appendix A

List of Selected Historical Studies Conducted on the Apalachicola River

Summary of Selected Historical Studies Conducted on the Apalachicola River

Apalachicola National Estuarine Research Reserve. 1998. Apalachicola National Estuarine Research Reserve Management Plan 1998-2003. 204 pp.

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