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LEVEL BOOK

#101596

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millers, j. b. @ dep. state, fl. us



PHONE: [702] 248-5370

J. B. Miller :

My new focus: descriptions of sampled
beginning next week.

by Oct. 9, write an SOP
web site w/ SOP's on

Larry Fayard called

Alex Ford 386-734-3451

attorney (Strawn family)
(Messant & Seminole)

Jim Petersen: A popka -- combo
code 3339 go to Miller
352 427 ramp combo 2626

352,427

0926



They sample

37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

1944
Wekiwa Joe Sutter
Ranger

1776 @

horse coral

Case 735

11. 2 fogs

2. 3 dno doba

1000
 1000

352. 403 - 770



PHONE: [702] 248-5370

Tim Petersen:

Hum Gourd Neck
Spring 5

gate 3339
code

Magnolia
baum

1/12
table 2626

4-8-02

RCM, RPM, GHM

Otter Spring (RPM photo)
boat with difficulty

pool diam: 27 yd E-W x 26 yd N-S

pool depth: 27.5'

water color: clear, greenish
aquatic veg: very little along
edge.

algae: 100% coverage and
huge floating mats.

Run choked w/ algae

high ground: none adjacent--
located w/in flood plain.

Some to E and S with
houses up to 12' about
300' away.

surrounding: grassy open spaces
with a few shade trees,
Looks like a former
county park, now is
apparently all privately
owned with abundant

POSTED signs

Description: Otter Spring
issues from a vertical
fissure in the Limestone
to a depth of nearly 30'.
The pool is small and
nearly circular with concrete
bags entirely surrounding
the pool. Vent is in center
of conical depression. Surrounding
land only about 4'-5' high.
No boil present, but very
little flow was observed in spring
run. A distinct sulfur odor
was present in the spring
run directly below spring.
This area appears to be
a former swimming park,
but is now privately owned
and still maintained for
swimming. About 100 yds
downstream from the vent,
a deep, bowl-shaped depression

has been dug out for
a swimming hole. Several
houses are all > 100 m away
from vent & barely visible.

Spring run flows about 8 mi
SW into the Suwannee R.

There is a shitty little
rock dam that is crumpled
down at pool outflow on
W side. Harley foto?

Telford Spring; 4-9-02

	RCM	RPM	land
pool diam:	N-S	22 yd	x EW 17 yd
pool depth:		11.3'	
water color:		clear, greenish	
aquatic veg:		none	
algae:		thin and patchy	$< 50\%$

high ground: entire spring
surrounded by 12'-15' high banks
(except outflow, of course)

surrounding: Mixed oak-
pine-hardwood atop high
banks all around.

description: Telford spring
is situated along the east
trending side of the Suwannee
R. in view of the R. It
boils up out of pure limestone
and flows about 25 yds
into the R. There is a
5' wide by 7' long short
limestone land bridge
separating two ^(pool?) boils, underneath
which the water connects
such that there really
is one vent... Main pool
has a nice boil. Bottom is
sandy-rocky, walls are
limestone. Very scalloped limestone.
Water level today looks at
a historic low. The land
bridge is 8" higher than
H₂O today, but probably is usually

inundated during "normal" H_2O levels. Intense local swimming recreation and litter present. Human foot traffic intense. High sandy banks. Suwannee Tannic Spring run flows ~25 yd SE into river. No houses adjacent, but across river 135 yd away. Open to public. RPM foto

Guaranto Spring

County Park 4-9-02

RCM, RPM land

pool diam: 80 yd NW-SE; 29 NE-SW

pool depth: 11.4'

water color: clear, greenish

aquatic veg: very little, some around edge.

algae: ~50%. Frequent swimming probably reduces algae below 100%! And floating mats

high ground; Surrounding banks rise steeply to 12' above H_2O , then level off to flat. Grassy.

Surrounding environment: grassy, sandy roads & parking. Some oak shade trees. River ~90 yds to SE

Description: Guaranto Spring has a long, oval shaped pool. At the NW End, a small boil is present where the vent is located about 15' SE of shore. Two wooden access structures are built into pool for swimming & jumping. No Scuba allowed. Not very deep overall except over boil. N shore has bluish clay banks that frequent swimming stirs up. Some litter. At far SE end, near river,

a man-made dam and
culvert pinch off the spring
run. The H_2O pours out
the end of the culvert and into
the Suwannee Riv. Some
concrete bags and erosion
walls are in place. A boat
ramp is on River upstream
of spring input. Steep
banks all around. Sandy bottom
one limestone ledge on N side, some at vent.
County Park. RCM foto

Other spellings: Gronto,
Gornto

Rock Bluff Springs

4-10-02 ^{boat} RCM, RPM,
GHM

pool diam: 91 yd N-S; 57 yd E-W
pool depth: 27.8' over deep crack
water color: clear, greenish-yellow

aquatic veg: little or none

algae: thin layer; taken off
rocks by swimmers

high ground: To the N, a vertical
bank rises to 6-7' high but to
S, along S shore, a house is situated
on 12' high ground.

Surroundings: All forested with
lowland swamp (cypress, ogeechee)
nearby & mixed hardwoods on
higher ground.

Description: Rock Bluff Springs
is situated on the E trending
side of river above Rock Bluff
(+ bridge C.R.--). The spring
pool is wide and shallow and
multiple boils are present. The
main vent is in a ^{deep} vertical
limestone fissure on the N end
of pool. Twenty feet S of
main vent is a small 1' x 1'

vent opening in bedrock limestone blowing vertically. This was sampled. Along N shore, a vertical rock wall is built to control erosion. Multiple Cypress trees spaced out inside pool. At least seven vents (says a local).

Spring run flows SW about 250 yds into Sawannee River. Sandy and bedrock limestone bottom. Shores forested except for N shore wall. Harley photo

Private land around.

Mearson Spring

4-11-02 RCM, RCM

pool diam: 25 yd ^{boat} SW-NE x 17 yd SE-NW

pool depth: 11.8

water color: clear, greenish

aquatic veg: none

algae: thick patches, ~80% coverage long strands.

high ground: The banks of the Sawannee R, out of which issues this spring, rise vertically to ~15' above H₂O level

surrounding: A mixed hardwood / loblolly pine forest atop banks. Some houses on each side of river in the vicinity of this spring.

Description: Mearson Spring is a beautiful boil issuing virtually from the W trending side of the Sawannee River, out from limestone, then marl, then top soil vertical banks. The boil is vertical and voluminous, issuing from a fissure in pure limestone. Spring pool is quite small and its brief run is about 10 yards, flowing NE into the tannic Sawannee Riv. The vent

is actually a cave opening
(~ 5') from underneath a limestone
shelf. Private land above. On
SW side, a wooden walkway leads
down into the pool. Current H₂O
levels appear low, as there are
3' tall 45° angle bare limestone
and sandy margins of the
spring that are typically under
water. Some swimming here, where
algae is worn off rock. Bottom
is mainly limestone bedrock and
rubble with some sand. The
adjacent Suwannee River has
high vertical limestone then
mud then topsoil banks and
rocky shoals nearby. Again,
this spring is a cave on the
W trending side of SW...

No picture taken (shitty, cloudy
weather)

Additional note: This spring does
issue from a fissure that runs
N-S. On the S end, the most

voluminous boil is present and
the exact entrance is largest.
Running northward about 30',
smaller boils issue from the
narrowing crack, then peter out
at the N banks of the spring
pool.

Fenney Spring (Ian Gerold,
KCM foto/GTM) (Joe Andres,
4-15-02 RCM, RIM) (Jason Hust,
+ SWFWMD Crew)

pool diam: 28 yd N-S; 18 yd E-W
pool depth: ~~(18)~~ 21.4'
water color: slightly tannish, greenish, clear
aq. veg: very little

algae: thick, ~ 90% coverage

surrounding: All cow pasture
with abundant shady
Live Oaks.

high ground: To S, 12' high
banks steeply rise up. To
N, banks are low & 2-3'

description: Fenny Spring is
situated in a cow pasture among
a shady oak grove. The
spring pool is small and
deep at the vent on the
SW side. To the adjacent
W side of spring pool
is a brief land bridge (5'
wide) which separates an
adjacent sink hole that
also is deep and apparently
connected to the main
spring head underneath the
land bridge. Limestone is
outcropped in both depressions.
Cow trails run into the
pool and along spring run.
Run is slightly narrower than
the spring pool and flows
due north 50 yd, then turns

(--- mi?)
West and runs to the Lake Panooskee
owner: Billy Bingham
bought by grandfather

Spring Run is slow and very
shallow (averages 1' deep)

Cow shit all along run.
The adjacent sink hole is
about as wide and circular
as the spring pool

Nearby sink: 27.3'

Get discharge from these
guys - they took it while we were there

SWFWMD folks said spring is
usually very tannic. TFE was
the clearest he had seen
it during the 3 yrs he's been
sampling

Suzys Rules

Bugg Spring

4-15-02

pool diam: 132 yd N-S; 124 yd E-W
pool depth: 170'
water color: clear sh. blue-greenish.
6.9 m secchi

aquatic veg: none, very little (some
in past)

algae: blue-green mats

surroundings: A dense forest of
mixed hardwoods and some
cypress near pool edge

high ground: On S shores
where Branham house is,
land rises only gently
to about 6-8' above H_2O .
No real high ground.

Description: Bugg Spring
is a large, very deep
spring situated in a giant
inundated depression. It appears
to be a clear, circular lake
with a North-Flowing narrow
.8 mi long channel. It flows
into Lake (). There
is a vertical limestone
ledge along S shores dropping
to 170' depths. A very
slow flowing run, very little
flow (12 cfs). A fence,
chain-link, stretches across
outflow channel. A large
US Navy platform supporting
a laboratory for field instrument
calibration is floating in the
middle of the spring with
a walkway leading off
from the NE shores. Platform
takes up ~ 30% of lake
area. Joe Branham owner--
has tons of historical
data on Spring...

Introduced: Cerithium,
Tilapia, grass carp,
No hydrilla, no Elodea

Have Pomacea

Howard Odum did work here
at least 2 papers (ask
Joe Branham)

Little Weeki Wachee

4-16-02 RCM, RPM, SWFMD
pool diam: 25 yd EW; 12 N-S

just a puddle, not
flowing. Opt flow channel
muddy, sandy, dry!

Picture taken

chain link fence around

Chris Tomlinson reports
that a giant cavern
opens up just into
the vent of this spring.
Downstream and on S
side of main Weeki Run

Was flowing 6 yrs ago
when an underwater
video of giant under-
water room was taken...

Salt Spring (Hernando)

RCM 4-16-02
RPM Chris Tomlinson

pool diam: E-W 21 yds x 20 yd N-S
pool depth: 46.5'

water color: blue-green, slight murk
aquatic veg. very little
algae: thick layer ~ 95%, iron
bacteria

surrounding: all lowland and
densely forested with

Mixed hardwood - cabbage palm

high ground: None nearby

description: Salt spring has a circular pool and a very deep center. The vent in center is at the bottom of a vertical hole w/ limestone side walls. A visible boil over vent. Good flow at low tide (tidal). Another boil & cave on N side of pool. Bottom & substrate covered in algae & iron bacteria. Rope swing, downed log w/ ladder in hole. Swing hole. Another vent on N side. Outflow creek laden w/ iron bacteria & rocky & sandy. Very chalky limestone. Run flows SW to Mud creek (1 mi)

Gum Spring Main

4-17-02

RCM, RPM
SWFWMD (Jason,
Rob Degraff, Bob)

pool diam: 23 N-S x 27 E-W
pool depth: 9.8'
water color: blue-green, clear
aq. veg. some grasses, rushes in run

algae: very thick & matted & floating mats.

surrounding: Private ranch land with cow pastures. Two guest houses on S & E sides. Dense swamp forest adjacent.

high ground: To SE, land rises to about 10' above ~~ground~~ H₂O, otherwise, low

Description: Gum Spring Main is situated in a small, bowl shaped depression with a narrow spring run, flowing NW to the Withlacoochee River. About 100 yd downstream of the spring, another smaller spring run comes in on the E side, but was not flowing today. This is the run to Spring No. 1, which is about 50 yd up from the confluence. Today, it was just a clear water puddle with *Valcinerea* grass in it & centarchid fish. Main Spring was barely flowing as a small trickle down its spring run, and we decided to sample. Its vent is located just 5' N of the wooden dock and had slight flow. No visible boil on surface. Suspended algae mats & particles. 2 Guest houses are situated on the

higher ground to the S + E of spring. Sandy access rd.

Private owned:

Lithia Springs (Major)

REM, RPM, Joe Antess, Bob Brady
4-18-02

pool diam: 56 yd N-S ; 60 yd E-W
pool depth: 8.2' (25m)

water color: clear, blue-green

aquatic veg: virtually none in pool probably due to intense swimming, some in run

algae: 750% ^{very} thin layers & mats.

Algae is cleared by swimming surrounding County swimming and rec. park with all facilities & high swim. density. Many Palms & oaks all around high ground; steep sandy banks all around, man-made, rise to 8-12'.

Description: Lithia Spring is within a large, circular shaped, man-enhanced spring pool designed for swimming and recreation. Spring run flows east for 60 yd, then south for 250 yd into the Alafia river, which is blackwater. The spring pool is roped off for swimming. The run is clear and wide with algae and some aq. veg. The spring pool has steep, man-made erosion control walls with several access ladders. A stormwater runoff culvert drains into the run on its bend southward. Another separate spring, Lithia Spgs Minor, joins the Alafia river 100' downstream of Lithia Major's confluence. Minor has a 100' long run. At major, there is a life guard on duty. Surroundings have many picnic tables and rec areas. The entire bottom of Lithia Major is sandy,

except for at the vent in the center of pool. The vent has metal bars across it for no access. A small limestone ledge is on the W side of vent. A nice boil is present today.

Buckhorn Spring

4-18-02 RCM, RPM, Joe
Address, Bob Brady

pool diam: 17 yd N-S x 15 yd E-W
circular

pool depth: 8.3'

water color: light blue, clear
aquatic veg: rich duckweed &
an aquatic plant from Basel

algae: thin, not much.

surrounding: To N, residences
To S, dense low Palm-hardwood
hammock

high ground: To N, Land rises
to ~ 12' above H_2O , steeply,
rest is low

Description: Buckhorn
Spring has a water pumping
facility on the W pool banks
and a platform built over
the vent, tube running into
cave. The spring vent and
aquatic community seem
intact. A nice cave opening
on NW side. Nice cool
& bluish H_2O . Concrete
bags all ground perim.
Entirely fenced off &
run is, too. A very short
run (~5yds) into Buckhorn
Creek. The creek is sandy
bottom and slightly tannic.
But after clear spring
comes in, the creek
becomes larger, clearer, and
rubblier bottomed, with areas

of limestone outcropped.
The spring itself has
limestone and sandy
bottom.

Utiliz: Cargill Fertilizer
Inc. pumps water
for its process.

Sulfur Springs

4-18-02

RCM, RPM

pool diam: circular 30yd EW x
30yd N-S

pool depth: 15' max
water color: greenish, slightly murky

aquatic veg: none

algae: thick > 75%

surrounding: Urban, alongside
Nebraska Ave, Tampa FL

high ground: To N, a hill
rises gently to 10' over
100 yds. I don't know,
all has been man-shaped.

Description: Sulfur spring
has been entirely man-
reshaped into a circular
pool, with concrete banks
and a weir that holds
in about 15' H_2O above
the run. The cascade into
the run goes 20 yds. The run
flows SE about 200 yds to
Hillsborough River. A mammoth
drainage pipe flows in on the
W side. Half the spring H_2O comes
back in thru this pipe. Half
goes to Tampa water supply.
The pool is uniformly about 15'
deep with a limestone &
sandy bottom. A cave system
reportedly heads Northward
under the city... The spring
is closed to swimming now.

A swimming park is still
here, though. On E side of
pool, a man-made swim
pool exists, with bath house
and parking, and life guards
on duty. Owned by City of
Tampa Parks & recreation.
Spring run is sandy bottomed
and algae laden. Spring pool
has no boil because the
force of the drain pipe is
immense, distributing fast
current all across the spring
pool. Spring is 50' W of Neb. Av.
100 yds N of Hillsb. Riv.

Tube was just thrown in
in the vicinity of the
vent & let sank -- on
NE side of pool.

There is an odor of Sulfur
in the vicinity of spring

WaKulla Snake Talk

Intro slides;

What is a snake?

Squamata

- Lizard (monitor)
- Amphibaenian
- Glass Lizard (fake audience)
- Real snake

Florida Snakes

- 35 species

Turtle Spring

5-01-02 RCM, RPM, JAM

pool diam: 10, N-S: 22, E-W

pool depth: 21.4'

water color: clear, greenish

aquatic veg: none

algae: very thick all over rock
substrates

surrounding: Wide Sw. Riv to E,

Mixed Hardwoods all over
steep banks & uplands.

All forested.

High ground: All adjacent banks
rise to 15'-18' above H₂O.

Description: Turtle Spring is situated along the W side of the wide Suw. Riv. It is a cove off into high sandy banks. Its run flows a short 20 yd due E into river. Limestone is outcropped along shallow run and into the spring. The vent is an elongated fracture underneath a limestone ledge. Small boil. Rocky bottom. Gorgeous little cove. Big log on N. side. Undeveloped.

Utilization: Private uplands.

Central FL trip
RCM RPM
5-7-02
Rock Springs

pool diam: no pool, stream out of cave
pool depth: 5' 2"
water color blue & clear

aqu. veg. little near caves

algae: thin, ~~very little~~
colorful coating on limestone

surrounding: A developed county swim & rec. park (Orange Co) lots of pathways, picnic tables, grassy lawns, & shady oaks.

high ground: Spring is bordered on 3 sides by rolling large sandhills that rise gently to steeply to 15'-25' above stream H₂O level

Description: Rock Springs is a clear blue stream flowing horizontally out of a cave in a 20' vertical limestone wall. Lush fern growth blankets the walls and stream banks.

Stream bottom is gravel, shells & rock & sand. Large limestone boulders abound along and within stream channel.

The Rock springs run flows S and E (mi) into the Wekiwa River, which flows N & E into the St. Johns Riv. About 400 yds downstream, the stream channel has been pooled up into a deeper, wider swim. area. 40 yds downstream of cave, a boardwalk goes over stream. No swimming allowed in first 30' of stream and cave is barred shut. A dense palm live oak hammock surrounds cave & stream.

Full facilities here. Camping available.

Wekiwa Springs

pool diam: 35 yd N-S;
pool depth: 13.7' max in vent, rest of pool average 5'
water color: blue-greenish, clear
aq. veg. none in pool, but run is lush.

algae: 40% pool coverage and thin layer on rocks near vent

surrounding: Areas of grassy lawn, palm-hardwood hammock and building facilities associated with the State Park

high ground: To S and W,
land rises steeply to 15-20'
above H₂O level -- rolling
sand hills.

Description: Wekiwa Springs
gives rise to the Wekiwa
River, which flows NE (mi)
into the St. Johns River. The
spring issues vertically from
an elongated fissure, 35' long
E-W, located on the S side
of the sizeable spring pool.
The entire periphery of the
spring pool is a concrete wall
with swimming access ladders.
The boil over the fissure is
large & voluminous. The bottom
of the man-made spring
pool is sandy, with slick
limestone near vent. To the
S of pool, a grassy hill
slopes upward where people
sunbathe. A sidewalk surrounds
the pool. A wooden foot bridge

goes over the outflow river
to the N about 80 yds
NE of vent. Wekiwa Springs
State park is part of
a large preserve system
called Wekiwa Springs
Geopark (~ thousand acres)
(call Bob)

This place is a heavily used
crowded state park offering
camping, swimming, canoeing, etc.
The spring pool had 24
swimmers present when we
sampled.

Sanlando Spring

5-8-02 RCM, RPM

pool diam: 65 yd N-S, 60 yd E-W (lake)
actual pool at vent on SE side
of lake is circular and 25' diam

pool depth: 14.8' over vent,
rest of lake averages 5'

color: bluish green, clear

aquatic veg: some plants, sparse

algae: nearly 100% bottom coverage
and with floating mats.

surroundings: House-infested suburbia
called "The Springs"

high ground: To the S of lake
sandhills rise to 15' above H₂O
All man-sculpted

Description: Sanlando Spring sits
in a circular, bowl shaped depression
on the SE side of a larger

man-made lake dammed up for
residential swimming. There is
a very slight boil on the water
surface over vent. Vent is
surrounded by concrete wall on
3 sides (W, E, S), and 1 m.s. one
is outcropped around vent. The
rest of the dammed up lake
is about 5' deep and sandy
bottomed. Little Wekiwa Riv.

Flows into LK on W side,
then the combined flow of
spring and River flow over
a weir on the N side of
lake. Palm trees, sandy beaches
and concrete surround LK.

A dive platform near vent.
A higher rock wall around
vent to S. Swim platform
in center of lake. Little Wekiwa
flows N and into the Wekiwa.
The entire lake and springs
surroundings are manicured lawns
and hedges.

Starbuck Spring
5-8-02 RCM, RPM

pool diam: 21 yds E-W; 22 yds NS

pool depth: 7.2' over vent

aquatic veg: a few lilly pads

color: milky blue

algae: large suspended mats

75% bottom coverage

surroundings: Residential development called "the Springs"

High ground: To W, a sandy slope rises to 18-20' above

H₂O pool. This is the

Western bank of the

Little WeKiva Riv. System.

Description: Starbuck Spring

has a circular spring pool

sandy bottom, shallow, limestone

cracks in center of pool

where H₂O issues vertically

and creates a large coil

in center of pool over vent.
Pool is circular. Two houses

around pool on N + S sides.

Donald Barker on S side.

Grassy lawn surrounding

pool. Concrete bags around

pool perimeter. Some kind

of a rock, man-made

ledge or weir across outflow

The swift-flowing spring

run averaging 15' wide,

flows NE into the Little

WeKiva River. The pool

is chock full of gar and

other fishes. Some pvc pipe

leading into the vent

from the houses. Residents

swim here.

Charles Spring

5-13-02

3rd attempt RCM, RPM, JAM

not flowing; photos taken

clear H₂O in puddles around

land bridge.

Copper Spring

RMI RPM JAM

5-13-02

pool diam: 42 yd N-S: 28 yd E-W

pool depth: 5.3' over boil

color: bluish-green, slightly turbid

aquatic veg: very little except algae

algae: dark green red-like structures

all over bottom: iron or sulfur bacteria

surroundings: 3 seasonal houses on

North side above boil; mixed

hardwood-cypress swamp along run,

mixed oak-pine on high ground to N.

high ground: A steep bank to

the N side of pool above

boil rises abruptly to ~ 15'.

Description: Copper Spring has a very forceful vertical boil (45° slant) coming right out from under the high banks on N side of the spring pool.

The boil rises to about 8" higher than surrounding H₂O surface. There is a sharp odor of H₂S near the boil. There also is a thick coating of iron or/and sulfur bacteria on all sandy and rocky substrates. A rusty "copper" coating is all over plants & tree bases along spring & run. Limestone outcrops near vent. The vent is located on N side of pool up next to high banks. The spring pool spans out down stream, then the run pours out of the SE side of pool and runs ~ 150 yd SE into the Suwannee R. Pool and run have soft sandy-particulate bottom. A retaining wall of concrete surrounds the N, S & E sides

Poe Springs

private park

RCM, RPM, JAM

5-14-02

boat access

pool diam: 40 yd N-S ; 42 yd E-W

pool depth: 18.7'

color: light yellow-green

aquatic veg: some in short run

algae: thin - moderate layer in
50% of rock + sand

surroundings: Forest (mixed hardwood)
on S & W sides, Open grassy
lawn on E side

high ground: None adjacent
to spring; All banks are
mesic; rise steeply to 4'
above H_2O .

Description: Poe Spring is
in a conical depression on
the S side of a larger, shallow,

sandy-bottomed spring pool.
In the cone-shaped depression
lime rock is outcropped. A
nice boil is located over the
vent, which blows vertically
from the bottom of the cone.
A steep, underwater limestone
ledge is on the E side of
the conical depress. The perimeter
of the entire spring pool is
bordered by a rock wall and
terraces on the E side. The
S & W sides are forested w/
mesic hardwood for. Pavilions
& picnic tables are on E side.
The run is short and flows
about 75' NW into the typically
tannic Santa Fe River. Although
the Santa Fe was crystal
clear during the May 2002
visit. A wooden boardwalk
is on the S side leading into
the forest. The Santa Fe in this
vicinity is very low and
choked with largely Hydrilla.

Run has rocky + clayey bottom, is very shallow, and swift flowing.

Gilchrist Blue

RPM, RCM, JAM

5-14-02

pool diam: 44 yd N-S; 45 yd E-W

pool depth: 18.9'

color: clear, SKY Blue

aquat. veg: Hydrilla covers nearly 50% of bottom; Some large *Valisneria*

algae: 70% algae coverage, sandy shore on the W SW shore clear from swimmers.

surroundings: Privately owned swim & rec park. Hardwood shade trees on park high ground on W SW side. Many picnic tables & facilities, & Concession. Run has all swamp forest.

high ground: To the W & SW, banks rise gently to about 10' above H_2O .

Description: Blue Springs is situated in a conical depression within a cave under a limestone ledge on the NW side of pool. It issues out of the cave. The limestone ledge, under H_2O , is directly under a wooden dive platform. Most of the large, circular pool is shallow & sandy bottomed for swimming. Banks are bordered by wooden retaining wall. Along the S side, an elevated wooden boardwalk runs out the pool and along the E side of run all the way to Santa Fe river. Run flows Northward about 400-500 yds to River

The run is entirely forested with dense mixed hardwood-cypress. Run is Hydrilla choked. A wooden barrier over outflow channel. Full activities available.

No visible boil. Water comes out of cave system, apparently not forceful enough to feel at cave opening (cave).

Ginnie Springs

5-29-02

RCM, RPM,
Tina Roberts

pool diam: 31 yd N-S
28 yd E-W

pool depth: 12, 2

color: sky blue, clear

aquatic veg: algae around pool edges, hydrilla around pool edges. Swimmers keep sandy and rock substrates clean.

surroundings: On south side, Ginnie Springs Private park with tons of bldgs. & structures. To N, Santa Fe river, & a peninsula between which, A hardwood forest present.

high ground: No high ground nearby. The private park has probably brought in dirt. To S, banks rise steeply to 5' above H₂O, then level off for hundreds of yds.

Description: No boil on surface, but is flowing. Spring has a large cavernous vent in center of pool at bottom. Limestone ledge on E side, 5' below surface. Vent is at bottom of ledge. Much swimming-diving. 5 divers in cavern when sampled.

Bottom is sandy and rocky.
Circular Pool. Two diving-
swimming accesses on S
banks. Pool is rimmed by
hardwood s + cypress. Run
flows E about 200 yd. into
Santa Fe River. Santa
Fe, typically dark, is crystal
clear at this time. Santa
Fe is deep and Hydrilla-
choked. Spring run is about 35'
wide + averages 3' deep.

Cypress Spring 6-5-02

transect #8 on data log

Discharge Measurement

6 ft → 71 ft - ~~70 ft~~ across
↓
65 ft

18 observations

1.93 ave. vel.

93.26 cfs

Cypress Springs Discharge

Piney Woods spring run:

1' wide
 $\frac{1}{2}$ 6" deep average
12 seconds to go 2' $\frac{1}{12}$ cfs

subtract:

3' wide $3 \times \frac{1}{6}$, $\frac{1}{2} \times 2 = \frac{1}{12}$ cfs
2" deep aver
12 seconds to go 2'

negligible

GPS 30 39 23.020 N
85 41 06.673 W

entered as Cypress on GPS unit

Beckton Spring Discharge

36-5-02 ~~framed~~

Just up run from Holmes Creek

1 ft $\rightarrow$ 71 ft 5"

width 70 ft 5"

Rained out - T-storms

6-10-02 back again is same spot, Approx 100m from Holmes Creek 12:30 eastern to 2:00 pm

7 ft = 77 ft 70 ft wide
measure every 3.5 ft

Transect #9 on data logger
43 observations

99.53 cfs

0.63 ave. vel.

Have to subtract Q from stream that flows into

Beckton Spring near the vent:

Stream Discharge:

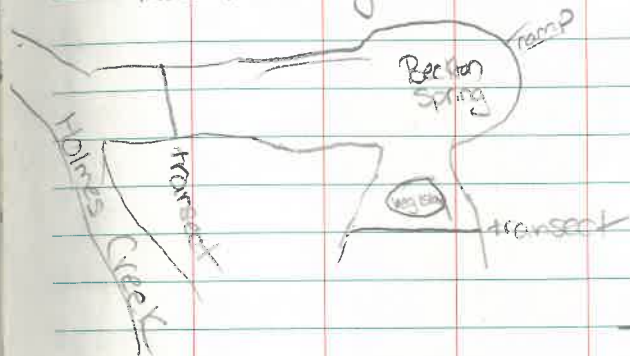
10 ft $\rightarrow$ 59 ft 49 ft
@ every 2.5 ft

transect #1 on datalogger

obs = 21

Q = 78.34

Ave velocity = 0.93



99.53
- 73.34

Beckton Discharge 26.19

ending 3:30 pm

With R. Means, R. Meegan & J. Cohen

Willford Spring
 June 13, 2002 → 9:50 am eastern
 Tina Roberts, Alan Baker
 Rebecca Meegan



Transect #2 in AquaCalc 25 obs
 11.7 ft → 24.5 ft length = 22.8
 measure every foot

ave velocity = 0.65
 $Q = 25.46$

24.5
 Washington Blue Springs on ~~Transect~~
 June 13, 2002 12:15 eastern
 Tina Roberts, Alan Baker
 Rebecca Meegan



Spring flow is coming out 2 caves
 + we measured there. Not
 flow

Transect #3 in AquaCalc 14 obs

0.7 ft → 22.0 ft 21.3 ft across
 measure @ every ft

ave velocity = .24
 $Q = 7.0$

Discharge Instructions

Location - want channel to be as even as possible. If using Price, need depth 1.5ft $\rightarrow$ 5ft

Will have to clear at least 5ft on either side of tape so want area to be as clear of veg, rocks, logs as possible

String measuring tape perpendicular across spring run.

1st observation "The Wall" - set distance to waters edge (or where flow starts), set depth to 0, velocity = 0

2nd observation - Start where depth is ≥ 1.5 ft. If < 2.5 ft^{deep} will only need to take 1 reading at 60% depth (measured from water surface). Make sure Obs. Depth is 6. Set distance from tape + set depth. When measuring at 60%,

wading rod is set at depth.
Hit Measure Velocity

Need to take at least 20 increments so divide evenly or according to channel shape

If depth > 2.5 ft need to take 3 measurements at the same spot

① 60% depth, wading rod set to depth

② 80% depth, wading rod set to $\frac{1}{2}$ depth

③ 20% depth, wading rod set to $2 \times$ depth

For each obs, set Obs. Depth to

6, 8, 2 respectively

Can do in any order

Each time you measure velocity will be a different observation $\neq$

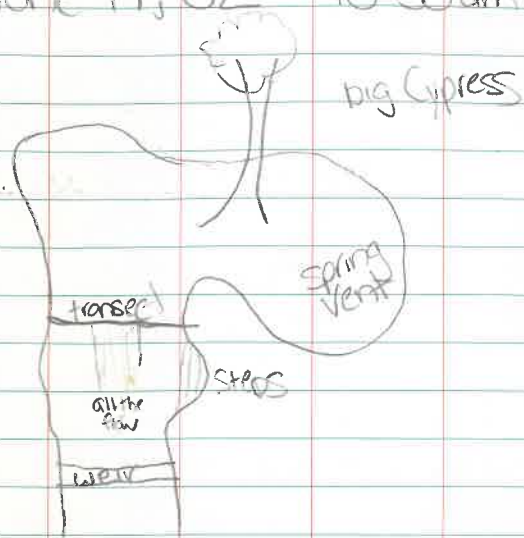
Last observation $\rightarrow$ Set distance to end of waters edge on tape (or end of flow), set depth to zero, velocity will be zero

At end hit # 5 - Calculate Discharge

can go back + change the depth, distance or obs depth of any observation before calculating Discharge (without having to measure velocity again)

Ponce de Leon Discharge

June 14, 02 10:30 am eastern



Width - 45'

Couldnt get any flow measurements
All the flow is in the center
20'.

Tons of swimmers came so
had to leave. Need to
come back EARLY

Will have to set "The Walls" in the
middle of channel

Jackson Blue Hole Discharge

June 19, 02 9:30 am eastern

Came to do discharge but
too little flow. Water level
is low so the sink + vent are
not connected.

We did not sample in actual
vent this past winter when
sampling off the dock.

Actual vent is in between swim
rope + foot bridge near the
sink.

Could see blue water but no vent

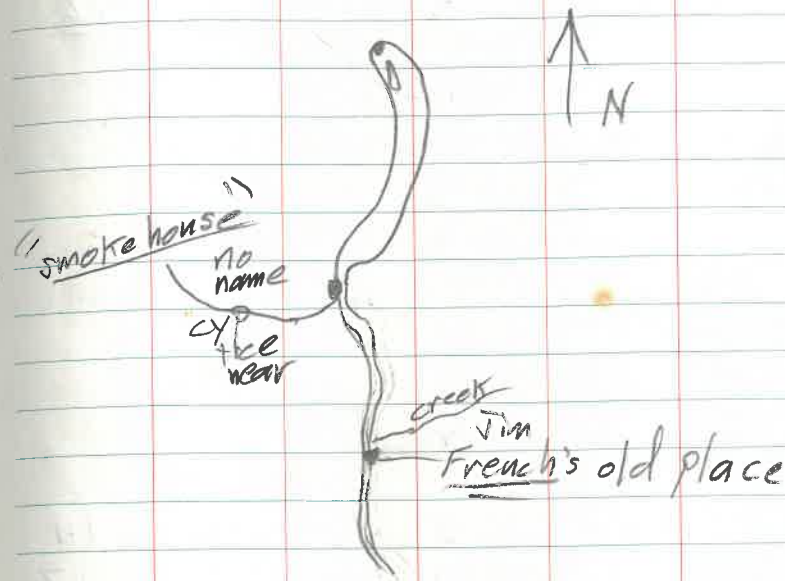
Downstream a good deal near
the old gristmill + hatchery
is a good spot to take
discharge with the Marsh-McBury
Can drive there by going past
Blue Hole into residence area, gate

Rhodes # 2 combined

15.3 total width
2 ft estimated max depth
wall = 3.7 = SOL

Station	dist	depth	.6	.8	.2
1	3.7	0	-	-	-
2	5.0	1.4	.2	.12	.29
3	6.0	1.62	.45	.32	.47
4	7.0	1.85	.57	.47	.57
5	8.0	2.06	.52	.36	.74
6	9.0	2.00	.69	.36	.69
7	10.0	2.12	.64	.34	.72
8	11.0	2.30	.53	.32	.61
9	12.0	2.42	.47	.42	.61
10	13.0	2.50	.48	.39	.58
11	14.0	2.30	.40	.30	.48
12	15.0	2.42	.26	.06	.34
13	16.0	1.80	.32	.17	.27
14	17.0	1.72	.27	.14	.26
15	18.0	1.60	.14	.12	.11
16	19.0	0	-	-	-

St Marks Area springs



1890's logging dam on St Marks
dynamiting at Nat Bridge

6-28-02

Ponce de Leon Spgs.

RPM, MMG, JAM, RCM

(5 sec averaging)

station	dist	depth	.6	.8	.2
1	6.5				
2	8.0	.52	0		
3	9.0	.8	0		
4	10.0	1.02	0		
5	11.0	1.26	0.04		
6	12.0	1.4	.06		
7	13.0	1.52	.04		
8	14.0	1.63	.11		
9	15.0	1.74	.11		
10	16	1.9	.16		
11	17	2.0	.14	.08	.14
12	18	2.14	.13	.10	.17
13	19	2.35	.14	.08	.14
14	20	2.6	.18	.15	.17
15	21	2.82	.12	.04	.16
16	22	2.92	.11	.17	.17
17	23	3.20	.16	.10	.15
18	24	3.1	.18	.08	.15
19	25	3.16	.16	.16	.19
20	26	3.2	.15	.16	.14
21	27	3.24	.18	.15	.15

Ponce de Leon (cont)

sta	dist	depth	.6	.8	.2
22	28	3.24	.14	.17	.16
23	29	3.3	.18	.16	.16
24	30	3.22	.20	.17	.17
25	31	3.26	.19	.14	.14
26	32	3.18	.13	.14	.17
27	33	3.00	.20	.17	.18
28	34	2.8	.19	.19	.18

.6 method Q = 4.69

.2, .6, .8 method Q = 8.61

Blue Hole Spring (Jackson G.)

6-28-02

RPM, RCM, MMG, JAM

Discharge

Transect: 0.4' → 29.3'

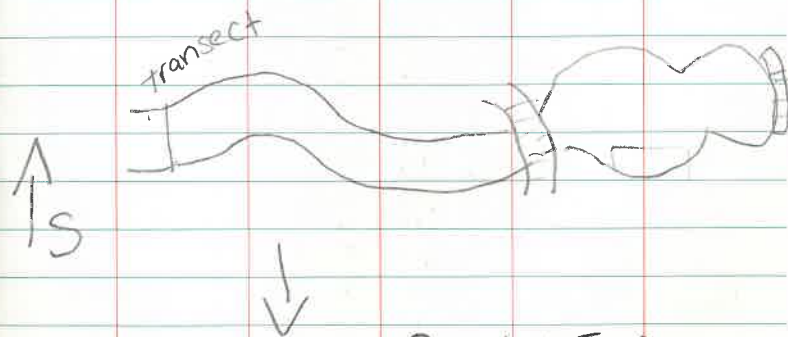
Station	Distance	Depth	.b
1	0.4	0	0
2	2.0	0.8	0.02
3	3.0	1.0	0.04
4	4.0	1.39	0.03
5	5.0	1.5	0.05
6	6.0	1.6	0.05
7	7.0	1.5	0.06
8	8.0	1.55	0.06
9	9.0	1.55	0.06
10	10.0	1.45	0.06
11	11.0	1.46	0.07
12	12.0	1.42	0.06
13	13.0	1.4	0.06
14	14.0	1.43	0.05
15	15.0	1.43	0.05

Station	Dist.	Depth	0.6	1.175	1.3	5.2
16	16.0	1.4	0.04			
17	17.0	1.37	0.03			
18	18.0	1.39	0.04			
19	19.0	1.31	0.04			
20	20.0	1.2	0.01			
21	21.0	1.12	0.02			
22	22.0	0.95	0.01			
23	23.0	1.3	0.00			
24	24.0	1.13	0.01			
25	25.0	1.13	0.0			
26	26.0	1.1	0.0			

GPS Location w/ James' Magellan

30° 49' 09"

85° 14' 38"



Q = ϕ .65 cfs

Charles Spring 7-9-02

Still not flowing. In the area so
we stopped by RCM, RPM, JAM,
TLR, Kery.

Allen Mill Pond Spring 7-9-02

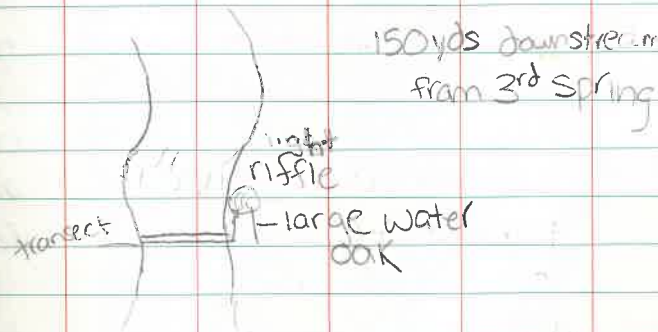
RCM, RPM, JAM, TLR + Kery, ^{RPM}

Sampling discharge below all 3
spring vents. Little flow was coming
out of the sampled vent.

1054 → 2754

Station	Dist	Depth	O.b
1	10	0	0
2	13	0.19	0.14
3	14	0.2	0.14
4	15	0.23	0.3)
5	16	0.23	0.35
6	17	0.23	0.17
7	18	0.27	0.37
8	19	0.26	0.55
9	20	0.29	0.61
10	21	0.25	0.16
11	22	0.30	0.54
12	23	0.42	0.84

Station	Dist	Depth	O.b
13	24	0.42	0.99
14	25	0.34	0.80
15	26	0.32	1.01
16	27	0.42	1.44
17	28	0.52	1.21
18	29	0.6	0.55
19	30	0.5	1.07
20	31	0.61	0.61
21	32	0.5	0.65
22	33	0.62	0.48
23	34	0.51	0.40
24	35	0.58	0.17
25	36	0	0



$$Q = 2.89$$

Running Spring 7-9-02

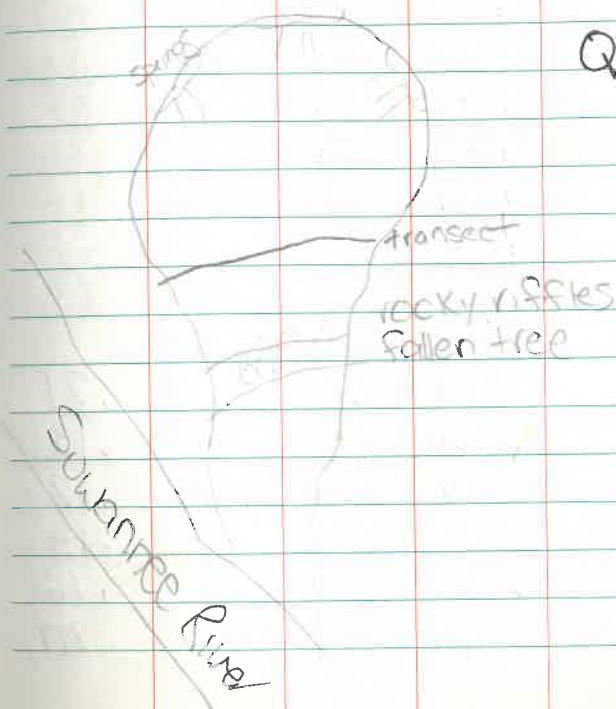
Measuring discharge
JAM, RPM, RCM, TLR, Kenji

1800

Station	Dist	Depth	0.6	0.8	0.2
1	1	0	0	0	0
2	2.5	0.79	0	0	0
3	3.0	1.04	0	0	0
4	3.5	1.30	0	0	0
5	4.0	1.53	0.34	-	-
6	4.5	2.23	0.55	0.68	0.78
7	5.0	2.31	0.98	0.98	0.80
8	5.5	2.38	0.97	0.88	1.17
9	6.0	2.87	0.98	0.14	1.05
10	6.5	3.12	0.28	0.14	1.04
11	7.0	3.30	0.14	0.09	1.03
12	7.5	3.44	0.86	0.60	0.93
13	8.0	3.55	0.76	0.68	0.68
14	8.5	3.58	0.78	0.77	0.55
15	9.0	3.65	0.76	0.76	0.97
16	9.5	3.73	0.97	0.83	0.90
17	10.0	3.73	1.03	0.95	0.98
18	10.5	3.70	1.10	1.18	1.10
19	11.0	3.68	1.14	1.20	1.04

Station	Dist.	Depth	0.6	0.8	0.2
20	11.5	3.60	1.20	1.12	1.05
21	12.0	3.75	1.03	1.09	1.00
22	12.5	3.72	0.88	0.97	0.80
23	13.0	3.73	0.62	0.86	0.47
24	13.5	3.69	0.88	0.85	0.42
25	14.0	3.62	0.65	0.80	0.10
26	14.5	3.55	0.44	0.10	0.10
27	15.0	3.46	0.23	0.10	0.18
28	15.5	3.35	0.83	0.14	0.09
29	16.0	0	0	0	0

$$Q = 29.49$$



Bradford Spring

7-10-02

JAM, TLR, RCM, RPM + Kery

10:30am

Measuring discharge

Rated considerable amount of algal mats

Station	Dist	Depth	0.6	0.8	0.2
1	4.7	0	0		
2	8.0	0.72	0		
3	8.5	.92	.02		
4	9.0	1.09	.03		
5	9.5	1.15	.05		
6	10.0	1.20	.08		
7	10.5	1.40	.08		
8	11.0	1.49	.11		
9	11.5	1.51	.11		
10	12.0	1.62	.15		
11	12.5	1.72	.17		
12	13.0	1.85	.15		
13	13.5	2.02	.12	.10	.21
14	14.0	2.08	.11	.11	.13
15	14.5	2.14	.13	.11	.12
16	15.0	2.2	.17	.13	.14
17	15.5	2.33	.19	.20	.16
18	16.0	2.39	.19	.23	.20

Bradford Spring (cont)					
Station	dist	depth	0.6	0.8	0.2
19	16.5	2.5	.19	.23	.20
20	17.0	2.5	.23	.16	.25
21	17.5	2.5	.20	.17	.27
22	18.0	2.65	.20	.16	.19
23	18.5	2.63	.19	.08	.22
24	19.0	2.61	.20	.20	.25
25	19.5	2.55	.23	.19	.28
26	20.0	2.54	.26	.15	.20
27	20.5	2.44	.36	.25	.30
28	21.0	2.40	.32	.28	.31
29	21.5	2.34	.39	.17	.30
30	22.0	2.14	.32	.20	.30
31	22.5	2.03	.33	.21	.20
32	23.0	1.99	.31		
33	23.5	1.80	.29		
34	24.0	1.65	.20		
35	24.5	1.49	.12		
36	26.0	0	0		

$$Q = 5.64$$

Suwanacoochee 8-6-02

RLM, RPM

pool dimensions: 15' diam, boulder filled
depth: ave = 2' except at vent in W side goes to 10'

water color: clear, greenish

algae: tons, dark green/brown

aqu. veg: couple Hydrocotyls

high ground: comes out of high banks, steep, 25'

high, sandy atop, limestone boulder below, on W
side of lowest Withlacoochee R.

surroundings: forested State Park prop -- mixed
hardwood Live Oak.

Spring flows from high banks directly into Withlacoochee R.

An old rock wall ^{12' high} creates a pool, then outflow
stream dumps into adjacent river. Rock wall disfigured
with age. Pool has sand & boulders. Pool has vertical
limestone boulder side walls in addition to wall.
Run virtually nonexistent, 5' long in low River Stage.

Est. discharge:

Stream width: $5\frac{5}{6}'$

average depth: $\frac{1}{2}'$

$\frac{f^3}{sec}$

ave. vel: 1.32, 1.53, 1.17, 1.21 f/sec ave = 1.30 f/sec

.54 cfs

Ellaville Spring

8-6-02

RCM, RPM

pool dimensions:

depth: reportedly to 150'

water color: clear

algae: thick

aquatic veg: none

high ground: 20' high limestone banks surround all sides
(Suwannee River)

surrounding envr.: Forested, hardwoods, adjacent to SUW S.P.

About 105' W of old RR ^{bridge} trestle (downstream from it)

John Dunk - Surveying Edwards / Suwannee Springs Screwloose@athlet.net
386-719-9658

Pours very swiftly from a limestone cave system within the High river banks. The underground cave system is reported to connect to the Suwanacoochee system, extending thousands of feet & under the river channel

Forested surroundings, SRSP just to NE upstream & past R+R bridge. US 90 bridge visible about 700' downstream. Spring channel plunges thru limrock boulders for about 30' and into SUW Riv. Vertical limestone walls & caves...

Discharge: Stream average depth: 0.8, 1.0, 0.9, 0.9, 0.55, 0.7, 1.0, 1.85
width: ~~4.5~~ 5.5'
ave. velocity: .26, .59, 2.23, 1.85, 1.89
1.46 1.99

Mileages

Branford to SR 349 1.3

Branford to CR 248 3.0

Owens Spring 7-10-02

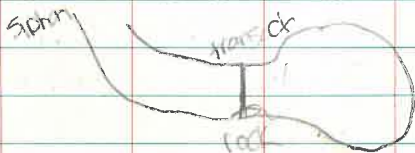
JAM, TLR RCM, RPM + Kenji

12:08 pm

measuring discharge

$Q = 0.44$

Station	Dist	Depth	0.6
1	2.0	0.0	0.0
2	3.0	0.60	0.36
3	3.5	0.70	0.45
4	4.0	0.65	0.56
5	4.5	0.60	0.44
6	5.0	0.56	0.36
7	5.5	0.55	0.32
8	6.0	0.52	0.10
9	6.0	0.0	0.0



7-15-02

Apalachee Bay Springs

RCM, GHM, RPM, JAM

Bunk mission

8-12-02 Suwannee Springs

pool depth: 7.8'

" diam: 17' N-S, 25' E-W
(not yards)

color: yellow-greenish

aqn. veg: none

algae: short run to river
absolutely choked all over

limerocks. Algae in pool

50% coverage would be

worse if no swimming here...

surroundings: SRWMD interpreted
park, Pine-Oak hardwood
forest

High ground: The springs
trickle from the base of
high river banks -- Banks
are at least 30' high.
Limestone sidewalls the first
15-20' feet on south bank.

Description: Suwannee Springs
is comprised of numerous
small rivulets & trickles that
emerge from the base of
high limestone banks along
the S side of Suwannee R.
The main spring is captured
by a man-made rock wall,
with arches & windows, 15-18'
tall, built in late 1800's.
The main spring has a small
pool behind the wall, then it
trickles thru and under the
rock wall and spills a short
distance over algae-covered
limestone rocks into the adjacent
tannin-colored Suwannee R.
On the E side of pool, a

wooden ladder-walk leads down
from parking and interpretive
area into the spring. The
water smells of H_2S . Very
heavy human use with
litter items plentiful. Saw. R.
is historically low and at
least 4' below bottom of
rock wall with 30' sandy
beaches exposed! Remains
of old bridge struts on
each side of river are just
30' E of rock wall.

8-21-02

Crystal Springs RCM, RPM

Meg Andronico contact

@ Zephyrhills

Two Rivers Ranch 500 acres

pool dimensions: N-S 45 yds x 92 yds NW-SE

" depth: ave 4' up to 10' in
SE boil.

color: greenish light blue

aquat. veg. *Valcinerea* 20%

algae: thick - 80% coverage

surroundings: Mowed grassy area
with live oaks & palms.

Hillsborough river on NW side.

high ground: To SE, ground rises
to ~ 8' above H₂O. Gentle slope.

Description: Crystal Springs
sits in a man-made pool
along the SE side of the
Hillsborough River. The pool

edges are entirely surrounded
by concrete bag walls, the
walls average 5' tall. On NW
side of pool, there is a
weir and boardwalk structure
that regulates pool level.

A swift chute underneath out
into the tannic Hillsborough
Virtually no spring run.

Multiple boils in wide, shallow
pool. Bottom is rocky and
sandy with abundant *Valcinerea*
River at spring is about 35 yds
wide. On SE end of pool,

construction is being done
to make an observation platform.

The spring is being developed
into an interpretive area for

Kids... We sampled the vent
on SE side near future platform
and where a thick stainless steel
pipe goes in & withdraws water
for Zephyrhills. Owned by Twin
Rivers Ranch. Flood plain of
River here is pristine swamp
forest.

Multiple boils throughout oval pool. A drainage pipe on N side leaking water.

Eureka Spgs 8-21-02
(and Indian Spgs) RCM, RPM

multiple springs and runs
additional to Eureka

Cliff (Long blonde hair)
Hillsborough Co Parks &
Recreation

A county park of 40 acres
Eureka pool: circular 25' diam.
depth: ~5' in center
color: black, tannic
veg: choked w/ grass
surroundings: 40 acre County
Park. All swampy burlands.
Highly developed w/ foot trails

and boardwalks. Cypress &
hardwood swamp forest.
~~There~~

Description: Eureka Spgs. is
situated along a boardwalk
in a county park amid
a lowland swamp forest.
Spring is not flowing,
but pool and "dug" channel
are inundated w/ black water
and lilies. Park Personnel
said that the spring and
nearby other spgs. don't
flow, except for in Summer
Rainy season, since Army
Corps put in the Tampa Bypass
Canal. And others aren't flowing
right now.

"No Name Spring" description:
Situated N of parking lot,
in view. Circular, not flowing,
33yd diam. Sculpted pool,
entirely covered in duck

weed, flows into a canal
thru a culvert on N side.
Shell-covered foot path
encircling. Stagnant
black water. Unk. depth

Indian spring reduced to
a small puddle

Rosseter Spring
With a Cooshee River

8-22-02 RCM, RPM, GHM

Jim Wagner, contact
Kerry Hardy, Attorney in Macon
→ No show

Wacissa R. Spgs

~~Ancilla Spring~~ 8-26-02
~~unnamed #1~~ (unknown) to d-base)

~~LOG Spring~~ Walla #3a

RCM, RPM

pool diam: oval shaped, 30' N-S,
20' E-W

pool depth: average 15', 2'
over sandy soil

color: clear, slight bluish

algae: light

veg: none in pool, Hydrilla
in Run

surroundings: Boat Ramp parking
on West side. Dense swamp
forest on E side.

High ground: Land on W side
is 5' higher than present
H₂O level (brought in for
parking). 2 1/2' higher on E
side. No real high
ground.

Description: Ancilla Spring ~~3a~~
is one of the head springs

of the WAC River. It is located adjacent to boat ramp parking (which is on the W side). It was bare, evident today, containing ≥ 8 miniscule sandy boils (6th mag est) in pool.

The largest is coming out of bank on NW side of pool.

There is a 5' high Indian Mound, 5' off from the

E side of pool, pristine condition. 30 yd run south to boat ramp. 20 yd down, Aucilla Spring comes in on E side. Bottom organic debris.

Aucilla Spring: 8-26-02
RCM, RPM

pool dimensions: roughly circular,
25' diam

pool depth: 4.2', 2' average

color: clear, slight blue

veg: Hydrilla choked in 75% of pool. Some Valoniopsis

algae: Thick green patches

Surroundings: Dense Swamp forest. Aucilla unknown #3 is about 60' to the NW. Indian mound 40' to NW. No high ground

Description: Another WAC head spring. Today's flow is slight, but has a noticeable flow, unlike Auc unk #3. Rocky and sandy bottom, covered with organic particle deposition. Water level about 1' lower than Ordinary -- exposed tree roots all around perimeter, 25' short run heading into Auc #3 run, merging just up from the boat ramp. No surface boil

Aucilla #1
~~Log~~ Springs 8-26-02

pool diam: 30' roughly circular
depth: 9.6'
color: clear, light bluish
veg: Hydrilla choked, except
for the vent opening
on bottom. A floating leafy?
algae: light to moderate covering
on Hydrilla.

surroundings: All surroundings
forested w dense swamp for.
except for on NE side
where boat ramp & parking is

high ground: All lowland swamp.

Description: Log Spring is
situated on the bottom of
the large, wide head springs
pool on the NW side. FYI,
head springs pool is 117 yd E-W
x 100 yd N-S. Log Springs

is 205 yds N of the
top end of the first Island
downstream of boat ramp.
It has a circular vent in
limestone, 1 1/2' diam, and
is blowing enough H₂O
to produce a small boil on
surface. A limestone ledge
exposed just south of vent.
Bottom is organic, except
where vent is.

Thomas Spring 8-26-02

pool diam: 25' N-S x 15' E-W
depth: 7.9'
color: clear, slight blue
veg: Hydrilla common all
around edges.
algae: present in & around Hydrilla

surroundings -- same as Log
Springs, but now parking
area to the E about 125
yds

high ground: none nearby

Description: Thomas Spring discharges from a 20' long elongated fissure, N-S running, from the bottom of the NW side of the large, open Head Springs pool area, about 75 yds NNW of Log Spring. It is about 25' from low lying swamp land that is on the W side of pool. Bottom is sandy & rocky with a light organic particulate dusting. Enough current producing a light elongated boil on surface.

LOG Spring

Wacissa, Unnamed #1

Proposed name: "Crack Spring"

8-26-02

pool dimensions: 29 yd N-S
15 yd E-W

depth: 25.2'

color: blue, clear

veg: Hydrilla on edges,
some Valoniopsis.

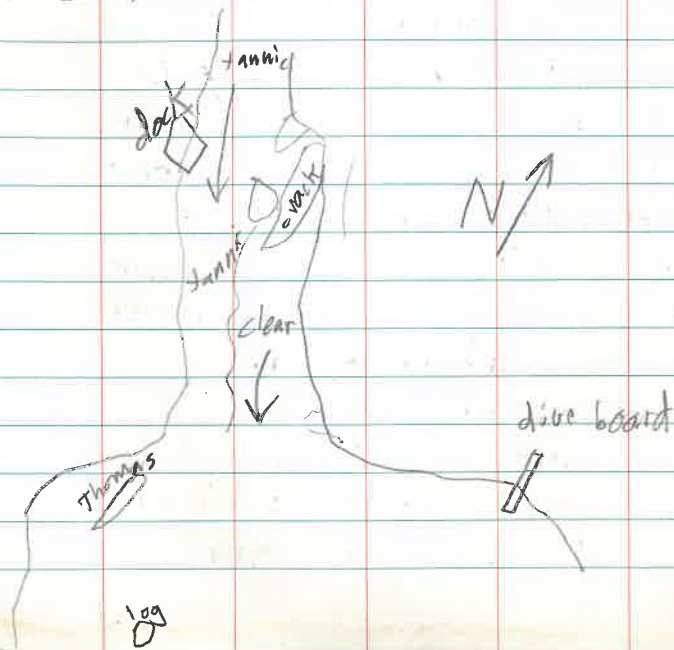
algae: on veg.

surroundings: dense lowland swamp surrounding. Private fish camp & dock on W side across incoming stream channel.

high ground: None -- flatwoods to W.

Description: This spring would appropriately be called "Crack Spring." It emerges from the bottom of a greatly elongated limestone fissure, 29 yds long N-S, and as much as 7' wide. This spring is 75 yds N of Thomas Spring and I suspect that both exude from the same fissure, just 75 yds removed from one another.

They are aligned in same orientation. This one is more dramatic than Thomas. This unnamed spring is 60 yds North of the main head springs pool up a 150' wide channel incoming on N. side. Above this spring the channel continues to narrow and is tannic now. This spring has enough flow today ~~not~~ to create a light boil on surface and dominate the flow of the tannic stream.



Bottom is rocky with vertical rock walls along crack. Fish abundant. Located on edge of narrowing channel on N side of head pool. This is the most voluminous head spring seen today.

Cassidy Spring 8-26-02

pool dimensions: 45' diam pool
circular

depth over vent: 27.0'
straight down vertical tunnel. Rest of pool shallow - 1.5' average.

color: clear, light blue

veg: 50% *Hydrilla* cover
pickerel weed.

algae: very light

surroundings: wide river on E side, relative high ground mixed hardwood forest

on W side

high ground; rises gently
to 5' above H₂O level,
and harbors thick hardwood
hammock w/ some spruce pine.
On W side

Description: Cassidy
Spring sits in a shallow
circular, bowl shaped depress.
off of the W side of
the Upper WAC about
500 yds below the Island
It has a dramatic vertical
tunnel, 27' deep, circular
6' diam, for a main vent,
with two other openings
adjacent NW and NE of
main vent. Light boils
over all 3 vents. Has a
90' run, as wide as pool,
to the WAC. Run shallow,
choked w/ Hydrilla. Flows
E into nearby WAC.

Bottom limestone and
white silt and sand.
Swimming frequent.

Minnow Spring
~~Wacissa Unnamed #2~~
8-26-02 RCM, RPM

pool dimensions: circular -- 30' diam
pool depth: 7'
color -- clear, bluish
veg: Hydrilla, pickerel weed, lilies
algae: patchy

surroundings: lowland swamp
forest.

high ground: none -- all lowland
swamp.

Description: This spring
is located off the E side
of the Upper WAC about 300 yds
downstream from Cassidy Springs
but on other side of river

It sits in a shallow, circular depression with the small vent in center issuing a slight boil at a 45° angle. There is limestone rubble on bottom with organics in slow areas. A section of the pool on W side has been blown out by artifact hunters. Run, as wide as spring pool flows W ~ 100 yds into the wide Wac River.

Buzzard Log
~~Wacissa~~ unnamed #3
8-26-02 RCN, RPM

pool dimensions: 25' diam rough circle

depth: 6.2' over vent

color: clear

veg: surrounded by various emergents

algae: on veg.

surroundings: WAC R. on W side lowland swamp on E side and a thickly grown-over clear water spring run that flows over this spring.

high ground: none (all lowland)

Description: This spring is situated in the middle of the mouth of a small spring run that enters the WAC on its E side. This spring is essentially on the E bank of the river. Its bottom is thick dark detritus deposited due to low flow. There is a very slight boil over the narrow crack vent. Some limestone rubble at vent only. Choked w/ emergent veg on all sides except on river side. The incoming spring run has flow, and will be explored tomorrow...

This spring is located 119 yds east of the mouth of Little Blue Spring Run, directly across the 119 yd wide river.

On 8-26-02 we saw 2 otters up the next small spring run downstream from Unnamed Spring #3 (on E side of river)

Wacissa Unnamed Spring
2 8-27-02
RCM, RPM

pool diam: roughly circular

30' diam
pool depth: 3.5' over largest vent
color: clear

veg: pickerel weed, Hydrilla

algae: some in stagnant areas
+ on veg.

surroundings: All densely forested swampy lowlands and nearby WAC River to W.

No nearby high ground.

Description: This little spring has two small vents, one on the N end of pool, and a larger one on S end of pool, each flowing enough to produce small boils on H_2O surface. Because of low water level, there is a dark layer of organic particulate matter deposited all over pool bottom and spring run, except at the vents. Normally, there would be bare sand and limestone rubble bottom exposed. The run flows West, ~125' directly into the wide WAC R. it enters in ~~down~~ on E side of river ~~at~~ 159 yds above tree Island.

Garner Spring

Wacissa Unnamed #5
8-27-02 RCM, RPM

pool dimension: circular, 35' diam
depth: 14.7'

color: blue

veg: Hydrilla, pickerel weed

algae: long and thick algae
from stagnation.

surroundings: pristine lowland
swamp forest.

high ground: none.

Description: This gorgeous
spring is nestled about 750 yds
back into the swamp on
the E side of the WAC.
Its run (750 yds long) enters
the wag just 100 yds N of
where the largest run of
Big Blue enters. It sits
in a bowl shaped depression
that has many huge

downed cypress logs
and it has an old wooden
platform on N side.

It has much Hydrilla on
barely any flow. Run averages
8" deep and has a narrow
channel open in center --
kept open by Otters we
saw -- But not an easy
canoe. No boil, but some
slight flow in run.

✓ Rossetter Spring Withlacoochee River 8-28-02

pool diam: circular, as wide
as run 15' diam.

pool depth: 4.5' at mouth
at limestone cliff over
hang.

color: slightly turbid and
greenish.

algae: just choked with

dark and light green Lingbia
veg: none but algae

surroundings: Withlacoochee R.
on W side and high banks
with managed pine forest
atop to E.

high ground: high banks of
river and spring rise
to about 25' above present
H₂O level.

Description: Rosseter spring
emerges from the base of
high limestone then sandy
banks of the With. River
about 40 yds up a deeply
cut channel on the E
side of the lower With.
River. It flows out of
a horizontal cave. Its
run travels 20 yds S, then
turns 20 yds W until
reaching the River. A 3'

high limestone boulder ^{was} made
rock wall impedes the
flow at the interface with
River, and its present
low flow just trickles through
the rocks and into river.
On the N-side high banks
at the mouth of Spring run,
a concrete stairwell runs
up the bank to the top. Today,
water levels of both the
spring and River are at
historic lows. The entire
rock wall from base to
top is exposed, high and
dry. Jim Wagner reports
that more normal water levels
allow you to canoe over
the rock wall! There was
no smell here.

Unnamed Spring on Southern
boundary of WMD Land
on E side of Withlacoochee
River. Above Rosseter.

A boil out of East bank
of River with another
boil above, but now is a
stream out of limestone
bank 6" above River Level
today. Adjacent to River.
5' deep in biggest boil. Slight
smell of sulfur. Just downstream
of a steep WMD canoe launch.
Much, long filamentous algae.
High banks here.

Washington Blue (Choctaw)
9-4-02

discharge

Took many pics.

H₂O level way down.

Run now flowing and
scouring bottom. An old
boat hull is located 1'
above H₂O on S side of
Run half-way up. Place
wreaks of history.

Discharge taken about 10'
below spring pool.

Prominent boil, crystal
clear H₂O in Run + pool.
Bluish in pool. Magnificent.

Blackwater River S.F.
9-5-02 RCM, RPM
Unnamed Spring #1
(Stump Spring)?

Not a spring. Just
an isolated wetland amid
tall rolling Citronelle Hills,
all longleaf pine forest
surroundings. Several Black Gum
trees in center. Open canopy
with good grassy veg. Great
amphib. pond! Ephemeral, but
holding at least 1' H₂O
today. 100' diam. Digital
picture taken. Small ephemeral
creek drains it thru culvert
under rd. flowing west into
Thompson Spring Branch. This
one is S of the Church.

Another two similar wetland seeps with west flowing ephemeral creeks North of Stump Spring Church. These two actually hold H_2O longer than Unnamed Spring #1.

Recap: Unnamed spring #1 is $\frac{1}{4}$ mi S of Stump Spring Church on right side of rd. Heading north, another ephemeral seep spring is $\frac{1}{4}$ mi north of church on right side of rd. Continuing north on rd, the third seep spring is another $\frac{1}{4}$ mi north on right side of rd.

Unnamed Spring #1a

The second wetland has a dirt rd. drainage ditch going into it, flooding it with clay-silt water... (Pic)

unnamed Spring #1b

The third wetland (heading

northward) seems to have the longest hydroperiod -- it has a ring of small pond cypress, unlike the other two that only have Nyssa. This pond has an open water center and a small outflow stream flowing west into Thompson spring branch. 150' E-W x 100' N-S. Pic

Unnamed Spring #2 Blackwater S.F.

This is a seepage stream head, kind of a cross between a ravine & steep head. It is an hourglass shaped with steep slopes on 3 sides, and a tiny damp stream bed within. Sphagnum, Black Titly and hardwoods. Great salamander seep. No karst. All citronella

Pic

Blue Spring, Falm AFB
9-5-02 RCM RPM

This is an interesting seepage spring with a sizeable spring pool. H₂O clear with slight algal murk. Bottom entirely sandy with no limestone outcropped. Flows north out of a stream channel. Great big sandy seep with a bona fide spring pool. Many fish & turtles. Wooden dock on SE shore. Hiking trail in from road. An "encouraged" swim area. Surrounded on 3 sides by high sand hills. Longleaf pine uplands. Rich aquatic veg. 41yd E-W x 61yd N-S. Surrounded by black titi & gum swamp thin zone. Water is green.

Citrus Blue 10-16-02
RCM, RPM, Dave Rwit
pool dimen: 39yd N-S; 40yd E-W
depth: 22'
color: bluish-green
veg: eelgrass 35% cover.
algae: thin algae

surrounding: lowland river
floodplain - forested. Cypress
& mixed hardwoods.

Description: Circular pool flows W through a man-made canal and into river. Originally, the spring water flowed ~~NE~~ a short distance into the nearly adjacent Withlacoochee River. Vent in center. Very slight boil. Shallow-sloping conical depression until vertical tunnel at vent. There is a 4-5' tall berm built around the pool to keep the river out. on (sandy bottom; limestone @ vent)

top is a well used foot path.
Heavy swimming here
and a rope swing. Private
residence $\frac{1}{4}$ mi to NNE
along S Riverbank. Outflow
canal $\frac{2}{3}$ mi long flows
NNE and wraps back around
to very tannic river.
With Riv is up today
and extremely black.

Citrus Blue Discharge Estimate

Depths: 3.2, 3.2, 3.0, 3.2 : 3.15
Width: 15 Length for speed: 10 ft.
Speeds: 30s, 24s, 33s, 29s 29s
Q = 16.3 0.38

Channel is choked with veg. &
eel grass. Not suitable for
Marsh BoBorne. Don't want to
disturb environment due to
landowner.

Wilson Head Spring

Drake Ranch

10-16-02

RCM, RPM

pool dimensions: 32 W-S; 24 yd E-W
depth:

color: light blue

aq. veg: water lettuce & lilies edge

algae: thick layer

Surroundings: Cattle pasture far
off, Immediate hardwood/palm
forest.

Description: Modified spring
pool dug out. Burn around
pool. Old dam structure
at outflow, ruins. Stream
flows generally S for
several hundred m until
reaches the Withlacoochee R.
Limestone & sandy bottom.
Vent on W side near bank.
River floodplain has standing
H₂O. Stream averages about
2-3 f across. Est. 2 cfs
and flowing swiftly.

River floodplain, all to the S. Palms & hardwoods growing around edge. Camp site on E side, hunters - primitive. Very slight boil. Immediate surroundings on E side grassy w some trees. All surrounding land very low, To E land rises 2-3 feet.

SWFWMD Flow measurements

2.76 cfs 7-26-2000

0.25 cfs 1-17-2001

Apopka Spring 10-17-02
RCM, RPM

pool dimensions

depth: 45.5'

color: Clear

aq. veg: emergents all around edge

algae: thin

high ground; none adjacent. All lowland lake perimeter. But 100 yds W, sandhills rise to 30+ feet. All suburban & agriculture. To E side of Gourd, Va hill 30' surroundings: Forest-swamp-marsh, thicket buffer around Big Gourd Neck. To east is a hill w planted slash pine.

Description: Apopka spring occupies an open cove on the NW side of Gourd Neck of Lake Apopka. Cloudy lake water quickly turns clear as you approach the spring cove. The deep vent is in the center of the cove and there is a large boil on the surface. Today, there is much large particle debris in the vertical boil column. Organic Bottom.

Cove is shallow around perimeter of bowl shaped submerged depression.

Lake level has risen feet during last month of tropical rains and one Oct 15 cold front.

pool dimensions: 90 yd diam

Cove dimensions: 147 yd N-S; 119 yd E-W

Some Hydrilla on slope edge down to vent.
Sandy & organic bottom

Wekiwa Springs Resample
10-17-02 RCM, RPM

11-6-02 Blue Spring
Choctawhatchee River
RCM, RPM

pool dimensions: circular - 30' diam
depth: ~~10.7~~ 29.2'

color: light blue

aquatic veg: none or very little

algae: none or very little

high ground: no real high ground nearby, but spring has steep clay banks that rise 8' above today's H_2O level.

Surroundings: all surrounding land on this West side of Choctaw. R. is flood plain, not low and swampy, but relatively high and densely wooded with river birch, willow, hardwoods, and the occasional cypress, and sycamore

Description: Blue Spring fits my idea of a beautiful, pristine, untouched, wild spring in a wild undeveloped river system. There is a meager rope swing and litter is very little. It sits in a perfectly conical, circular depression in clay banks, and the narrow run flows 45 yd SE and into the muddy Choctaw R. The run averages 2' deep and has 8' high clay banks. The H_2O level of the spring is directly governed by the nearby river level, which fluctuates naturally and wildly, as there are no dams upstream. There is a single circular vertical vent, in center, and it gushes bluish H_2O into a forceful vertical boil, that rises 2" higher than average spring surface.

There are a few sticks and logs on the sandy-clayey bottom. ~~No limestone at the bottom readily visible~~, but the vent appears to go several feet deeper into dark depths. A diver could tightly fit. * There is limestone on bottom & vent is deep crack in limestone.

11-6-02 Vortex Spring

pool diam: 75 ~~yd~~ yd diam N-S

pool depth: 48'

color: blue (sky)

aquatic veg: very little

algae: little, cleared by swimming
high ground: the pool is surrounded by moderately sloping, 8'-10' high grassy banks.

surroundings: all grassy with buildings, tables, facilities, dive shop, motel.

Description: This is the antithesis of the spring I just visited. It is built up and deforested for 360°. Multiple swim docks. Diving. Retaining walls. Large, bowl-shaped depression, partly sculpted. No visible bgil. Deep center and very deep overall. Spring run exits and flows East, eventually into the Choctaw R. Sandy & Rocky bottom. Vent on SE side. Extensive cave system,

Sheppard Spring 11-25-02

RCM, GHM, RPM, TMS,
Gary Maddox, Laura Morse,
Angela Chellette

pool dimensions: 30 yd E-W; 35 yd N-S
pool depth:

color: clear - bluish-green
aq. veg: present, not common
algae: thick beds & mats

high ground: none nearby,
entirely within Gulf coastal
lowlands

surrounding environment: Pristine,
intact lowland palm/pine/
hardwood forest. All Refuge
land

Description:

11-25-02 - Field Check for Shepard Spring

D.O. - 103.2

pH. 7 - 7.03

254 ms - 261

Field Ref

Sp. Cond. - 24-1202 - .690 (sat.)

pH. - 15-1202 - 7.30 (sat.)

12-3-02 Field check Choctaw Blue

D.O. = 98.9

PH 7 = 7.02

254 spc = 263

Water Temp of
Choctawhatchee River
on 12-3-02 $\Rightarrow$

Blue Spring (Levy)

12-17-02 RCM, RPM

Pool dimensions: 52 yd N-S;

pool depth: 9' in middle over vent

water color: yellow-greenish

aquatic veg: very little in pool, thick in run

algae: abundant mats & layer on sandy bottom

high ground: None nearby;

Land to NE is approx 5' higher, supporting a parking lot w/ brought in fill...

Surrounding Environment: Spring and run is embedded in low-lying flatwoods supporting planted and cleared pine forest.

Description: Blue Spring is the headwater of the Waccassaw River, which flows ~25-30 mi SW to the Gulf of Mexico.

The spring pool is man-enhanced, circular, & has encircling concrete and wooden retaining wall. The

area around spring is a developed county swim/rec. park. There is grassy flat land with tables & playground equipment around pool on all sides except near out flow. A wooden jump platform is on N side. Several access ladders. The run is one third the width of the pool and flows through a dense intact lowland swamp forest. Blackwater trib. creeks feed the run a short distance down stream on E side. Pool is entirely sandy bottomed with algae mats covering > 90%. A very slight boil on N side off from jump platform. Shallow pool except in center where is 9' over a bowl shaped depression. In bottom of depression are several slight gentle sandy boils. Flow here is estimated at ~ ~~1.7~~ ^{1.7} cfs.

Discharge $\frac{12}{7} \times \frac{15}{7} \text{ ft}^3/\text{s} = 1.71 \text{ cfs}$
12 ft wide
1 ft in 7 sec
1 ft ave depth

Wekiva Spring Info:

Crystal Springs Water

1-800-231-1693
Suncom: 278-1234 info

Beecher Spring

12-18-02 RCM, RPM

pool diam: 49 yd E-W; 43 yd N-S

pool depth: 18'

water color: Blue with slight milkiness

aq. veg: some around edge

algae: very thick all over uniform bottom.

high ground: To the N & E, sandhills rise to approx 12-15' higher than spring pool surface.

surroundings: All sides forested, no nearby development. To W, is low lying swamp. To E & N is high, dry sandhills w/ scrub & sand & LL pine.

Description: Beecher Spring has a sort of square-shaped pool that is enhanced on its N & W sides with concrete retaining wall. Also there is a remnant elevated 12' (diameter) pipe line segment suspended above pool surface near vent. Vent is in NW side of pool and issues H₂O vertically. Small to medium size boil. Bottom is uniform and low energy oozy. Limestone at vent. Outflow goes South and becomes several different holding ponds for fish hatchery. Spring flow is channelled through each pond. Hatchery for Striped Bass & Gulf Sturgeon. Outflow eventually reaches St. Johns. Sulfur odor here

Pics: #10, #11 = surrounding area
#12 = vent 13-16 NESW, 17 pretty picture

Contact Names for Beecher Sp.
Ken, Allan, Mona (secretary/receptionist)
Brown

ph # 386-467-2374 Welaka Nat.
Fish Hatchery

Orange Spring appears to be
bottled by Glacier Clear bottling
co.

12-23-02 - Lake Jackson flow
measurement

S Channel - (flowing from S to N)
depth
.3, .25, .32, .4, .55, .45 (.378 ave)

4.8' = width

3.38 cfs

Point velocity f/sec

1.52, 1.52, 2.07, 2.05, 2.29, 1.74

N Channel (flow from N to S)
4.5 width

point depth:

.28, .45, .6, .72, .5 = .51 ave

point velocity:

1.22, 2.15, 2.64, 2.23, .71

1.79 ave

3.92 = 3.9 cfs*

total H₂O flowing into
Porter Sink today @ 1pm

3.38 + 3.92 = 7.30*
cfs
total

Central FLA Field Excursion
1-7-03 RPM, RCM

Gator Spring Hernando Co

pool diam: 38yd NE-SW; 65 N-S

pool depth: 3-7'

water color: greenish-clear

aquatic veg: Cat tail & aquatic weeds

algae: large amount, 100% coverage and 6" deep.

high ground: Sandy slope toward E & N, gentle up to pine forest

Surroundings: Thick overgrown old field around pool. Tons of weeds. Pool perimeter ringed by wax myrtle brush. Palms, Pine, and oak forest.

Description: Gator spring is an enhanced swimming pond that used to harbor swimming but shows no recent sign of which. There is a small culvert on the SW side that accepts the meager flow from the spring pond/pool and flow goes into a small sandy bottom creek that eventually flows into

Magnolia Spring Run. There is a private residence 200m West. Gator spring pool is elongated SW to NE. No boil on surface. Sandy bottom

Magnolia Spring:

1-7-03 RCM, RPM

pool diam: 15 yd N-S: 18 yd E-W

pool depth: 4, 6' shallow

water color: clear - light blue

aquatic veg: none in H₂O

algae: 1-2" layer 75% cover

high ground: none nearby

Surroundings: Intact lowland palm-hardwood forest

Description: Magnolia spring is a privately-owned largely wild spring with a house nearby to the North and an old

shack/pavillion on NW side of
spring pool. The pool is oval
from W to E and the shallow
pool is sandy bottomed with
over a dozen sandy boils.
There are noticeable boils
on surface near N side of
pool. The run flows S ~~W~~ ^W,
then goes underground,
rising again, then goes
under a small bridge on its
way to Hammock Creek and
Gulf of Mex. Total distance
to Gulf is approx 2 mi (?)
* Gator Spring Run enters
Magnolia Run just 100'
down from pool on E side

Magnolia discharge
depth 1.0 1.1 1.3 1.2

velocity:

width

Orange Spring
1-8-03
Sarah Seitz contact

pool diam: 33 yd E-W; 37 yd NE-SW
pool depth, 12' over vent, 3'-12' range
water color: murky green
aquatic veg: some plants (Elodea)
algae: thick, some Lingbia

high ground: None nearby, to S land
eventually rises toward bottling
plant

surroundings: Lowland swamp forest
Orange Creek floodplain.

description: Pics: (#19-22 = NESW
23 vent) Orange Spring is an
historic, man-enhanced spring
used since mid 1800's for
mineral water swimming for
health. Now it is owned by
a bottling plant (Glacier Clear)
and the plant is 200 yd S

of spring pool. Rest room facilities are 100 yds (300 ft) S. Immediate surroundings are grassy clearing. Spring pool enclosed by nearly circular concrete retaining wall. Sandy uniform bottom. Vent in NW quadrant with slight boil over it, also with a door over vent to prevent access. Spring run exits to NE over a lime rock waterfall 2' high and thru a narrow concrete chute. It flows ~ 200 yds into the tannic orange creek. The warm, murky water mixes with cold creek water. A sharp sulfurous odor comes from the spring water and there is thick sulfur bacteria in places. Bottling plant been here for 12 yrs.

Green Cove Springs 1-8-03
RPM, RCM

picture: N27 E28 S29 W30 Vent 31

pool depth: 28'
pool dimensions: circular, 15' diam.
water color: clear, greenish
aquatic veg: none in pool
algae: thick all over rocks
high ground: to west, ground rises into Town Center about 10' higher than H₂O.

surroundings: Spring is entirely within the center of the small Town of Green Cove Springs. View of vast river to East.

Description: Green Cove Springs is entirely nestled within the center of the namesake town, and is the centerpiece of the community with a historic city park

constructed all around it.
The spring pool is entirely
enclosed by a 10'-15' concrete
wall outside, which are
brick cobblestones. A deep
cave in limestone. Sharp
sulphur odor. Sulphur bacteria
Run flows over concrete chute
into a large swimming
pool (city), then out the
pool on E side, flows over
3' waterfall, then into
semi-natural run traveling
150 yds total into S.J.R.
Piers & docks out on River.
Live oaks & Magnolias in
park. Large City Hall & bath
house on N side of swim. pool.
Run averages 5-10' across.

Welaka Spring 1-9-03
RCM, RPM Putnam Co

pool dimensions: 90' E-W, 60' N-S

1405
pool depth: 5.6' uniform
water color: slightly turbid, greenish
aquat. veg. little
algae: slight covering on 50%
substrate

high ground: high ^{15-18'} on N & E sides
of pool. A huge Viviparus shell
midden is at the mouth of the
run on N bank.

surrounding environment: To N & E, a high
mixed hardwood & pine & palm hammock.
To S, lowland cypress-hardwood
swamp.

Description: Welaka Spring is
a major spring trib. to the
tannic S.J.R. It is nestled
in a cave at the head of
a 1-200' wide run that is
1200' long and flows E to W
into River. The roughly circular
spring pool has two large
boils 6' apart over center,
both pushing H₂O column 2"-3"
higher than surrounding. North &

south oriented boils. Pool banks on N + E side are steep high ground rising toward 15-18' high about 50' out. Remains of an old dock or footbridge are evident on NE side as old pilings. Six Manatees were observed today (pics).

The aura of the spring is magnificent. The land all along the N + E sides is managed in a natural state. 200 yds out the spring run, houses show up on the S banks, but N banks remain pristine all the way to S.T.R. Black water fills the entire spring run except in the pool at the head of run near boils. Pool bottom is sandy with some rock down in the vents. Run is sandy-mucky bottomed. Haze gar. Sulphur odor and some sulfur bacteria near vent. Light odor. Vertical boils

2-10-03 Hays Spring
RCM, RRM Jackson Co.

check: DO% 98.5
PH 7 7.06
Sp. Con 25A 25b

pool dimensions: 75' N-S; 100' E-W
depth: 14.9'

water color: bluish, slight murk

algae: not much

high ground: To East, rises to 8'-10'
aq. veg. water lettuce; Eloidea - choked around vent

surroundings: Spring and run buffered by lowland swamp forest but planted pines & farmland on all nearby higher land.

Description: Hays Spring is at the head of long straight 80-100' wide shallow channel (lake) that runs N-S. Its entire run at least 2.5 mi.

Vent opening at the N end of long, wide, shallow lake is dramatic, with limestone undercut cliffs & overhangs. A 6" pipe leads into water on NE side from bank. A private pavillion on bank on NE side, also small private boat launch area w/ brought in gravel. Intact forest surrounding Clear Farmland visible thru trees to E. Pool shallow, except in center over elongated E-W vent opening. A creek channel comes in on NW side of wide open pool. The N-S trending lake is ~ 1/2 mi. long. Private land here. No visible boil, estimated 3rd mag flow.

State map Meeting

cc. will, Rick our schedule

Grab hand sample if easy

put in bag: put all relevant data

if two units grab both take pics when possible

Mar 15-23 Statemap Crew out on chipola They will use Ganoer & 3 hp motor

Inst the Chipola Basin & Holmes Creek

I'm Keeper of Ganoer

Tax collector web site, platt books for Fletcher

Newport Spring 2-20-03
RCM, RPM Wakulla Co.

pool dimensions: 20 yd E-W x 20 yd N-S

pool depth: 6' (2m)

aquatic veg: some in run

algae: choked w/ sulfur bacteria & algae

water color: yellow-greenish

high ground: banks rise to
about 6' above water
then level off to flat woods

surrounding: forested flatwoods
with planted pine and hardwoods

Description: Newport Spring is
a sharply sulfur-odored greenish
yellow water spring that emerges
from a small vent at the
base of a man-made concrete
wall along the E side of Old
Plank Rd. There is a moderate
boil on the H₂O surface just
out from (E) of wall. Rope swing
and wooden steps entry. S bank has

an old abandoned house.
There is an old water extraction
pipe leading into ~~vent~~ vent
from house. Live oak
canopy over pool. Sandy
bottom with detritus & swaying
algae. Limestone at vent.
Run travels E a few hundred
yds into St. Marks River.
Another smaller spring creek
with scoured limestone channel
enters Newport Run approx 200m
downstream on N side. Newport
run is swift flowing and
sandy. Run is approx 1500' long

Warm Mineral Spring
Sarasota Co
3-4-03 RCM, RPM

pool dimensions: 105 yd E-W; 84 yd N-S
depth: 145'
aquatic veg: very little
algae: moderate

water color: yellow-greenish - murky
high ground: Sandy banks rise to
6-8' above ground then level off
surrounding environment: Entirely
surrounded by grassy banks
with palm trees, chairs & tables.
highly developed

Description:

Contacts: Mario - Lifeguard; Frank-
Care taker; Ed. Olman - owner ^{Rykes}

Warm Mineral Spring has a large
circular pool with a small
narrow spring run that exits on
the West side, and flows SW
about (— miles) into the Myakka
River. It is developed into
a healing and wellness
swimming park. The depression
is conical, eventually with
depths of 14-5' in center over
vent. No boil, low overall flow.
Very warm water. Many people
always in water around the

edge. A swim rope keeps
the interior deep water
demarcated (170' diam). Sandy
bottom, eventually limestone
walls near vent.

Little Wee Ki Wachee
3-5-03 ^{Hernando Co.}
RCM, R PM, Dave Dewitt

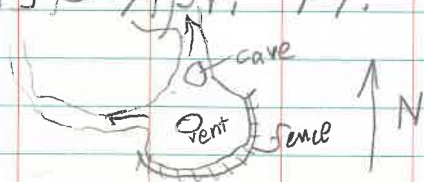
pool dimensions: 25 yd E-W, 12 N-S
pool depth: 13'

~~depth:~~

aquatic veg: some emergent, no aquatic
algae: some, moderate
water color: clear, blue-green
high ground: to S, land rises to
8-10' sandhill

surroundings: Forested lowlands,
and sandhill newly cleared
to S

Description: My god this spring is flowing with a nice boil after 1 yr when it was a mud hole. Conical depression, boil over vent in center. Sandy bottom. 2 outflow runs, largest one to east, small one North... Both go to Weeti Wachee R. Old abandoned parking lot of south side on high ground. Some old asphalt. Old wall on W side. Chain link fence surrounding spring w/ gate. Apparently the small external cave entrance opens up into a large cavern & an underwater film taken. Spring was just a puddle last April 14.

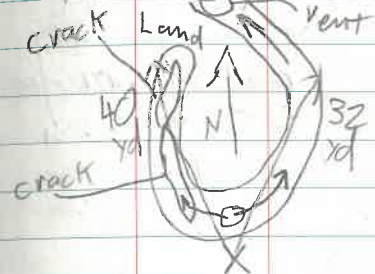


Horseshoe Spring
RCM, RPM, Dave Dewitt, Pat Meadors,
Eugene Blommel from SWFWMD.

Access by 4-wheeler.

Owner: Frank Neuheuer
Pasco Co.

pool dimensions: the pool is literally horse-shoe-shaped. Left run is 40 yd line of sight, right run is 32 yd line of sight.



29° 23' 51.18" N

82° 41' 23.84" W

depth: 16.6

color: murky brown -- est
12' vis

veg - none

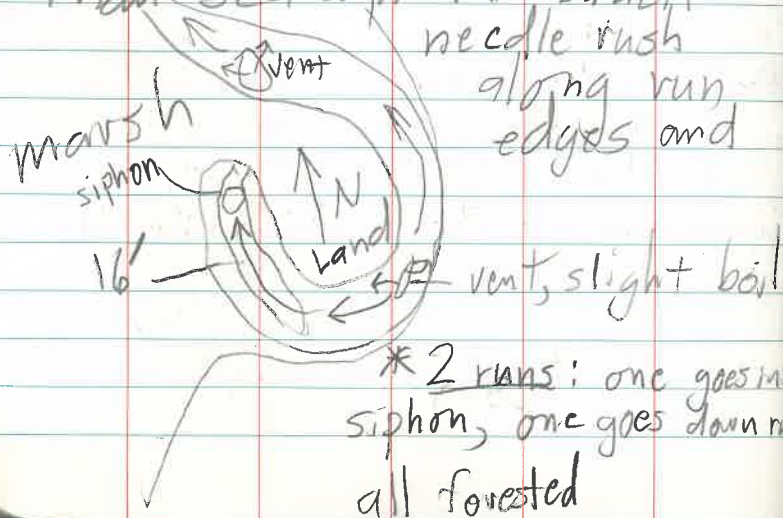
algae - thin organic silt layer

high ground: none - Gulf
lowlands

surrounding environment;

Spring is embedded within a Coastal palm-hardwood hammock -- large intact tract. Also tons of Brazilian Pepper.

Description: Horseshoe Spr. has a horseshoe shaped pool. Springhead emerges from an elongated fissure in limestone. Spring begins exactly at the boundary of forest and salt marsh. Water is salty, less than sea water. Black needle rush



large, expansive open marsh below spring head. Rocky, sandy, mucky bottom. Tiny boil over small vent below crack, looks like it has low third mag flow. Limestone at or near surface all around. Very tidally influenced.

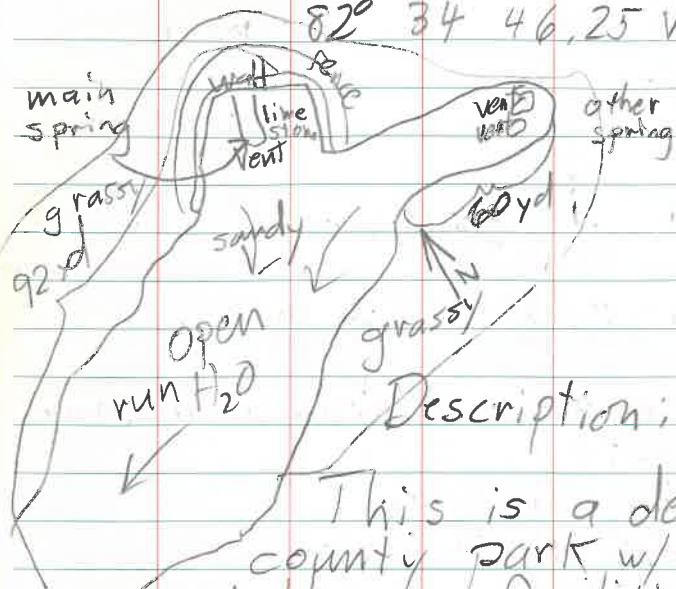
Bluebird Springs County or City Park

dimensions: square pool main vent 25' dia
depth: 15'

color: yellow-greenish, clear
veg: some hydrilla patches
algae: heavy & mats floating
high ground: none -- all lowlands

surroundings: Mowed grassy lawn immediate, then dense swamp forest

28° 47 20.38 N
82° 34 46.25 W



Description:

This is a developed county park w/ picnic tables & facilities, no staff. Main spring pool is square located on the N side of the upper 100yd long, wide run. No boil over main vent nor other holes. Steep limestone ledge at main vent. Rock wall around main vent, then chain link fence. Sandy bottom in upper run. No swimming allowed.

Run flows slowly toward SW-
W eventually into Homosassa
River.

Blind Spring 3-6-03

RCM, RPM & SWFWMD

by air boat

pool dimensions: 30yd diam round
depth: 55'

28° 39 28.81 N

82° 38 04.61 W

color: tannic

veg: little or none seen

algae: silt & ooze & iron bac.
much limy

high ground: none: Gulf lowlands

surroundings: needle rush and
Palm-hardwood-cedar forest,
one shack downstream - 80yds.

Description:

Blind spring is situated within the Chaz. NWR Gulf lowlands -- marsh + coastal forest habitat. It currently is tannic with a moderate boil. Looks second mag. Much limestone structure in pool with steep ledges and cracks. Sandy and rocky bottom. Tidally influenced. Needle rush on both sides of run, run flows about ~1m, and into the Gulf. Pat Meadors has seen this run blue + clear in past. Much particle + tannic today. El niño year. Many sea fish here. Run is narrow (~25' wide) then gets wide near gulf.

Field parameters:

Time	Sp. Con	pH	DO	Temp
10:40	10,200	7.01	0.94	20.30
10:50	9,800	7.02	0.92	20.29
11:00	9,200	7.02	0.94	20.24
11:10	8,700	7.03	0.92	20.22

↳ bouncing 8000-9000 throughout

Many vents along upper Blind creek. 5 vents at least.

Took 2 discharges-- ① below head spring ② below group.

Q head spr ± 15.47; Q total group = 49.04

Ryle Spring 3-6-03

R CM, RPM SWFWMD
by airboat

dimensions: pool around vent,
50' diam. Knarly shaped
upper area around pool

28 41 B.79 N

82 36 50.83 W

depth: ~20'

color: tannic, particulate,
clearish.

veg: none in H₂O, Sawgrass
all along run.

Baird Spring

Spring pool — SE-NW
160' N-S 25' Oval.
Sandy bottom. 6' max
depth in pool over vent.
Vent elongated & 50'.
28° 42' 26.87 N
82° 34' 41.48 W

Pristine, with some
party evidence. Another
entire run/spring
embedded in Chass.
Swamp. No high ground.
NO bed. Looks like
there are several deep
holes/springs within Baird
Cr. that contribute to
flow. Because the head
spr. here gives only
a trickle. Its run
begins 1' deep, 3' wide,
then widens and deepens
& flows swift

Blue green H₂O here.
Shallow pool, except
over elongated fissure
where up to 6' deep.
Gorgeons spring
run 4000' long &
flows NW to Chas R.

GPS coordinates
at locations believed
to be additional
springs downstream from
Baird springs in and
along Baird run:

Baird #2 11' deep
28° 42' 29.91 N in channel
82° 34' 42.78 W

Baird #3 15.8' deep
28° 42' 32.83 N large, circular pool
82° 34' 46.67 W in channel
bowl depression

mostly Valcherna with
filamentous algae covering
a few spots of exposed
limestone. Mullet in vent
& run. One vent measures
15.2' deep, rest of pool 2'
deep. Run ave 2' deep
and all tidal. Mushy
bottom thru veg. Completely
natural state, dense palm/hard
forest. No high ground. Rock at
vent

28° 43' 53.83 N

82° 35' 47.50 W

Ruth Spring

28 43 56.83 N

82 35 42.14 W

This is the call of the
Florida Wild.

Small little personal
creek, swift, crystal
clear, perfect veg. in run,
logs, palms, dense
forest, bad bugs. Head
spring oval N-S measures
25' N-S x 17' E-W. No
boil over head vent,
but flowing. Another
boil, 40' down stream
and flowing nicely out
of limestone. First
spring here with sandy
rubble exposed on bottom.
Depth over head spr. = 6.6'.
Absolutely wild & canopied
over. Head spr. choked w
logs & detritus. Run
swiftly flows W. into
top of Potter. Run ~ 250'
long. This run much narrower
averaging 10' wide &
canopied. No high ground.

Crab Spring

28° 43' 01.93 N
82° 34' 33.09 W

This spring has a lavish house estate on the N side of the spring pool. Pool measures 75' N-S and 75' E-W. Run is 450' long to SW into Chas R. Run & pool very heavily covered w/ Valcinerea, and a thick brown algal covering on grass. Run averages 2' deep. There are 4 separate vents all with boils. Water is clear bluish w slight murk. Depth over East vent is 8'. Another vent just off from house on N side. All lowland swamp forest palm-hardwood except for lavish estate. Bottom sandy and rocky near vents. No high ground. ~~TRANS~~

Potter Spring

This is the wildest chas. Spring thus far encountered with a 3/4 mi. long run that flows N to S into the middle Chas. R. The spring looks to be flowing minimally, with no visible boil. Water is clear with slight brown tint near spring. Brown algal coating on Valcinerea. Some Hydrilla. This spring is embedded entirely inside the Chas. NWR swamp forest. The small spring pool measures 40' in diam. The spring & entire run average 40'-50' wide, not canopied over (open run). On NE side of spring pool, Ruth spring run, much narrower enters (aver. ~10-15' wide). Very thick aqu. veg in run,

algae: slight to moderate
high ground: none; all
Gulf lowlands

Surr: Chaz. NWR. To E,
Palm- hardwood for To W
all marsh. Springhead at
bdy.

description: Vent at the head
of a tidal creek blowing
vertically out of limestone
Deep narrow vent. Pool
shallow. Crack vent. 20'

Temp 21.26
SpC 13600
DO 0.78
Ph 7.00

Murky bottom. Very tidal.
North of Blind Spring,
still S of Chaz R mouth.

Run flows NW to Gulf,
thru open marsh.

Nice boil over crack vent
Shallow spring pool, except
for the narrow, deep vent opening.

50 HP Honda needs oil
change every 50 hrs

Grease up trailer hubs

Registration Renewals

Lights fixed

Unhook trailer lights before
putting trailer in H₂O

April 1 2003 Happy B-day
Grammy!

Chassahowitzka R. Springs Exploration. all 4-1-03 RCM, RPM

Chassahowitzka #2:

This spring has at least
five vent openings on
the bed of the Chas.
#1 spring run, 171'
downstream of Chas.
#1 (to SW), Spring pool
measures roughly 30' N-S,
20' E-W. Spring run for
Chas #1 here is 50' wide.
Whole Chas #1 run is
200' long running SW to
Chas. R. The 5 vent holes
all interconnect under a
3' thick limestone layer.

Swim from hole to hole.
Over 50% Hydrilla coverage
here. Water extraction
pipe running into one vent.
~~Run~~ Water color clear with
slight tan/wic tinge.

28° 42' 57.61 N
82° 34' 31.63 W

Small boils over two line
openings. Depth over deepest
hole is 9.7'. Water from
this spring boils up into
Chas #1 run, then flows
SW 75' into Chas. R.
Totally rocky bottom.
Surroundings are dense lowland
Palm-hardwood forest. No
high ground. Residence visible
150' to SW across Chas
River.

Baird #4

28° 42 33.44

82° 34 48.94

Cove on S side
large oval shape
depths to 62'
deep cave, no boil.
Dark water
Very neat

Rainbow River 4-2-03 Unnamed Swamp Spring

RCM, RPM, Dave Dewitt

This is an unknown/unnamed spring upstream on the Rain. Riv. on same side as the Indian springs complex. This spring/run is N-S oriented and the whole run is ~150' long. It enters the Rainbow Riv in a grassy thicket & is low flowing & grown over. The run is 30' wide and same diam as spring head.

The spring pool is circular and 30' diam.

29° 05 36.49 N

82° 25 44.30 W

Black detritus on the otherwise sandy bottom. Very slight boil and a small sandy clearing on bottom near middle where tiny amt. of H₂O issues. There are a few old fence posts in & around pool. Otherwise, the spring is entirely pristine & heavily canopied over. No high ground. Very little

Rainbow #7:

This nice spring is a

bowl-shaped depression on the right side Rainbow River bottom. Nice boil on river surface over vent. At vent is a mosaic of limestone boulders, eel grass and white sand. Depth over vent is 13.3'. N-S vent orientation roughly circular 30' diam.

29 05 32.09 N

8 2 25 36.38 W

Nice valcinerea all around vent. At least two fractures intersecting at vent. Houses on right bank. Forest on left. Blue H₂O. Absolutely gorgeous blue hole in river.

CURVE TABLES

HOW TO USE CURVE TABLES

Table I. contains Tangents and External to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20' to the R. at Station 542 + 72.

Ext. in Tab. I opposite 23° 20' = 120.87
 $120.87 \div 12 = 10.07$. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20' = 1183.1
 $1183.1 \div 10 = 118.31$.

Correction for A. 23° 20' for a 10° Cur. = 0.16
 $118.31 + 0.16 = 118.47$ = corrected Tangent.

(If corrected Ext. is required find in same way)
 Ang. 23° 20' = $23.33^\circ \div 10 = 2.3333$ = L. C.

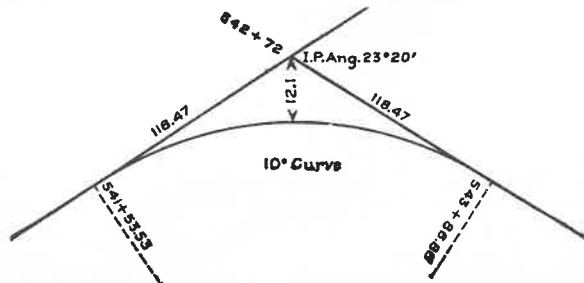
2° 19½' = def. for sta.	542	I. P. = sta.	542 + 72
4° 49½' = " " "	+ 50	Tan. =	1 18.47
7° 19½' = " " "	543	B. C. = sta.	541 + 53.53
9° 49½' = " " "	+ 50	L. C. =	2 33.33
11° 40' = " " "	543 +	E. C. = Sta.	543 + 86.86
	86.86		

$100 - 53.53 = 46.47 \times 3$ (def. for 1 ft. of 10° Cur.) = 139.41' =

2° 19½' = def. for sta. 542.

Def. for 50 ft. = 2° 30' for a 10° Curve.

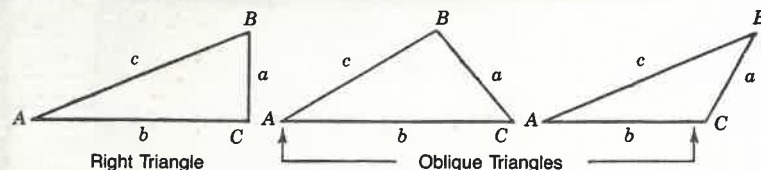
Def. for 36.86 ft. = 1° 50½' for a 10° Curve.



Dary's cell

510-9710

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

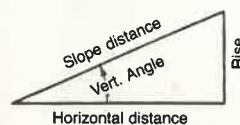
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\csc = \frac{c}{a}$

Given a, b	Required A, B, c	$\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$

Solution of Oblique Triangles

Given A, B, a	Required b, c, C	$b = \frac{a \sin B}{\sin A}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180^\circ - C$, $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$, $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a + b + c}{2}$, $\sin \frac{1}{2} A = \sqrt{\frac{(s - b)(s - c)}{b c}}$, $\sin \frac{1}{2} B = \sqrt{\frac{(s - a)(s - c)}{a c}}$, $C = 180^\circ - (A + B)$
a, b, c	Area	$s = \frac{a + b + c}{2}$, $\text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
A, b, c	Area	$\text{area} = \frac{b c \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft.
Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine $5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.

When the rise is known, the horizontal distance is approximately: - the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.