



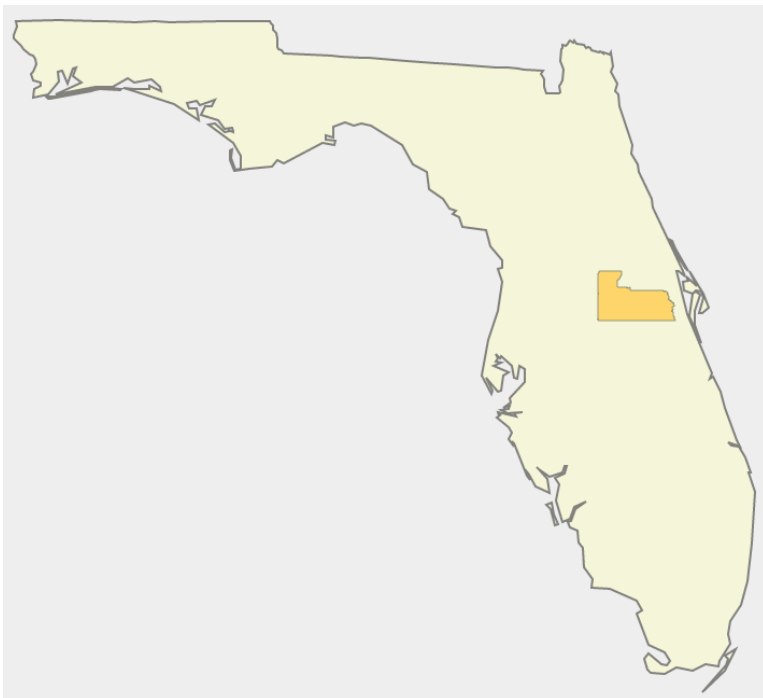
Avalon Branch, Orange County Ecosummary Highlights

Mike Drennan/FDEP-DEAR/November 7, 2019

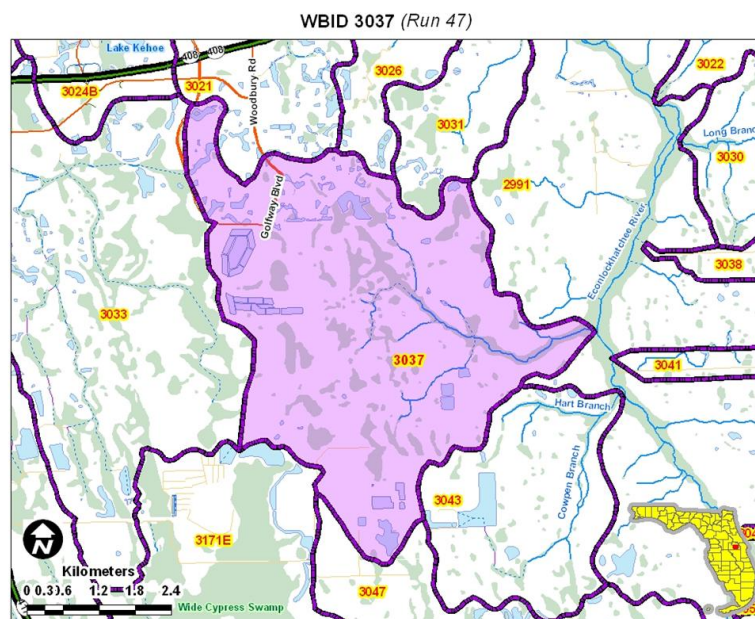


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Location



Orange County, FL



Waterbody Boundary
(Catchment area)

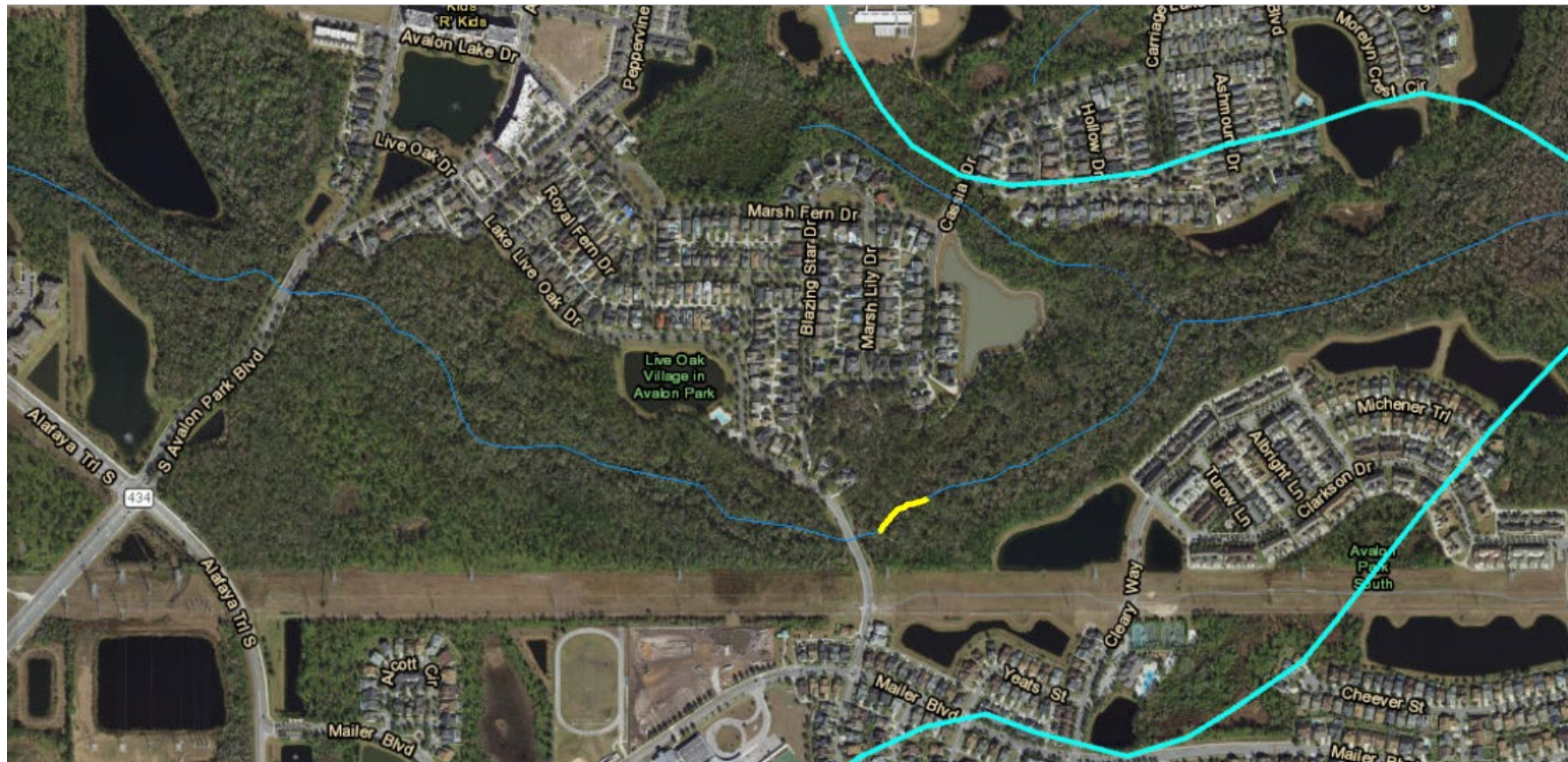


Third order tributary of
the Econlockhatchee River



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Riparian Corridor



- Moderate human activity: surrounded by residential, schools and strip malls
- Low impact development may help mitigate urban stream syndrome effects
- Good buffer allowing channel maintenance



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A Blackwater stream

- Drainage area: 10 km²
- Hydric hammock canopy dominated by Sabal palmetto
- Simple alluvial features present (chute's, linear backswamp, pools)
- Heterotrophic system characterized by heavily shaded channels and dark, tannic water





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Canopy vegetation

- Hydric hammock canopy dominated by *Sabal palmetto*
- Other woody species: *Acer*, *Quercus*, *Liquidambar*, *Taxodium*, *Fraxinus*





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Subcanopy and shrub layer

- Herbaceous species:
Woodsgrass (*Oplismenus setarius*), Giant leather fern (*Acrostichum daneifolium*), *Pontederia cordata*, *Peltandra virginica*, *Carex*, *Cyperus*





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Water Quality: not impaired

- Dissolved Oxygen and pH are within requirements of a Class III waterbody
- E. coli detected on both sampling events but criteria were not exceeded
- Total Nitrogen was well below the threshold
- Total Phosphorus was exceeded on both sampling events, but these are trumped by the passing bioassessments included in this report

Table 1. Water quality results from May 8, 2018 and October 31, 2018 at Avalon Branch.

Analyte	Result 5/8/18	Result 10/31/18	Applicable Class III Water Quality Criteria
Field Temperature (°C)	22.15	19.97	N/A
Field pH (SU)	7.99	7.86	Within 1 SU of natural background
Field Dissolved Oxygen (% saturation)	96.0	93.8	** Peninsular Criterion: 41% and 41%
Field Specific Conductance (µmhos/cm)	854	790	50% above background or 1275 µmhos/cm, whichever is greater
Alkalinity (mg <u>CaCO₃</u> /L)	177	174	Shall not be depressed below 20
Color (PCU)	60	54 A	N/A
Total Phosphorus (mg/L) as P	0.19	0.17	0.12 mg/L
Nitrate+Nitrite (mg/L) as N	0.15	0.17	0.35 mg/L for spring vents only
Ammonia (mg/L) as N	0.014	0.014	***1.72 mg/L and 2.36 mg/L
Total Kjeldahl Nitrogen (mg/L) as N	0.84	1.0	N/A
Total Nitrogen (mg/L) as N	0.99	1.17	**1.54 mg/L
<i>Escherichia coli</i> Bacteria (MPN/100 ml)	161	294	≤ 410 Count / 100 ml



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Habitat

- Two productive habitats: Roots and Snags
- Average water velocity was 0.19 m/s with some habitat smothering (sand)





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Habitat

- Banks were stable with good root armoring and low gradual slope, though there was some erosion (bank undercutting)
- Good sinuosity and pools were present throughout
- Good buffer and riparian vegetation quality





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Floral assessment

- All floral metrics passed and therefore attain NNC component
- Aquatic macrophytes were rare (<2m²)
- Attached algae (periphyton) was rare
- chlorophyll α was below the NNC threshold for both samples
- Stream is heavily shaded and tannic

Table 2. Floral and faunal assessment results from May 8, 2018 and October 31, 2018 at Avalon Branch.

Floral/Faunal Metric	Evidentiary Threshold of No Imbalances	Result 05/8/18 SBIO# 78407	Result 10/31/18 SBIO# 79031
LVS C of C	Site average $\geq$ 2.5	Pass (<2m ²)	Pass (<2m ²)
LVS FLEPPC (%)	Site average $\leq$ 25%	Pass (<2m ²)	Pass (<2m ²)
RPS (%)	$\leq$ 25% rank 4-6 (algae > 6 mm thick) coverage. If 20 to 25 % rank 4-6 coverage, evaluate algal species	8%	0%
Chlorophyll α (corrected; μ g/L)	< 3.2 μ g/L. If 3.2 to 20 μ g/L, site specific evaluation	1.2 I	2.9 A
Algal Community Composition	No adverse shifts in dominant taxa	N/A	N/A
SCI	Average $\geq$ 40	70 A	59 A

I – The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
A – Value reported is the arithmetic mean (average) of two or more discrete and separate samples.



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Faunal assessment

- SCI scores of 70 on 5/8/18 and 59 on 10/31/18 represent the “exceptional” category of macroinvertebrate communities
- *Microcylloepus pusillus* was dominant for both sampling events
- *Polypedilum flavum* was dominant on the second Rep for 5/8/18
- *Pyrgophorus platyrachis* was dominant on the second Rep for 10/31/18

Table 3. Dominant macroinvertebrates collected on May 8, 2018 and October 31, 2018 at Avalon Branch.

Sample date	Repitition (#)	Dominant Taxa	Percent abundance (%)
5/8/2018	1	<i>Microcylloepus pusillus</i>	20
5/8/2018	2	<i>Polypedilum flavum</i>	25
10/31/2018	1	<i>Microcylloepus pusillus</i>	34
10/31/2018	2	<i>Pyrogophorus platyrachis</i>	32



- *Microcylloepus pusillus*
- Order Coleoptera
- Family Elmidae



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Faunal assessment



- *Polypedilum flavum*
- Order Diptera
- Family Chironomidae



- *Pyrgophorus platyrachis*
- Order Mesogastropoda
- Family Hydrobiidae



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Summary

- Tributary of the Econlockhatchee River, located in east central Orange County
- Good buffer composed of a hydric hammock community may help mitigate some effects of urban stream syndrome
- Seasonal perennial stream with some simple alluvial floodplain features
- Water quality and biological assessments indicate it is not an impaired waterbody
- Good root and snag habitats, minimal smothering and good water quality parameters provide a good habitat for macroinvertebrates

