

## Huckleberry Creek, Apalachicola, Florida

### Ecological Monitoring and Flow Study

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**Start / End Dates:** 2004

#### Key Project Personnel Involved in this Project:

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**Project 6**

#### Brief Description of Work Performed:

McGlynn Laboratories Inc, monitored water quality and performed a dye study as a consultant to BRA in this WOBEL study. Huckleberry Creek flows north and Clark Creek flows south into the Jackson River, which, in turn flows into the Apalachicola River. McGlynn labs performed two monitoring runs under different flow conditions at high tide and low tide and performed dye studies under similar conditions to measure the effects of the Apalachicola WWTP which discharges through a marsh at the headwaters of Huckleberry Creek. Clark Creek was a control. McGlynn Labs utilized its own boats, field crews and NELAC certified laboratory for this study.



Six stations were sampled at 0.5 meters from the top and 0.5 meters from the bottom of the water column in each creek for: Field Parameters (time of day, cloud cover, wind speed and direction); Physical-Chemical Parameters (depth, stage, secchi, temperature, turbidity, dissolved oxygen, percent oxygen saturation, pH and specific conductivity); Laboratory Parameters (turbidity, true color, alkalinity, chloride, TSS, TDS, ortho-phosphorus, total phosphorus, total inorganic phosphorus, nitrite, nitrate + nitrite, nitrate, total inorganic nitrogen, TIN/TIP, ammonia, total kjeldahl nitrogen, total nitrogen, TN/TP ratio, chlorophyll, pheophytin, corrected chlorophyll, enterococcus, E coli, fecal and total coliforms).

Dye studies were run with Rhodamine wt, a fluorescent dye and insitu hydrolab fluorometers. Three Hydrolab Minisonde 5 Multiprobes with 108,000 KB of internal memory equipped with Rhodamine WT sensors by Turner Designs were used to measure insitu fluorescence. The dye study was difficult and had to be repeated several times because the flow was slow and vegetative mats in Huckleberry Creek, growing off the excess nutrients discharged from the WWTP, provided a lot of hydrologic resistance.

USGS data indicated that discharge in the Apalachicola River was quite variable during this time, from April 12 to April 19 the flow dropped from 80,000 cfs to less than 30,000 cfs. In June the dye was traced from HC0 at Moses Road to the railroad tracks at HC1 despite the extensive vegetation. The total flow time from HC0 (Moses Road) to HC5 (Huckleberry Creek at the Jackson River) was found to be 22.84 hours. The slow but steady discharge from Huckleberry Creek allows the mats of floating vegetation, mostly *Hydrocotyle* species, to proliferate and provides considerable treatment for the waste water. The vegetation is a nuisance for those living and navigating the upper reaches of Huckleberry Creek but monitoring data indicate that the water quality continues to improve as it flows downstream. Water quality, in terms of bacteria and nutrient levels were quite good by the time the water reached the Apalachicola River, similar in quality to the control, Clark Creek. The amount of vegetation in the two creeks was not similar.

