Canal Current

A wave of information for Cape Coral's Canalwatch volunteers

Newsletter: 2nd Quarter 2009

Environmental News

Updated Canal Owner's Manual

The Canal Owner's Manual is currently being updated. We are in the process of updating a few items in the publication and it should be available for distribution by the end of the summer. This booklet has been a valuable source of information for our citizens so we felt it necessary to ensure that the information it contains is still current and viable. The updated Canal Owner's Manuals will be distributed once they are received from the printer.

Charlotte Harbor NEP 2010 Calendar

The Charlotte Harbor National Estuary Program is looking for nature photos for the 2010 calendar. If you have captured wildlife or landscapes from our local watersheds then please consider submitting them. Images must be submitted by July 14th. For more information please visit the CHNEP web site at CHNEP.org or contact Maran Hilgendorf at 338-2556.

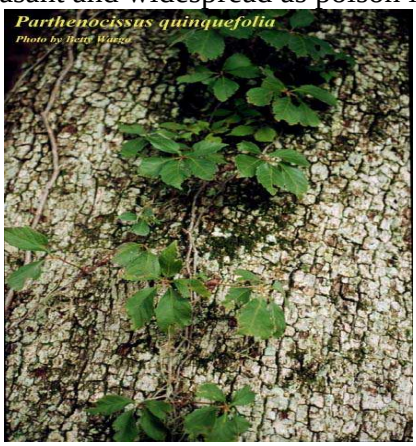
Native Plant Profile

Virginia Creeper
Parthenocissus quinquefolia

Virginia Creeper is a climbing vine that is common throughout the southeast United States including Florida. Its leaves are composed of five leaflets and it can be grown as an ornamental, reaching a length of 20 to 30 meters if left unattended.

Mostly seen in the wild trailing up palms, pines or other trees, the Virginia Creeper can be an attractive vine growing up fences or the sides of buildings as well. The tendrils that help the vine to climb are able to attach themselves to the surface so masonry or wood is not damaged.

The flowers are small and inconspicuous when in bloom, but when the Virginia Creeper berries it provides a source of food for birds. This plant is often confused with poison ivy because it is found in similar habitats and indeed the sap from the Virginia Creeper has been known to cause skin irritation in some, but not as unpleasant and widespread as poison ivy.



Inside This Issue:

Questions? Comments? Let us know!
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New Data Being Gathered

A few months ago, the Canalwatch program was fortunate to receive retired test kits from another local volunteer program, the Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network (CHEVWQMN). One kit measures Dissolved Oxygen (DO), and the other measures pH, or acidity. We received 18 of each kit and asked several Canalwatch volunteers to help us pioneer this part of the program. These brave souls attended a training session in April and have used the kits on Canalwatch sample days since then. They have also been measuring water temperature and salinity. This data is presented on the special insert map.

Dissolved Oxygen

Just like we need oxygen in the air we breathe, fish and aquatic invertebrates need oxygen. This is measured in mg/L, or milligrams per liter. DO above 5 mg/L is ideal for fish and other aquatic creatures. If the DO level drops below 3 mg/L, it can cause stress to aquatic organisms. You might see fish gulping air at the surface of the water. If it drops below 1 mg/L, and fish are not able to get to more oxygenated waters, we may see a fish kill.

Because aquatic plants are a major contributor to the DO in natural waters, DO can vary throughout the day. Remember, oxygen is produced as a result of photosynthesis, which is in turn driven by light. In the morning – after the darkness of night – DO is low. As the sun shines and plants photosynthesize, DO rises throughout the day. It peaks late in the afternoon and falls again through the night. For this reason, it is important to take DO samples at approximately the same time of day every month. A borderline low result would be more worrisome late in the day than it would be early in the morning.

During May and June, DO values generally looked good. Values below Florida's state standard of 4 mg/L are highlighted.

pH

Yes, that's capitalized correctly! pH is a measure of how acidic or basic (alkaline) a substance is. The scale runs from 0-14, with a pH value of 7.0 considered to be neutral. Lower values are considered acidic (lemon juice has a pH of about 2), and higher values are considered basic (baking soda has a pH of about 8.2).

Pure, distilled water has a pH of 7.0. Seawater generally has a pH of 8.2; in an estuary, pH can range from 7.0 to 8.6 or higher. In a freshwater system, pH can be between 6 and 8.

Because it can vary based on salinity and local soil conditions, pH is not a parameter that necessarily gets classified as "good" or "bad". The important thing about pH is establishing baseline data – knowing what's normal for your area. If there is ever a large difference from normal, that *would* be considered bad and would need some follow-up sampling to determine the cause.

Water Temperature

Temperature is measured for this program in degrees Celsius (°C). Warmer temperatures cause the metabolism (bodily functions and energy needs) of aquatic organisms to increase. An increase in temperature also causes the water to hold less oxygen. This is a simple piece of data to collect, but it is very important in tying together other observations. Below is a table comparing °C to °F, which you may be more familiar with.

°C	0	10	15	20	25	30	35	100
°F	32	50	59	68	77	86	95	212

freezing point of water boiling point of water

Salinity – now any volunteer can measure this!

Salinity is a measure of how salty your water is. Freshwater has a salinity of 0, and seawater generally has a salinity between 35-40 ppt, or parts per thousand. 35 ppt is equal to 3.5%. Salinity in the estuary varies widely. It is lower at low tide than high tide, and also decreases during the rainy season. Changes in salinity can affect plant and algae growth, fish species distribution, and several other characteristics of the canal. If you live on a saltwater canal, we recommend that you measure this.

In the last couple of months, you may have noticed some small instruments sitting on the counter when you drop off your sample, and you may even have seen other volunteers looking into one like it's a kaleidoscope. These instruments are called *refractometers*, and they are used to measure salinity. It's very easy – you just put a drop of water on the lens, then hold it up to the light, look inside, and note where on the marked scale the blue and white backgrounds meet. We don't leave the refractometers unattended, so if you want to use one, please bring in your sample between 7 am and noon. That's when one of us is present at the drop-off point.

RECON data included for comparison

What are those extra points on the map, you ask? RECON stands for River, Estuary and Coastal Observing Network. These points represent continuous water quality sensors that gather data for the Sanibel-Captiva Conservation Foundation Marine Laboratory. If you were at the Canalwatch BBQ in 2008, you saw Dr. Eric Milbrandt's presentation on the sensors. The sensors collect data every hour on the hour and that data is uploaded to http://recon.sccf.org. We highly encourage you to visit the website and look at the most recent graphs to see how DO and salinity can change over the course of a day (and a tidal cycle). Data on this map was collected at 9:00 am on the Canalwatch sampling days and was used with permission.

Don't forget to leave some air space at the top of your sample bottle! This helps the lab personnel mix the sample before they analyze it.

bd = below detection benchmark numbers: Marked data are in the highest 20% of values found by Hand et. al, 1988.

	April 2009						May 2009						June 2009						
	NO2	NO3	NH3	TKN	T-N	T-PO4	NO2	NO3	NH3	TKN	T-N	T-PO4	NO2	NO3	NH3	TKN	T-N	T-PO4	Avg
	<1.0	<1.0	none set		<2.0	<0.46	<1.0	<1.0	none set		<2.0	<0.46	<1.0	<1.0	none set		<2.0	<0.46	TSI
1A	bd	bd	bd	1	1.00	0.06	bd	bd	0.2	0.2	0.20	0.07	bd	bd	0.1	1.3	1.30	0.13	49.23
1D	bd	0.05	bd	0.9	0.95	0.06	bd	bd	0.2	0.2	0.20	0.06	bd	bd	0.1	0.7	0.70	0.11	43.01
3F	bd	bd	0.2	0.9	0.90	bd							bd	bd	0.2	0.6	0.60	0.06	46.65
4E	bd	bd	0.1	0.9	0.90	0.06	bd	bd	0.1	0.1	0.10	0.07	bd	bd	0.1	0.5	0.50	0.10	43.24
6F	bd	bd	bd	1.1	1.10	0.06	bd	bd	0.1	0.3	0.30	0.09	bd	bd	0.2	0.9	0.90	0.10	51.85
6G	bd	bd	bd	1	1.00	0.06													56.88
7B	bd	bd	0.1	1	1.00	0.05	bd	bd	0.2	0.3	0.30	0.07	bd	bd	0.2	0.9	0.90	0.13	44.69
10B	bd	bd	bd	0.9	0.90	bd							bd	bd	0.2	0.7	0.70	0.60	47.88
11C	bd	bd	bd	1	1.00	0.06													56.88
11D	bd	bd	0.1	1.2	1.20	0.07	bd	bd	0.1	1.7	1.70	0.07							61.84
13A	bd	bd	bd	1.4	1.40	0.06							bd	bd	0.1	0.7	0.70	0.10	57.49
15D	bd	bd	bd	1.2	1.20	bd	bd	bd	0.1	1.6	1.60	0.08	bd	bd	0.1	0.7	0.70	0.90	56.66
17B	bd	bd	bd	1.4	1.40	bd	bd	bd	bd	3	3.00	bd	bd	bd	0.1	0.8	0.80	bd	49.76
18G	bd	bd	bd	2.1	2.10	bd	bd	bd	bd	2.4	2.40	bd	bd	bd	bd	0.6	0.60	bd	42.21
18H													bd	bd	bd	0.9	0.90	bd	60.89
19D	bd	bd	bd	1.2	1.20	0.06	bd	bd	bd	1.8	1.80	0.09	bd	bd	bd	1.2	1.20	0.17	61.59
19G	bd	bd	bd	1.1	1.10	0.06	bd	bd	0.1	1.8	1.80	0.07	bd	0.05	bd	0.8	0.85	0.14	58.24
19H	bd	bd	bd	1.5	1.50	0.10	bd	bd	0.1	2.1	2.10	0.10	bd	0.05	bd	0.7	0.75	0.15	61.64
19J	bd	bd	bd	1.2	1.20	0.07	bd	bd	bd	2	2.00	0.09							61.92
21D	bd	bd	bd	1.4	1.40	0.08							bd	bd	bd	1.1	1.10	0.13	66.38
21F	bd	bd	bd	1.4	1.40	0.08	bd	bd	bd	1.9	1.90	0.09	bd	bd	bd	0.7	0.70	0.14	61.79
21G	bd	bd	0.1	1.5	1.50	0.09							bd	bd	bd	1.3	1.30	0.19	64.07
22B	bd	bd	bd	1.8	1.80	0.06	bd	bd	bd	2.7	2.70	0.10	bd	bd	bd	1.1	1.10	0.11	71.93
22C	bd	bd	bd	1.6	1.60	0.06	bd	bd	0.1	2.6	2.60	0.07							65.29
22D	bd	bd	bd	1.7	1.70	0.05	bd	bd	bd	2.5	2.50	0.08	bd	bd	bd	1.3	1.30	0.12	63.05
22F	bd	bd	0.1	3	3.00	0.29	bd	0.07	bd	3.3	3.37	0.38	bd	0.06	bd	1.3	1.36	0.23	76.77
26C	bd	bd	bd	2	2.00	bd	bd	bd	bd	2.5	2.50	bd	bd	bd	bd	0.8	0.80	0.10	60.42
26D	bd	bd	bd	1.2	1.20	bd	bd	bd	bd	1.9	1.90	0.08	bd	bd	bd	0.6	0.60	bd	56.93
26F	bd	bd	bd	1.1	1.10	bd													46.56
28D	bd	bd	bd	1.9	1.90	bd	bd	bd	0.2	3.3	3.30	bd	bd	bd	bd	0.8	0.80	bd	41.47
30A	bd	bd	bd	1.1	1.10	bd	bd	bd	0.3	1.5	1.50	bd	bd	bd	bd	0.6	0.60	0.06	45.64
35A	bd	bd	bd	2.8	2.80	0.21	bd	bd	bd	3	3.00	0.30	bd	bd	bd	0.6	0.60	bd	68.37
41A	bd	bd	bd	1.7	1.70	bd	bd	bd	bd	2.3	2.30	bd	bd	bd	bd	0.5	0.50	bd	41.60
43A	bd	bd	bd	1.1	1.10	bd	bd	bd	0.3	2.8	2.80	0.15							58.53

48A	bd	bd	bd	1.5	1.50	bd	bd	bd	bd	1.8	1.80	bd	bd	bd	bd	0.7	0.70	bd	43.07
51A													bd	bd	bd	0.6	0.60	bd	43.68
52B	bd	bd	bd	1.6	1.60	bd	bd	bd	bd	2.2	2.20	bd	bd	bd	bd	bd	bd	bd	26.54
55B	bd	bd	bd	1.9	1.90	bd	bd	bd	bd	2.8	2.80	bd	bd	bd	bd	0.7	0.70	bd	42.71
58B	bd	bd	0.2	1	1.00	bd													56.12
58E	bd	bd	0.1	1.1	1.10	bd							bd	bd	bd	0.8	0.80	bd	43.20
58F	bd	bd	bd	1	1.00	bd							bd	bd	0.4	1.1	1.1	bd	46.47
58G	bd	bd	bd	1.1	1.10	bd	bd	bd	0.1	1.9	1.90	0.07	bd	bd	0.3	0.7	0.70	bd	53.78
59B	bd	bd	bd	1.2	1.20	bd	bd	bd	bd	1.9	1.90	0.06	bd	bd	0.8	1	1.00	bd	55.04
60B	bd	bd	bd	0.8	0.80	0.05	bd	bd	bd	2	2.00	0.08	bd	bd	0.2	1.2	1.20	0.06	59.84
64B	bd	bd	0.1	0.2	0.20	0.05							bd	bd	bd	0.5	0.50	0.07	32.13
64C	bd	bd	bd	0.2	0.20	bd	bd	bd	bd	1.3	1.30	0.05	bd	bd	0.1	1.2	1.20	bd	37.44
66A	bd	bd	bd	1.6	1.60	bd	bd	bd	bd	3.8	3.80	bd	bd	bd	bd	0.6	0.60	bd	42.21
67A	bd	bd	bd	0.3	0.30	0.05	bd	bd	0.2	2.6	2.60	0.05							46.35
67C	bd	bd	0.2	0.2	0.20	bd							bd	bd	bd	0.6	0.60	0.06	41.30
69A	bd	bd	bd	1.3	1.30	0.06	bd	bd	bd	2.5	2.50	0.05							56.92
70E	bd	bd	bd	1.3	1.30	bd	bd	bd	bd	2.4	2.40	0.06	bd	bd	bd	1	1.00	0.05	50.17
72A	bd	bd	bd	1.2	1.20	bd	bd	bd	bd	2.5	2.50	bd	bd	bd	bd	0.7	0.70	bd	42.98
74B	bd	bd	0.1	1.4	1.40	0.05	bd	bd	bd	2.7	2.70	bd	bd	bd	bd	0.9	0.90	bd	51.69
74C	bd	bd	bd	1.4	1.40	0.06	bd	bd	bd	2.8	2.80	0.05	bd	bd	bd	1.1	1.10	bd	52.59
80A	bd	bd	bd	0.7	0.70	bd	bd	bd	bd	2.1	2.10	bd	bd	bd	bd	0.4	0.40	0.05	41.51
82A													bd	bd	bd	0.9	0.90	bd	52.94
83A	bd	bd	bd	0.7	0.70	0.05	bd	bd	bd	2	2.00	0.05	bd	bd	bd	1.1	1.10	0.05	62.26
85C	bd	bd	bd	0.9	0.90	bd	bd	bd	bd	4.7	4.70	bd							41.47
88B	bd	bd	bd	1	1.00	bd	bd	bd	bd	3.6	3.60	bd							45.21
90A	bd	bd	bd	0.7	0.70	bd	bd	bd	bd	1.7	1.70	bd	bd	bd	bd	0.8	0.80	bd	48.42
Median		**0.05**	**0.10**	**1.20**	**1.20**	**0.06**		**0.07**	**0.10**	**2.15**	**2.15**	**0.07**		**0.05**	**0.20**	**0.80**	**0.80**	**0.11**	**51.77**
Max		**0.05**	**0.20**	**3.00**	**3.00**	**0.29**		**0.07**	**0.30**	**4.70**	**4.70**	**0.38**		**0.06**	**0.80**	**1.30**	**1.36**	**0.9**	**76.77**

NO2 = Nitrite (inorganic)	TKN = Total Kjeldahl Nitrogen (organic + NH4)	High levels of nutrients in our canals can indicate the presence of fertilizer runoff or effluent from wastewater or septic systems. Excessive nutrients can lead to nuisance plant growth and algal blooms.
NO3 = Nitrate (inorganic)	TN = Total Nitrogen (inorganic + organic)	
NH3 = Ammonia (inorganic)	TPO4 = Total Phosphate	

All nutrient concentrations shown in mg/L

TSI = Trophic State Index, a quick indicator of canal health. 45 sites this quarter scored as GOOD (<60). 13 sites scored FAIR (60-70), and two were POOR (>70).

TKN values were very high in the May samples. In June, values were back down in the typical range. What was different? Rainfall. Very little rain was reported on the May data sheets (median rainfall for the previous month was half an inch), but for the June samples, median rainfall was 6.45 inches over the previous month. This is an interesting pattern that we'll continue to watch.

July

1st Canalwatch

4th Independence Day
Red, White and Boom
Celebration
Downtown Cape Coral
2pm-8pm

10th Mangrove Gathering
Eco Café
7:30pm – 10pm
Info: 432-2163

17th FYN
Introductory Class
Info: 549-4606

25th Rain Barrel Class
Info: 533-7523

August

5th Canalwatch

September

2nd Canalwatch

4th Labor Day

11th Mangrove Gathering
Eco Café
7:30pm-10pm
Info: 432-2163

26th National Estuary Day

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