Canal Current

A wave of information for Cape Coral's Canalwatch volunteers

Newsletter: 1st Quarter 2023

Environmental News

Algae and Harmful Algae Blooms

Algae are plant-like organisms and are the basis of the food web for aquatic and marine ecosystems. Some are visible, such as filamentous algae, or resembles seaweed, but many are microscopic. Algae also contributes oxygen to those ecosystems as well as to Earth's atmosphere. Overall, the ubiquitous nature of algae makes them beneficial to life on Earth, however they can also be a detriment when they become overabundant. When environmental conditions become unbalanced, such as through increased nutrients due to stormwater runoff, some algae can quickly flourish and overpopulate to bloom status.

A algae bloom can overtake an ecosystem as the accumulation of algae becomes more prolific. Some species of algae release toxins that harm ecosystems and can sicken animals and people. These types of blooms are termed harmful algae blooms (HABs). Throughout Florida, HABs can occur in saltwater, brackish and freshwater water bodies. Typically, these HAB's develop during the warmer months beginning in spring and lasting until early to mid-fall.

Another more common issue with algae blooms occurs as they decay. The decaying process can deplete oxygen from the water which causes fish kills and stagnant odors. The decomposition can also produce hydrogen sulfide, a natural occurring gas that is common in the decomposition process. Hydrogen sulfide gas, which resembles rotten eggs, can be smelled even in low concentrations and can be harmful in large quantities. Some individuals experience respiratory irritation with prolonged exposure. However, health issues associated with hydrogen sulfide gas cease once the odor disperses or the individual moves away from the source. This includes pets.

Blue-green algae (cyanobacteria) is comprised of several species that occur in Florida's fresh and brackish waterbodies. Cyanobacteria can appear blue, bright green and some are reddish brown. When they bloom and form mats on the surface

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Questions? Comments? Let us know!

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a strong odor of decaying vegetation is present. Many species of cyanobacteria have the capability of producing toxins and are so-called cyanotoxins. People and animals alike are affected by exposure to cyanotoxins. Illnesses associated with exposure range from allergy like symptoms, skin irritation, or gastrointestinal problems. Most instances of exposure comes when people or animals come near or swim in water containing blue-green algae. Recreating in areas were blue-green algae is present is not recommended and the Health Department or local authorities will post signs warning of these environmental hazards.

Red tide is another HAB species that, in ideal conditions, develops to bloom status in the Gulf of Mexico. The organism that causes red tide is *Karenia brevis*. This naturally occurring algae is known as a dinoflagellate and is found in the Gulf of Mexico year-round. As the name implies, red tide appears red or brown in the water.

K. brevis produces neurotoxins, called brevetoxins. Brevetoxins are harmful to marine life and people. These toxins become released into the air or water when wave action cause the algae cells to break. For beachgoers, the most common effect of brevetoxins is respiratory irritation when exposed. Marine life suffers greatly when encountering brevetoxins by ingesting cells, inhaling toxins, and consuming toxic prey and can result in mortality.

Photos: *Top right*; cyanobacteria on canal water surface. *Middle*; filamentous algae accumulating along seawall. *Bottom right*; red tide associated fish kill.

Algae Resources and Where to Report Algae Occurances

To report algae in the City of Cape Coral
Call 311

Blue Green Algae :
Florida Department of Environmental Protection (FDEP)

- reportalgalbloom.com
- floridadep.gov/algalbloom

Fish Kills, Red Tide, or Sick Wildlife
Florida Fish and Wildlife Conservation Commission (FWC)

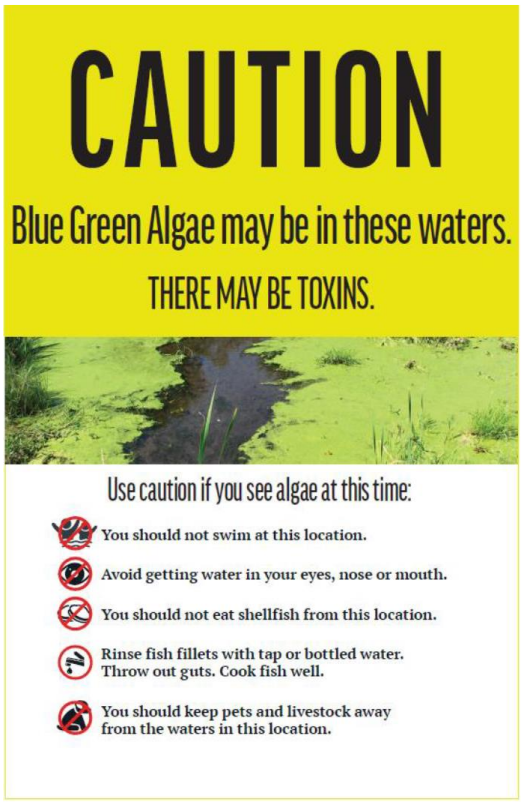
- myfwc.com/redtide
- 1-800-636-0511 (fish kills hotline)
- 1-888-404-3922 (wildlife alert hotline)

Care and Rehabilitation of Wildlife (CROW)

- Crowclinic.org
- (239) 472-3644

Information on Harmful Algal Blooms

- Florida Department of Health (FDH)
- Floridahealth.gov/environmental-health/aquatic-toxins/harmful-algae-blooms



bd = below detection

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

	April 2023						May 2023						June 2023						
	NO2 <1.0	NO3 <1.0	NH3 none set	TKN	T-N <2.0	T-PO4 <0.46	NO2 <1.0	NO3 <1.0	NH3 none set	TKN	T-N <2.0	T-PO4 <0.46	NO2 <1.0	NO3 <1.0	NH3 none set	TKN	T-N <2.0	T-PO4 <0.46	Avg TSI
2B													0.01	0.03	0.10	0.54	0.58	0.11	38.62
3J							0.01	0.05	0.10	0.10	0.16	0.07	0.01	0.02	0.10	0.41	0.44	0.10	19.71
5D	0.1	0.02	0.1	1.0	1.12	0.09	0.01	0.08	0.10	0.10	0.19	0.09	0.01	0.01	0.10	0.24	0.26	0.09	38.58
5H	0.1	0.01	0.1	0.6	0.71	0.1							0.01	0.01	0.10	0.42	0.44	0.10	43.50
7E	0.1	0.03	0.1	0.8	0.93	0.09	0.01	0.05	0.10	0.20	0.26	0.09	0.01	0.01	0.10	0.58	0.60	0.11	46.00
9H	0.1	0.04	0.1	0.8	0.94	0.1	0.01	0.05	0.10	0.20	0.26	0.11	0.01	0.01	0.10	0.46	0.48	0.13	41.86
12H	0.1	0.05	0.1	0.8	0.95	0.08							0.01	0.01	0.10	0.73	0.75	0.12	54.67
13B	0.1	0.03	0.1	0.8	0.93	0.1													52.68
15G	0.1	0.04	0.1	0.4	0.54	0.08	0.01	0.06	0.10	0.10	0.17	0.07	0.01	0.03	0.19	0.37	0.41	0.09	59.89
16E	0.1	0.05	0.1	0.7	0.85	0.07	0.01	0.06	0.10	0.70	0.77	0.04	0.01	0.02	0.10	0.79	0.82	0.05	53.22
16H	0.1	0.04	0.1	0.6	0.74	0.07							0.01	0.05	0.10	1.36	1.42	0.08	54.77
16I							0.01	0.02	0.10	0.40	0.43	0.06	0.01	0.01	0.10	1.51	1.53	0.10	36.14
18K	0.1	0.04	0.1	0.7	0.84	0.08	0.01	0.03	0.10	0.50	0.54	0.04	0.01	0.01	0.10	0.69	0.71	0.07	56.37
18L	0.1	0.05	0.1	1.0	1.15	0.13	0.01	0.03	0.10	0.60	0.64	0.15	0.01	0.01	0.10	0.47	0.49	0.14	53.89
18M	0.1	0.04	0.1	0.7	0.84	0.09	0.01	0.03	0.10	0.60	0.64	0.05	0.01	0.01	0.10	0.56	0.58	0.10	53.59
19D	0.1	0.04	0.1	0.9	1.04	0.1							0.01	0.01	0.10	0.39	0.41	0.13	53.94
21D	0.1	0.04	0.1	0.8	0.94	0.11	0.01	0.03	0.10	0.40	0.44	0.11	0.01	0.02	0.10	0.49	0.52	0.14	45.85
21I							0.01	0.01	0.10	0.70	0.72	0.14	0.01	0.01	0.10	0.59	0.61	0.12	49.36
24D	0.1	0.01	0.1	0.8	0.91	0.08							0.01	0.01	0.10	0.45	0.47	0.06	49.83
30E	0.1	0.05	0.1	0.4	0.55	0.07	0.01	0.04	0.10	0.10	0.15	0.05	0.01	0.01	0.10	0.14	0.16	0.07	27.44
44A	0.1	0.06	0.1	0.3	0.46	0.08													32.33
44B													0.01	0.03	0.12	0.10	0.14	0.08	17.07

48A													0.01	0.02	0.10	0.53	0.56	0.04	61.11
50B	0.1	0.03	0.1	0.6	0.73	0.07	0.01	0.03	0.60	0.60	0.64	0.04	0.01	0.01	0.10	0.36	0.38	0.05	54.67
58I	0.1	0.04	0.1	0.2	0.34	0.07	0.01	0.02	0.10	0.10	0.13	0.04	0.01	0.01	0.10	0.19	0.21	0.06	28.58
64H	0.1	0.05	0.1	0.1	0.25	0.07	0.01	0.04	0.10	0.10	0.15	0.08	0.01	0.02	0.10	0.10	0.13	0.08	20.86
70H	0.1	0.04	0.1	0.3	0.44	0.1	0.01	0.03	0.10	1.10	1.14	0.11	0.01	0.01	0.10	0.45	0.47	0.15	50.37
72C	0.1	0.04	0.1	0.6	0.74	0.08	0.01	0.05	0.10	0.10	0.16	0.08	0.01	0.02	0.12	0.53	0.56	0.11	51.00
74C	0.1	0.04	0.1	0.7	0.84	0.08	0.01	0.05	0.10	0.20	0.26	0.10							46.07
74G							0.01	0.03	0.10	0.50	0.54	0.10	0.01	0.01	0.10	0.31	0.33	0.11	44.98
82A	0.1	0.02	0.1	0.1	0.22	0.07							0.01	0.01	0.10	0.10	0.12	0.14	44.09
94C	0.1	0.01	0.1	0.7	0.81	0.15	0.02	0.05	0.10	0.90	0.96	0.08							58.63
Median		**0.04**	**0.10**	**0.70**	**0.84**	**0.08**		**0.04**	**0.10**	**0.40**	**0.43**	**0.08**		**0.01**	**0.10**	**0.46**	**0.48**	**0.10**	**47.72**
Max		**0.06**	**0.10**	**1.00**	**1.15**	**0.15**		**0.08**	**0.60**	**1.10**	**1.14**	**0.15**		**0.05**	**0.19**	**1.51**	**1.53**	**0.15**	**61.11**

NO2 = Nitrite (inorganic)	TKN = Total Kjeldahl Nitrogen (organic + NH4)
NO3 = Nitrate (inorganic)	TN = Total Nitrogen (inorganic + organic)
NH3 = Ammonia (inorganic)	TPO4 = Total Phosphate

All nutrient concentrations shown in mg/L

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.

TSI = Trophic State Index, a quick indicator of canal health. 31 sites this quarter scored as GOOD (<60). Zero site scored FAIR (60-70), and zero scored POOR (>70).

Second quarter 2023 water quality continued to maintain despite the stormwater influence caused by Hurricane Ian in previous months. Hurricane Ian provided ample rainfall just before the end of the wet season. Carrying many canals through the dry season with above average water levels. However, the lack of stormwater since then has made itself evident with low water levels in many of the freshwater basin areas. In June, the wetter season began again, and this produced some algae issues in some areas.

For up-to-date City of Cape Environmental Resources Division water quality date visit
https://www.capecoral.net/department/public_works/quarterly_water_quality_reports.php

Lets Get Outside!

Butterfly Garden Design class
September 22nd from 1:00 to 3:00 pm

Full Moon Paddle (Four Mile Eco Preserve), September 29th from 6:30 to 8:30 pm
Not up to paddling, join in on a moonlight walk same location and time as above

Guided Perserve Hike at Rotary Park, September 20th from 9:00 to 10:30 am

For more information on the above gardening, tours and nature walks, please contact Rotary Park Environmental Center.
email rotaryparkinfo@capecoral.gov or 239-549-4606

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Environmental Resources
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