

Basin Management Action Plans for Florida Residents



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What is a Basin Management Action Plan (BMAP)?

It is a broad-based plan that is developed with the help of local stakeholders to be used as an “action plan” for restoring impaired waters. The goal of any BMAP is to reduce pollutant loadings in order to meet the allowable loadings established in a Total Maximum Daily Load (TMDL).

The BMAP represents a comprehensive set of strategies--permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance and revenue generating activities, etc.--designed to implement the pollutant reductions established by the TMDL.

[Want to know more? Click here.](#)



What is a Total Maximum Daily Load (TMDL)?



Based on the requirements of the Clean Water Act, states are required to develop lists of impaired waters. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet designated uses, such as water supply and recreation. The biggest issues are those related to the accumulation of *nutrients* and *pathogens*. TMDLs are needed to ensure the protection and restoration of our water bodies. [More on the Clean Water Act](#)

What are the basic steps in the TMDL program? How does it work?

1. Assess the quality of surface waters--are they meeting water quality standards?

2. Determine which waters are impaired--that is, which ones are not meeting water quality standards for a particular pollutant or pollutants.

3. Establish and adopt, by rule, a TMDL for each impaired water for the pollutants of concern--the ones causing the water quality problems.

4. Develop, with extensive local stakeholder input, a Basin Management Action Plan (BMAP) that....

5. Implement the strategies and actions in the BMAP.

6. Measure the effectiveness of the BMAP, both continuously at the local level and through a formal re-evaluation every five years.

7. Adapt--change the plan and change the actions if things aren't working.

8. Reassess the quality of surface waters continuously.

Why are BMAPs and TMDLs so important?

The importance of education to reduce pollutants is a recurring theme for state environmental agencies. The reason for this is simple: What you don't know can hurt the environment. When rain falls, the seemingly negligible amounts of chemicals and other pollutants around your home and premises are picked up and carried via storm drains to surface waters. The ramifications include polluted drinking water, beach closings, and endangered wildlife.



It is important to restore water quality to sustain healthy populations of fish and other aquatic life, decrease algal blooms, and safely support recreational uses. High levels of nutrients in the lakes causes an imbalance, therefore putting water bodies in violation of state water quality standards.

Pathogens

The two most common contaminants addressed in the BMAP are *nutrients* and *pathogens*. A primary example is fecal coliform bacteria which is a constituent of human sewage and animal waste. These pathogens are primarily the result of nonpoint sources including:

- Ducks
- Dogs
- Failing septic systems
- Wildlife
- Land application of hog and cattle manure
- Grazing animals
- Land application of poultry litter
- Cattle contributions directly deposited in stream
- Urban development



Photograph from The Fun Times Guide

Nutrients

It is important to note that total phosphorus is not a standard but an indicator that is considered along with other corroborating parameters in order to determine if impairment exists. However, there is also a narrative standard associated with total phosphorus related to its effect on increased algal production, specifically of blue-green algae. Total phosphorus indicates that dissolved phosphorus from irrigation return flows and agricultural runoff are significant sources. (EPA)

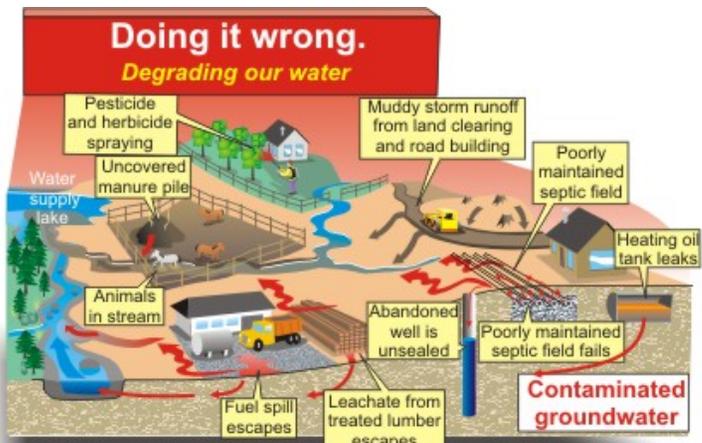
The difference between point source and nonpoint source pollution

Point sources include pollutant loads discharged at a specific location from pipes, outfalls, and conveyance channels from municipal wastewater treatment plants, industrial waste treatment facilities, stormwater discharges, or concentrated animal feeding operations. Point sources can also include pollutant loads contributed by tributaries to the main receiving water stream or river.

Nonpoint source (NPS) pollution is caused by rainfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas
 - Oil, grease, and toxic chemicals from urban runoff and energy production
 - Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks
- Salt from irrigation practices and acid drainage from abandoned mines
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems

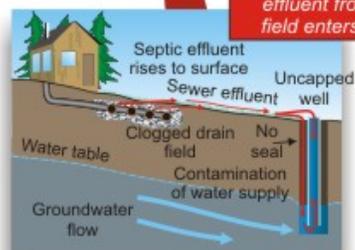




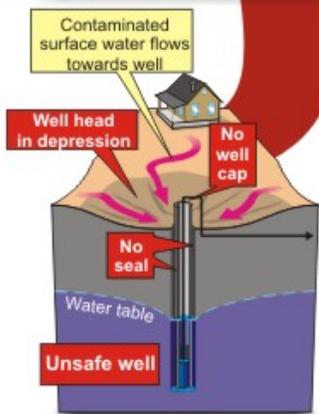
Keeping water clean: it's just common sense



Contaminated water supply:
effluent from failed septic field enters unsealed well

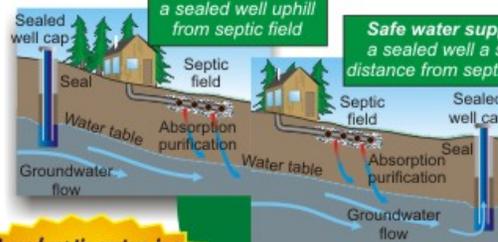


Is your well safe?



Safe water supply:
a sealed well uphill from septic field

Safe water supply:
a sealed well a safe distance from septic field



A good septic system is a maintained septic system. Make sure your septic tank is inspected and pumped regularly.

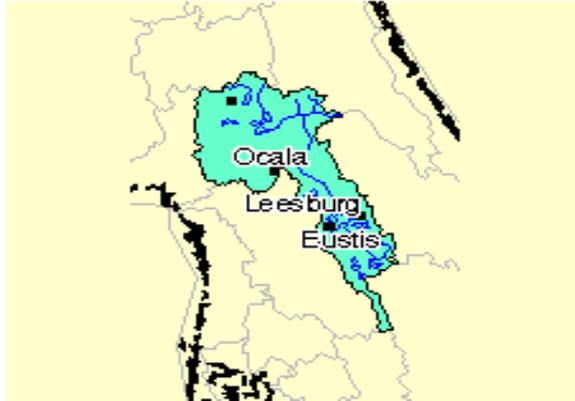


Watersheds Where You Live



For more information on watersheds in your area, visit
<http://www.protectingourwater.org/watersheds/map/>

Watershed 1

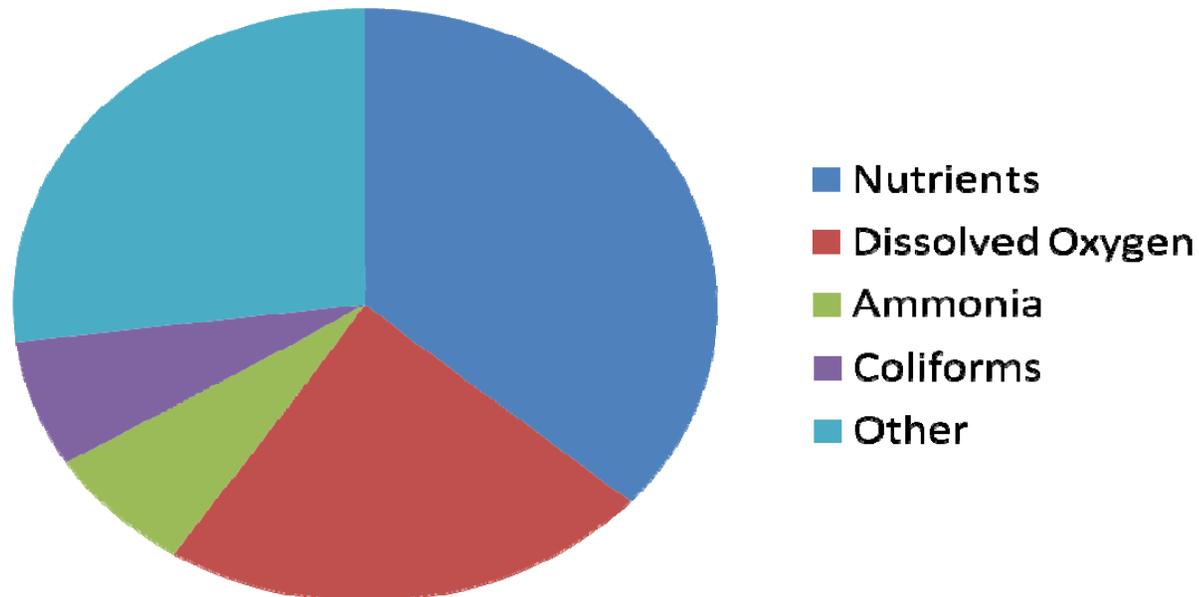


Oklawaha Watershed Surrounding Counties

- Alachua
- Lake
- Levy
- Marion
- Orange
- Polk
- Putnam

36.52 % reported Nutrient impairments
22.61% reported Dissolved Oxygen impairments
6.96% reported Un-ionized ammonia impairments
6.96% reported Coliform impairments
Remaining 26.95% reported miscellaneous impairments including biochemical oxygen demand, lead, turbidity, mercury, iron, selenium, silver, cadmium, fecal coliform, and total suspended solids.
For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Oklawaha Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	47
Dissolved Oxygen	26
Ammonia	8
Coliforms	8
Biochemical Oxygen Demand	6
Lead	5
Turbidity	4
Mercury	4
Iron	3
Selenium	2
Silver	2
Cadmium	2
Fecal Coliform	2
Total Suspended Solids	1

Watershed 2

Big Cypress Swamp



Surrounding Counties

- Broward**
- Collier**
- Dade**
- Hendry**
- Lee**
- Monroe**

48.78 % reported Dissolved Oxygen impairments

17.07% reported Nutrient impairments

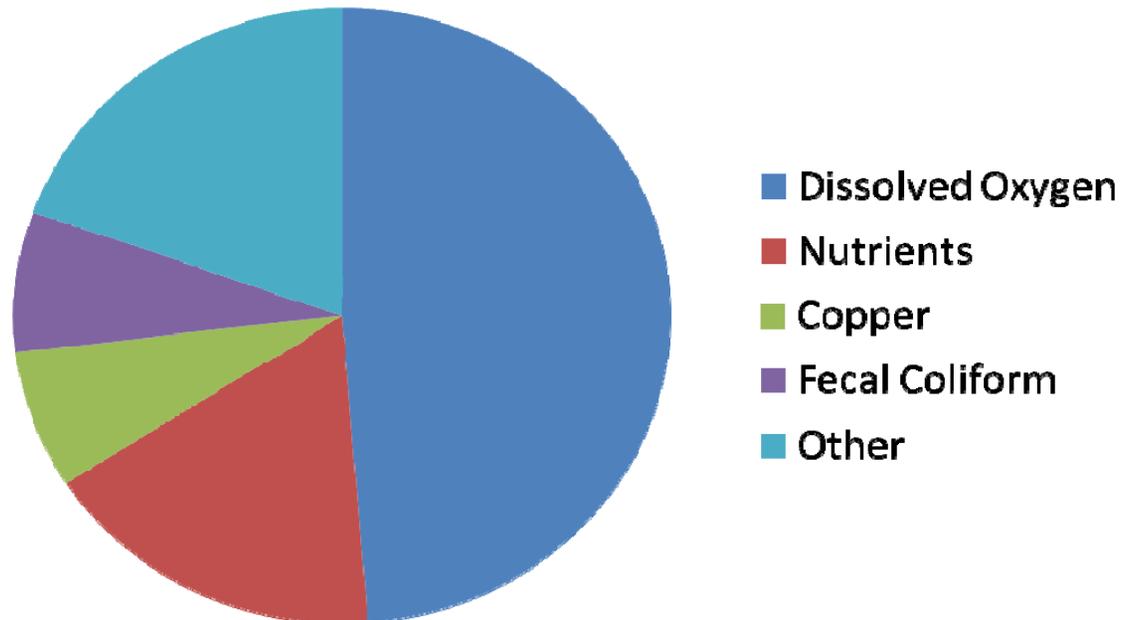
7.32% reported Copper impairments

7.32% reported Fecal Coliform impairments

Remaining 19.51% reported miscellaneous impairments including coliforms, biochemical oxygen demand, mercury, iron, shellfish bacteria, and cadmium.

For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

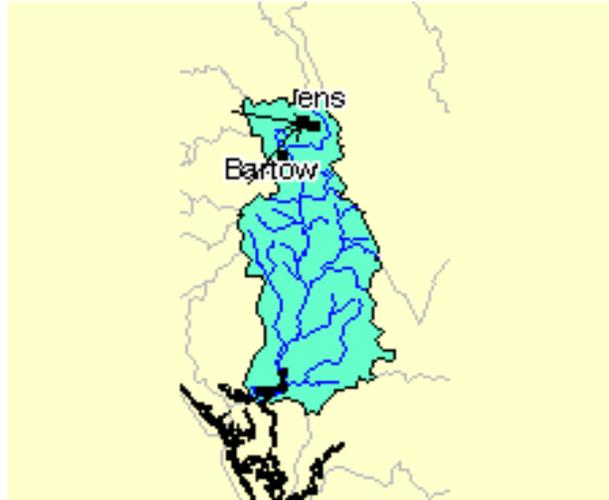
Percent Reported



Big Cypress Swamp

Impairment Name	Number of Reported Impaired Waterbodies
Dissolved Oxygen	20
Nutrients	7
Copper	3
Fecal Coliform	3
Coliforms	2
Biochemical Oxygen Demand	2
Mercury	1
Iron	1
Bacteria (Shellfish)	1
Cadmium	1

Watershed 3



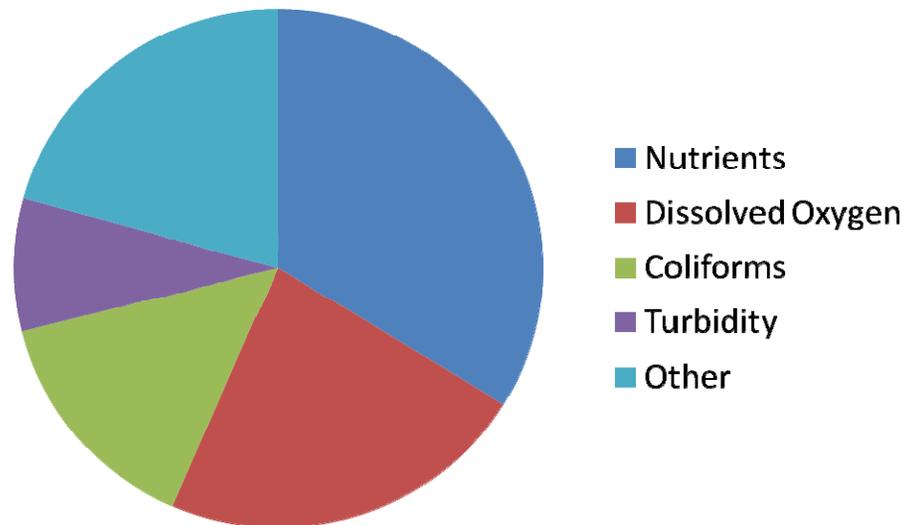
Peace Watershed

Surrounding Counties

- Charlotte**
- De Soto**
- Glades**
- Hardee**
- Highlands**
- Hillsborough**
- Manatee**
- Polk**

33.79 % reported Nutrient impairments
 22.76% reported Dissolved Oxygen impairments
 14.48% reported Coliform impairments
 8.28% reported Turbidity impairments
 Remaining 20.69% reported miscellaneous impairments including total suspended solids, mercury, biochemical oxygen demand, ammonia, fluoride and .69% reported unknown impairments.
 For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4

Percent Reported



Peace Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	49
Dissolved Oxygen	33
Coliforms	21
Turbidity	12
Total Suspended Solids	10
Mercury	8
Biochemical Oxygen Demand	5
Ammonia	5
Fluoride	1
Unknown	1

Watershed 4

Little Manatee Watershed



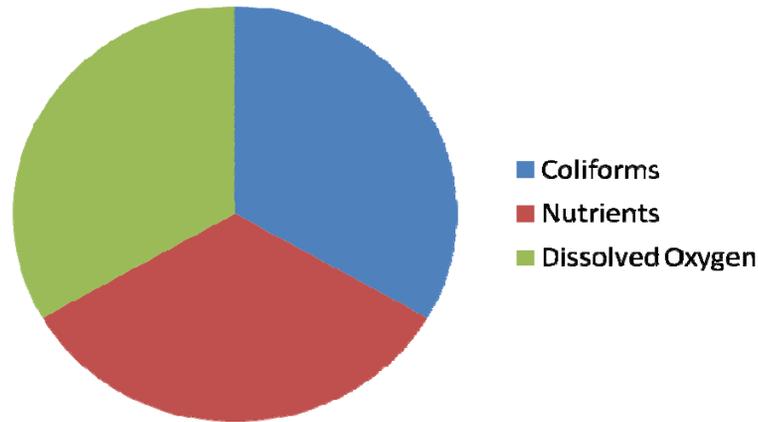
Surrounding Counties

Hillsborough
Manatee
Polk

33.33% reported Coliform impairments
33.33% reported Nutrient impairments
33.33% reported Dissolved Oxygen impairments

No further impairments have been reported for this watershed.

Percent Reported



Impairment Name	Number of Reported Impaired Waterbodies
Coliforms	3
Nutrients	3
Dissolved Oxygen	3

Watershed 5

Alafia Watershed



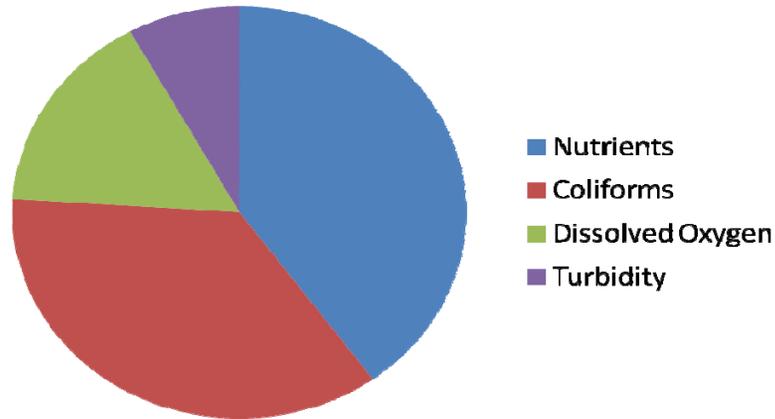
Surrounding Counties

**Hillsborough
Polk**

40 % reported Nutrient impairments
 36% reported Coliform impairments
 16% reported Dissolved Oxygen impairments
 8% reported Turbidity impairments

No further impairments have been reported for this watershed.

Percent Reported



Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	10
Coliforms	9
Dissolved Oxygen	4
Turbidity	2

Watershed 6

Hillsborough Watershed

Surrounding Counties

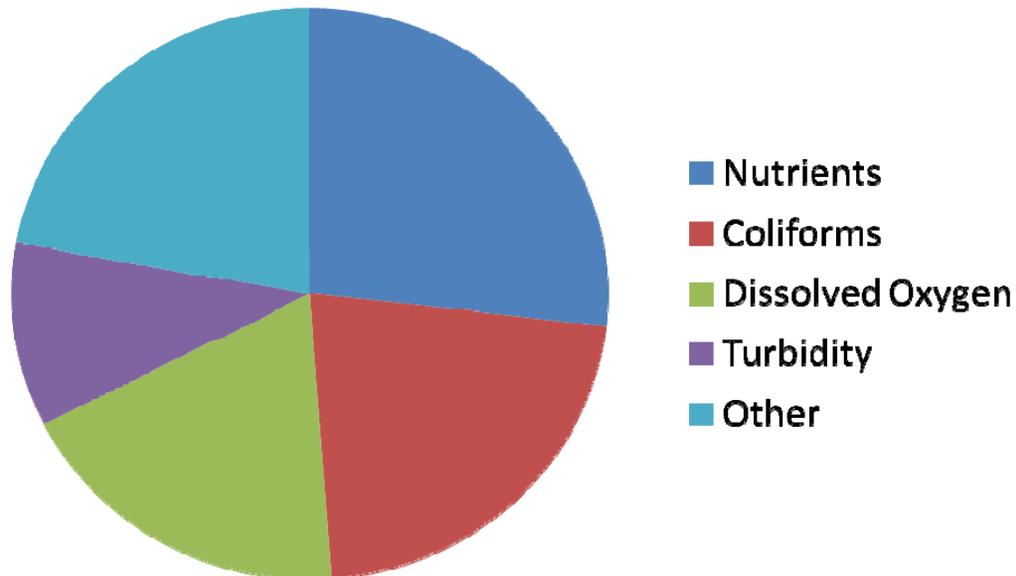


Hillsborough
Pasco
Polk

26.74 % reported Nutrient impairments
22.09% reported Coliform impairments
18.60% reported Dissolved Oxygen impairments
10.47% reported Turbidity impairments
Remaining 22.1% reported miscellaneous impairments including biochemical oxygen demand, lead, total suspended solids, mercury, and ammonia.

For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Hillsborough Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	23
Coliforms	19
Dissolved Oxygen	16
Turbidity	9
Biochemical Oxygen Demand	5
Lead	4
Total Suspended Solids	4
Mercury	4
Ammonia	2

Watershed 7



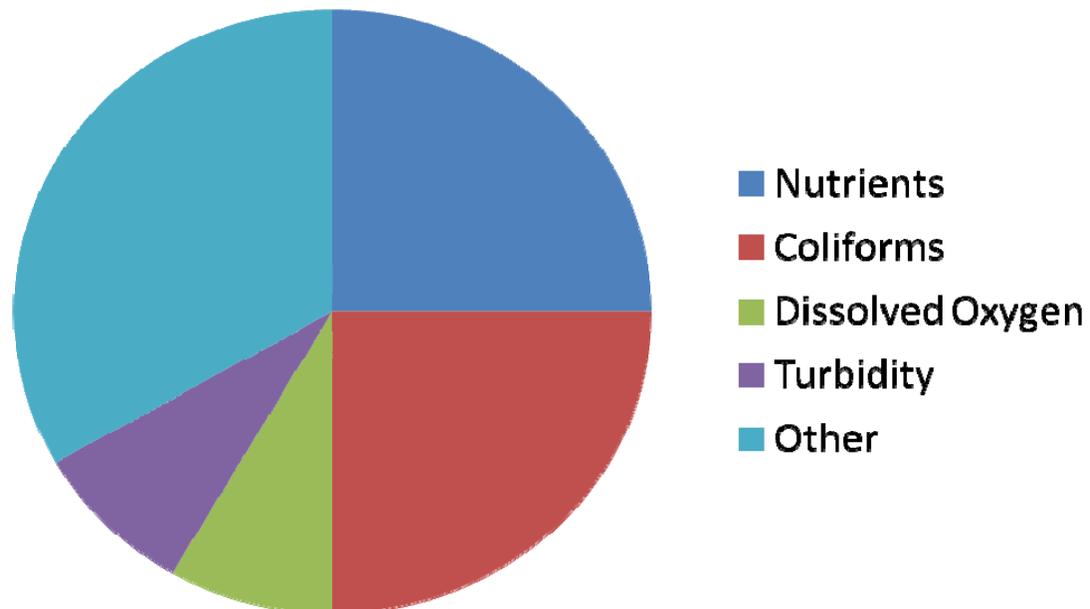
Chipola Watershed

Surrounding Counties

- Geneva
- Houston
- Bay
- Calhoun
- Gulf
- Jackson
- Washington

25 % reported Nutrient impairments
25% reported Coliform impairments
8.33% reported Dissolved Oxygen impairments
8.33% reported Turbidity impairments
Remaining 33.34% reported miscellaneous impairments including mercury, carbonaceous BOD, total phosphorus, and NBOD.
For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Chipola Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	3
Coliforms	3
Dissolved Oxygen	1
Turbidity	1
Mercury	1
Carbonaceous Bod	1
Total Phosphorus	1
NBOD	1

Watershed 8

Blackwater Watershed



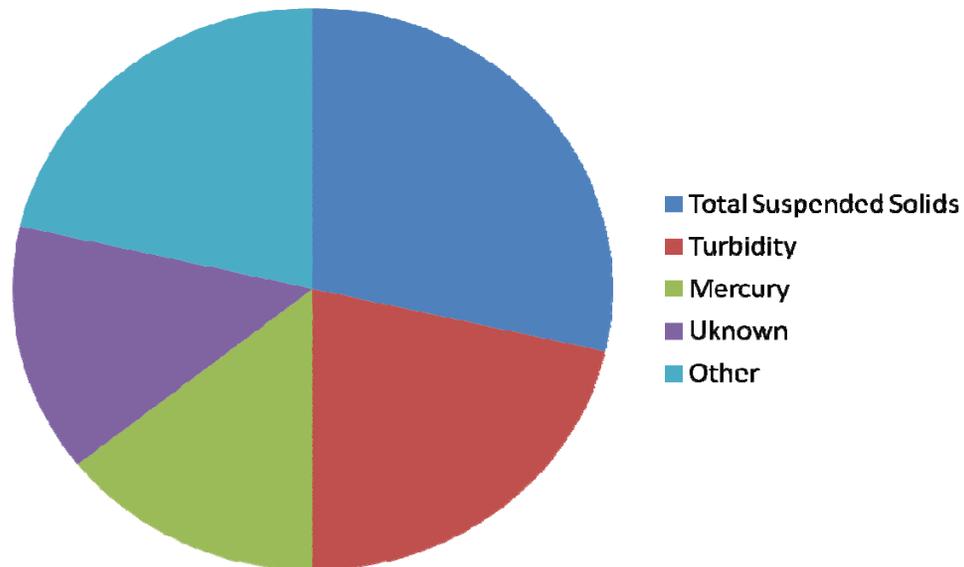
Surrounding Counties

- Covington
- Escambia
- Okaloosa
- Santa Rosa

28.57 % reported Total Suspended Solids impairments
21.43% reported Turbidity impairments
14.29% reported FCA (Mercury) impairments
14.29% reported Unknown impairments
Remaining 21.42% reported miscellaneous impairments including mercury, dissolved oxygen, and nutrients.

For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Blackwater Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Total Suspended Solids	4
Turbidity	3
FCA (Mercury)	2
Unknown	2
Mercury	1
Dissolved Oxygen	1
Nutrients	1

Watershed 9

Pensacola Bay Watershed

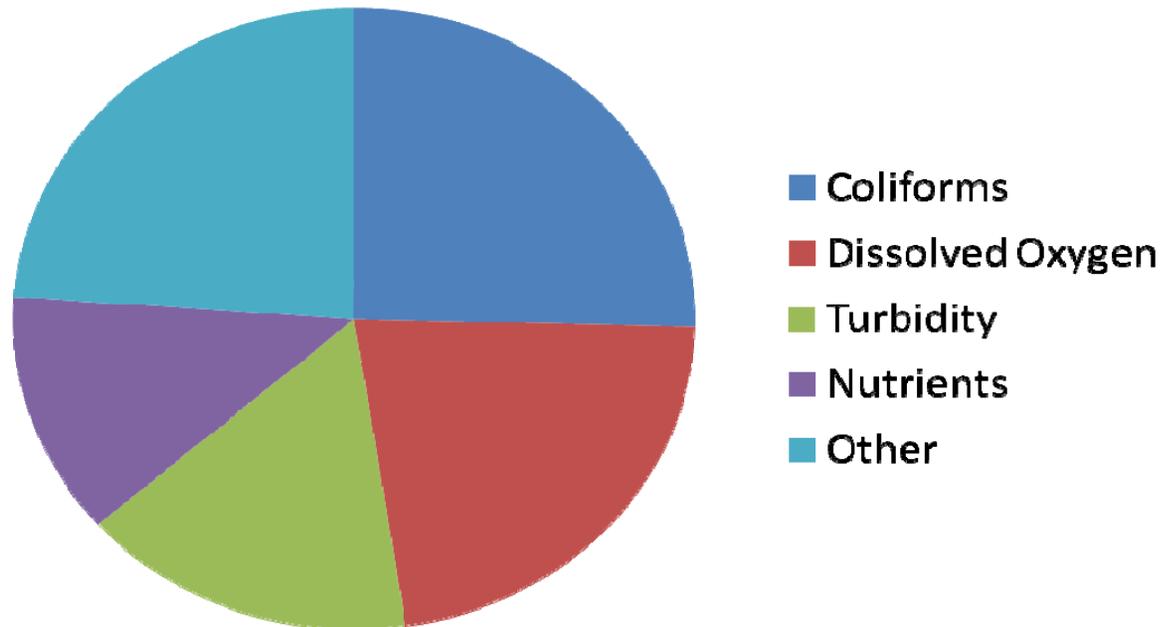


Surrounding Counties

**Escambia
Okaloosa
Santa Rosa**

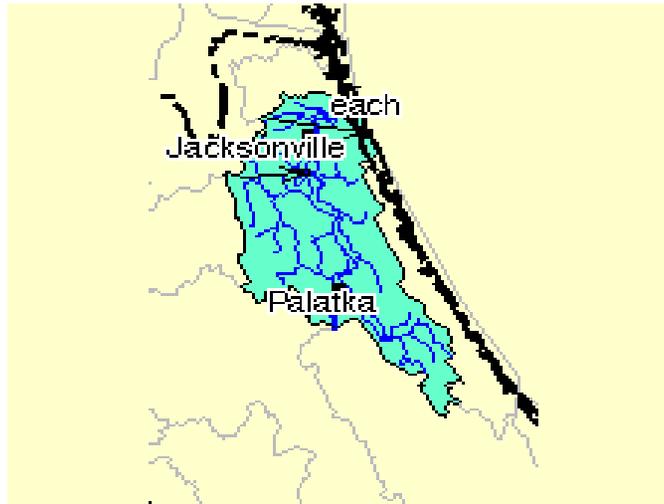
25.40 % reported Coliform impairments
22.22% reported Dissolved Oxygen impairments
15.87% reported Turbidity impairments
12.70% reported Nutrient impairments
Remaining 23.81% reported miscellaneous impairments including total suspended solids, mercury, unknown, lead, color, copper, and biological oxygen demand.
For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Pensacola Bay Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Coliforms	16
Dissolved Oxygen	14
Turbidity	10
Nutrients	8
Total Suspended Solids	6
Mercury	3
Unknown	2
Lead	1
Color	1
Copper	1
Biological Oxygen Demand	1

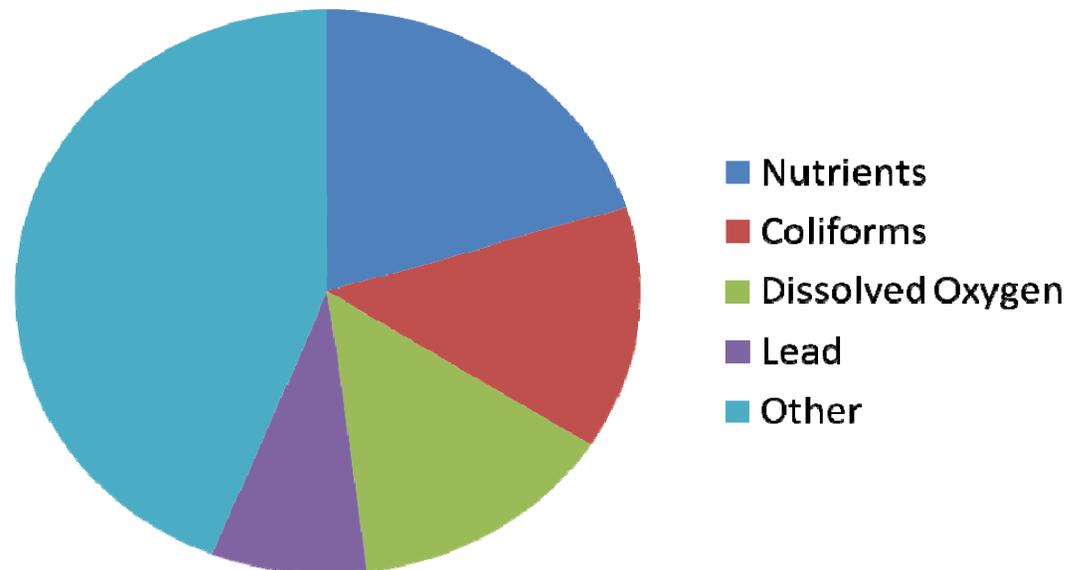


Surrounding Counties

- Alachua
- Baker
- Bradford
- Clay
- Duval
- Flagler
- Putnam
- St. Johns
- Volusia

20.18 % reported Nutrient impairments
13.90% reported Coliform impairments
13.90% reported Dissolved Oxygen impairments
8.07% reported Lead impairments
Remaining 43.95% reported miscellaneous impairments including iron, total suspended solids, turbidity, copper, silver, biochemical oxygen demand, cadmium, selenium, zinc, fluoride, biological oxygen demand, and mercury.
For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Lower St. Johns Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	45
Coliforms	31
Dissolved Oxygen	31
Lead	18
Iron	18
Total Suspended Solids	16
Turbidity	16
Copper	12
Silver	12
Biochemical Oxygen Demand	8
Cadmium	6
Selenium	5
Zinc	2
Fluoride	1
Biological Oxygen Demand	1
Mercury	1

Watershed 11

Upper St. Johns Watershed

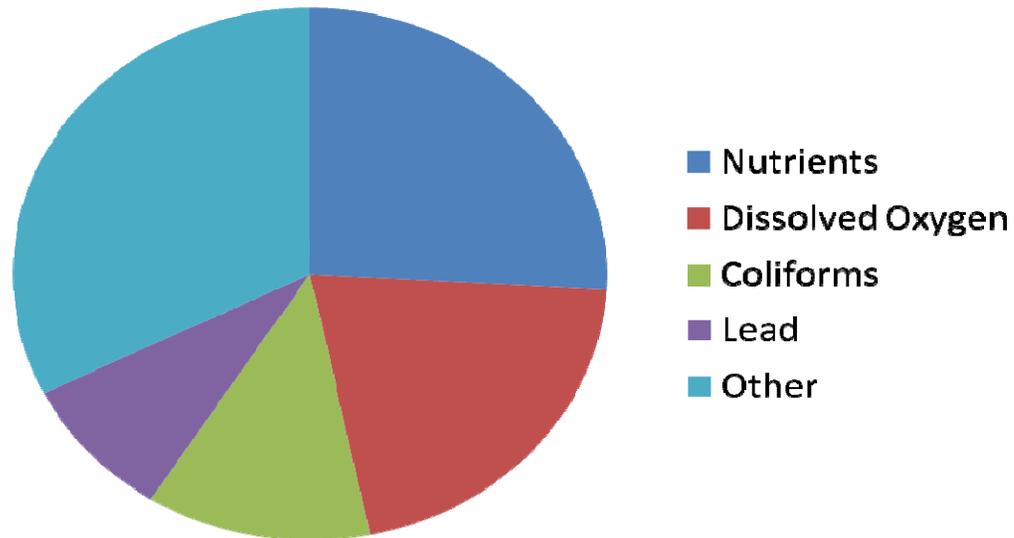


Surrounding Counties

- Brevard
- Flagler
- Indian River
- Lake
- Marion
- Okeechobee
- Orange
- Osceola
- Putnam
- St. Lucie
- Seminole

25.90 % reported Nutrient impairments
20.86% reported Dissolved Oxygen impairments
12.23% reported Coliform impairments
8.63% reported Lead impairments
Remaining 32.38% reported miscellaneous impairments including biochemical oxygen demand, mercury, iron, turbidity, cadmium, silver, ammonia, total suspended solids, biological oxygen demand, selenium, and zinc.
For more information on these impairments, please visit <http://www.epa.gov/OW/> and click Region 4 for Florida.

Percent Reported



Upper St. Johns Watershed

Impairment Name	Number of Reported Impaired Waterbodies
Nutrients	36
Dissolved Oxygen	29
Coliforms	17
Lead	12
Biochemical Oxygen Demand	9
Mercury	9
Iron	8
Turbidity	5
Cadmium	3
Silver	2
Ammonia	2
Total Suspended Solids	2
Biological Oxygen Demand	2
Selenium	2
Zinc	1

Community Action: What You Can Do 30

- Participate in clean-up activities in your neighborhood (beach clean-up, adopt-a-highway program, etc.)
- Write or call your elected representatives (local and state) For information on who to contact in your area, visit the following websites:
www.flsenate.gov
www.myfloridahouse.com
www.myflorida.com/counties/
www.myflorida.com/cities/
- Get involved in local planning and zoning decisions and encourage your local officials to develop erosion and sediment control ordinances.
- Promote environmental education. Help educate people in your community about ways in which they can help protect water quality. Get your community groups involved. Local citizens sometimes know more about what is happening in their watersheds than state agencies, and this knowledge can be a valuable aspect of TMDL development and BMAP implementation.
- The public often contributes useful data and information about an impaired waterbody. The public can often offer insights about their community that may ensure the success of one pollutant reduction strategy over another. Citizen information and participation can improve the quality of TMDLs that are developed and can ultimately speed cleanup of impaired waters or secure protection of threatened waters.
- Become a Water Action Volunteer. For information on how to get involved, visit <http://sjrwmd.com/education/wav/about.html>
- Do your part as a stakeholder:
 - Attend public BMAP meetings where you can contribute useful data and information about impaired waterbodies in your area and offer insights about your community that may ensure the success of one pollutant reduction strategy over another.

Your participation can improve the quality of TMDLs that are developed and can ultimately speed cleanup of impaired waters or secure protection of threatened waters!

Urban Stormwater Runoff

- Keep litter, leaves, and debris out of street gutters and storm drains which drain directly to lake, streams, rivers, and wetlands.
- Apply lawn and garden chemicals sparingly and according to directions.
- Dispose of used oil, antifreeze, paints, and other household chemicals properly, not in storm sewers or drains.
- Clean up spilled brake fluid, oil, grease, and antifreeze. Do not hose them into the street where they can eventually reach local streams and lakes.
- Control soil erosion on your property by planting ground cover and stabilizing erosion-prone areas.
- Encourage local government officials to develop construction erosion/sediment control ordinances in your community.
- Have your septic system inspected and pumped, at a minimum, every 3-5 years so that it operates properly.

Agriculture

- Manage animal waste to minimize contamination of surface water and ground water.
- Protect drinking water by using less pesticides and fertilizers.
- Reduce soil erosion by using conservation practices and other applicable best management practices.
- Use planned grazing systems on pasture and rangeland.
- Dispose of pesticides, containers, and tank rinsate in an approved manner.



Picture from Environmental Protection Agency

Household Chemicals

- Be aware that many chemicals commonly used around the home are toxic. Select less toxic alternatives. Use non-toxic substitutes wherever possible.
- Buy chemicals only in the amount you expect to use, and apply them only as directed. More is not better.
- Take unwanted household chemicals to hazardous waste collection centers; do not pour them down the drain. Pouring chemicals down the drain may disrupt your septic system or else contaminate treatment plant sludge.
- Never pour unwanted chemicals on the ground. Soil cannot purify most chemicals, and they may eventually contaminate runoff.
- Use household detergents and cleaners that are low in phosphorous to reduce the amount of nutrients discharged into our lakes, streams and coastal waters.
- Use water-based products whenever possible.

Leftover household pesticide?
Do not indiscriminately spray pesticides, either indoors or outdoors, where a pest problem has not been identified. Dispose of excess pesticides at hazardous waste collection centers.



For more green tips visit
<http://www.dep.state.fl.us/green/tips/tips.htm>

Nine Principles of Florida-friendly Landscaping³³



1) **Right Plant, Right Place:** Plants selected to suit a specific site will require minimal amounts of water, fertilizers and pesticides.

2) **Water Efficiently:** Irrigate only when your lawn needs water. Efficient watering is the key to a healthy yard and conservation of limited resources.

3) **Fertilize Appropriately:** Less is often best. Over-use of fertilizers can be hazardous to your yard and the environment.

4) **Mulch:** Maintain two to three inches of mulch to help retain soil moisture, prevent erosion and suppress weeds.

5) **Attract Wildlife:** Plants in your yard that provide food, water and shelter can conserve Florida's diverse wildlife.

6) **Manage Yard Pests Responsibly:** Unwise use of pesticides can harm people, pets, beneficial organisms and the environment.

7) **Recycle:** Grass clippings, leaves and yard trimmings composted and recycled on site provide nutrients to the soil and reduce waste disposal.

8) **Reduce Stormwater Runoff:** Water running off your yard can carry pollutants, such as fertilizer, pesticides, soil and debris that can harm water quality. Reduction of this runoff will help prevent pollution.

9) **Protect the Waterfront:** Waterfront property, whether on a river, stream, pond, bay or beach, is very fragile and should be carefully protected to maintain freshwater and marine ecosystems

Septic Systems

- Improperly maintained septic systems can contaminate ground water and surface water with nutrients and pathogens. By following the recommendations below, you can help ensure that your system continues to function properly.
- Inspect your septic system annually.
- Pump out your septic system regularly. (Pumping out every three to five years is recommended for a three-bedroom house with a 1,000-gallon tank; smaller tanks should be pumped more often.)
- Do not use septic system additives. There is no scientific evidence that biological and chemical additives aid or accelerate decomposition in septic tanks; some additives may in fact be detrimental to the septic system or contaminate ground water.
- Do not divert storm drains or basement pumps into septic systems.
- Avoid or reduce the use of your garbage disposal. (Garbage disposals contribute unnecessary solids to your septic system and can also increase the frequency your tank needs to be pumped.)
- Don't use toilets as trash cans! Excess solids may clog your drain field and necessitate more frequent pumping.



Photograph from Baltimore Sun

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- FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION RELEASES UPPER OCKLAWAHA RIVER BASIN MANAGEMENT ACTION PLAN. (2007, August 28). US Fed News Service, Including US State News. Retrieved May 26, 2009, from Research Library database. (Document ID: 1327065411).

Additional Websites

<http://www.greenerchoices.org/eco-labels/>

http://www.dep.state.fl.us/secretary/news/2008/12/1230_01.htm

http://www.dep.state.fl.us/secretary/news/2009/04/0406_01.htm