

The TMDL Program

The FDEP's TMDL program is Florida's surface water **Assessment and Restoration Program**. It is part of a Watershed Management Approach that established a five-phase cycle that rotates through all of the basins in the state over a five year period. The **Estero Bay Watershed** is located within the **Everglades West Coast (EWC) Basin**. Waters within each basin are then divided into smaller watersheds referred to as WBIDs (Water Body Identification).

The 5-phase process of the TMDL program is to:

- Phase 1** - Assess every water body (WBID) in the state.
- Phase 2** - Determine if it is **Impaired** for various parameters – nutrients, dissolved oxygen, iron, etc.
- Phase 3** - FDEP must then establish a TMDL for each impaired waterbody and parameter. It is possible to have more than one TMDL per WBID.
- Phase 4** - Develop BMAP. Once the TMDLs are developed and adopted, they are primarily implemented through a Basin Management Action Plan (BMAP) to achieve the specified load reduction. Leading to...
- Phase 5** - **The Restoration of Surface Waters.**

What is a TMDL?

TMDL stands for **Total Maximum Daily Load**.

It establishes the maximum amount of a pollutant that a water body can assimilate without causing exceedances of water quality standards.

Impaired = Not meeting the state **water quality standards** associated with its designated use class. All water bodies within Estero Bay are designated as **Class III** (Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife (i.e. Fishable Swimmable Waters)). Florida's surface **water quality standards** are published in [62-302](#) (and [62-302.530](#)) of the Florida Administrative Code (F.A.C.).

The Estero Bay Watershed

The Verified List of Impaired Waters for the Estero Bay watershed was adopted in June 2008. Of the 20 WBIDs, 11 were impaired for at least one parameter (excluding mercury in fish tissue). The Impaired Waters Rule (IWR), rule 62-303 F.A.C., requires that all Dissolved Oxygen (DO) impairments must list a causative pollutant. Total nitrogen (TN) was considered the causative pollutant for the DO impairments in the Estero Bay watershed. Therefore the establishment of an allowable loading of TN to the tributaries would restore the waterbodies so that they meet their water quality criteria for DO.

The fecal coliform bacteria TMDL for Hendry Creek Marine (3258B1) was developed using the state water quality standard for bacteria and will require a 57.4% reduction.

The TN TMDLs for the impaired Estero Bay WBIDs were developed through the calculation of a region-based reference concentration to develop the target concentrations. The TN target established for Hendry Creek and Hendry Creek Marine was based on the mean from the Estero Bay Wetland (3258A) reference waterbody, or 0.60 mg/L, while the target for Imperial River was based on the 75th percentile of the reference waterbodies from the Southwest Coast Watershed, or 0.74 mg/L.

What is a Reference Method?

A reference method is where the calculated median value of a reference waterbody is used as the target concentration.

A waterbody is considered a reference based on land use characteristics that demonstrate relatively low impacts from urban development representing "**natural condition**" waterbodies.

Estero Bay Watershed TMDLs

NAME	WBID	IMPAIRMENT	CAUSITIVE POLLUTANT	TMDL	PERCENT REDUCTION
Hendry Creek Marine	3258B1	Fecal Coliform	Fecal Coliform Bacteria	Fecal Coliform not to exceed 400 colonies /100 ml	57.4% reduction in fecal coliform bacteria
Hendry Creek Marine	3258B1	Dissolved Oxygen	Total Nitrogen (TN)	TN not to exceed 0.60 mg/L	44% reduction in TN
Hendry Creek	3258B	Dissolved Oxygen	Total Nitrogen (TN)	TN not to exceed 0.60 mg/L	44% reduction in TN
Imperial River	3258E	Dissolved Oxygen	Total Nitrogen (TN)	TN not to exceed 0.74 mg/L	24.9% reduction in TN

The impaired WBIDs and parameters that received a TMDL were listed on the original 1998 impaired list (303d) list and needed to be developed due to the consent decree schedule.

Spring Creek (3258H and 3258H1) is impaired for dissolved oxygen but no causative pollutant could be determined. It is therefore considered to be impaired due to natural conditions (category 4c) and no TMDL was developed.

Estero River Marine (3258D1) was listed as Impaired on the Cycle 1 Verified List (08/28/2002) for copper; current data showed that there is no impairment and it was removed from the list.

The impairments will be **reassessed in 2013 during Cycle 3** where more impairments will be addressed and TMDLs developed.

The BMAP Process

Now that the TMDLs are adopted, the FDEP is currently meeting with stakeholder groups (i.e. land owners, business groups, agricultural interests, local governments, other state and federal agencies, environmental groups, etc.) to develop a **Basin Management Action Plan (BMAP)** for the Estero Bay WBIDs. This "plan" is designed to address the causes of the impairments in the waterbody.

An example of a BMAP plan or project: A stream is found to have consistently high levels of fecal coliform contamination. There are a large number of old septic systems in the watershed. The BMAP may propose installation of central sewage collection and treatment to eliminate the problem.

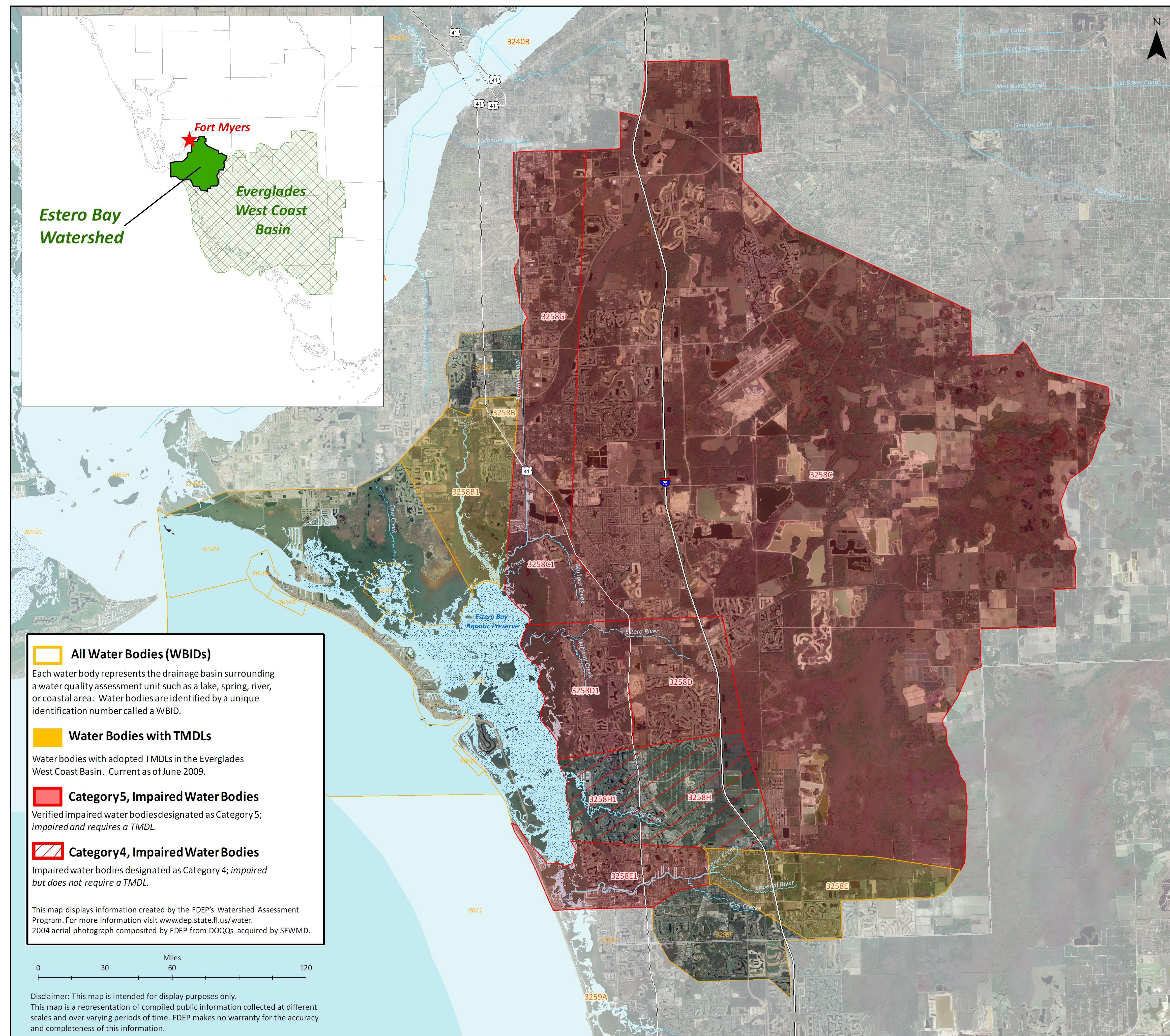
Other programs and projects in a BMAP may include fertilizer ordinances, advanced waste water treatment systems, redirecting wastewater discharges to beneficial reuse for irrigation and other purposes, stormwater retrofits, and environmental education.

What is a BMAP?

BMAP stands for **Basin Management Action Plan**. It is the "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a TMDL.

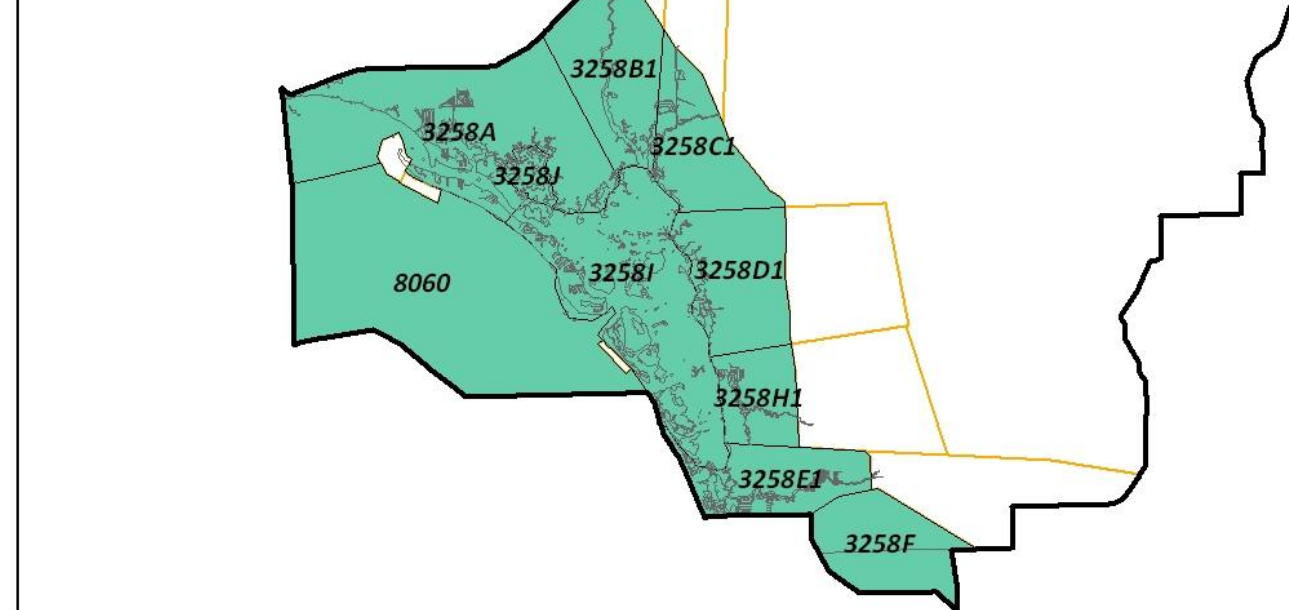
It provides detailed allocations and projects on how the load reductions will be accomplished.

Mercury in Fish Tissue Impairment: There are 102 Florida waterbodies requiring a mercury TMDL by 2012. FDEP decided a statewide approach would be the most practical and cost effective method and is currently working on developing one. This TMDL will only address freshwater WBIDs, the TMDL for marine waters will be developed later. For fish consumption advisories visit the DOH website at <http://www.doh.state.fl.us/environment/medicine/fishconsumptionadvisories/index.html>



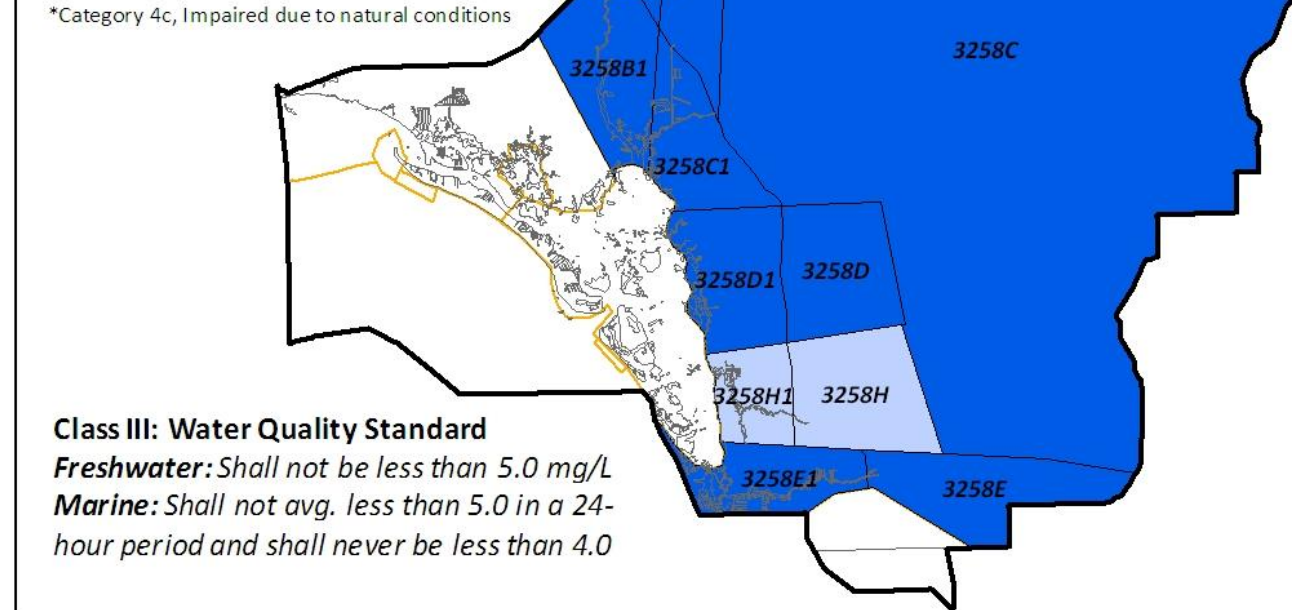
Mercury (in Fish Tissue)

WBID	Water Body Name
3258A	Estero Bay Wetlands
3258B1	Hendry Creek-Marine
3258C1	Estero Bay Drainage-Marine
3258D1	Estero River-Marine
3258E1	Imperial River-Marine
3258F	Oak Creek
3258H1	Spring Creek-Marine
3258I	Estero Bay
3258J	Hell Padkey Bay
8060	Estero Bay Gulf



Dissolved Oxygen (DO)

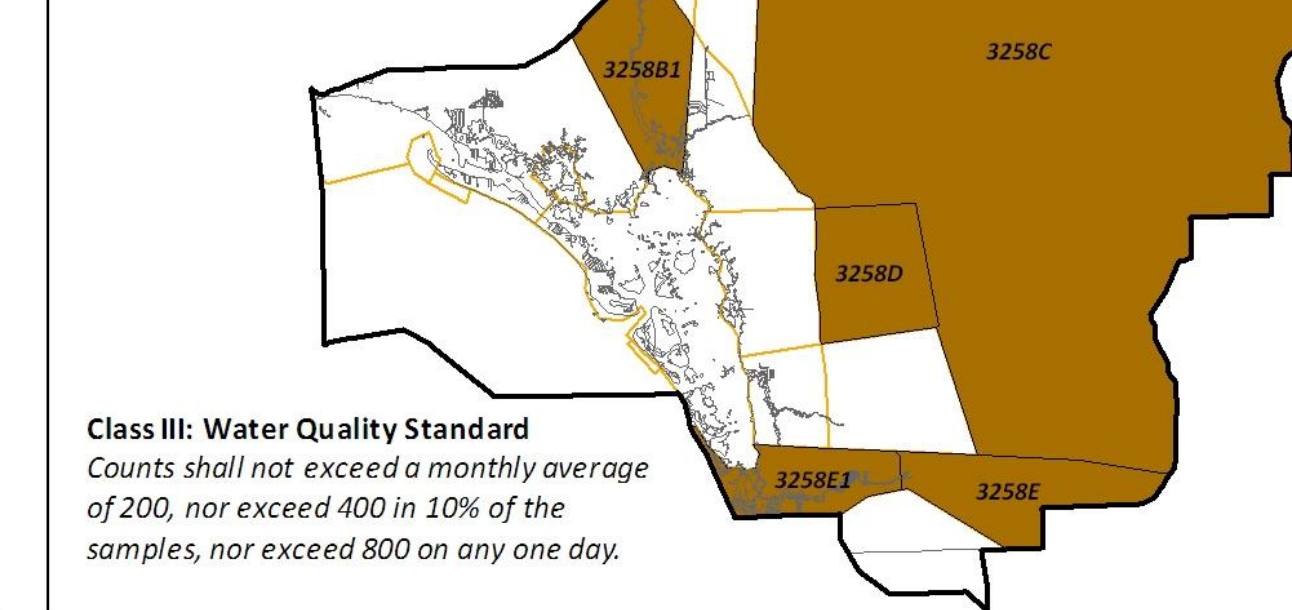
WBID	Water Body Name
3258B	Hendry Creek
3258B1	Hendry Creek-Marine
3258C	Estero Bay Drainage
3258C1	Estero Bay Drainage-Marine
3258D	Estero River
3258D1	Estero River-Marine
3258E	Imperial River
3258E1	Imperial River-Marine
3258G	Terminle Canal
*3258H	Spring Creek
*3258H1	Spring Creek-Marine



Class III: Water Quality Standard
Freshwater: Shall not be less than 5.0 mg/L
Marine: Shall not avg. less than 5.0 in a 24-hour period and shall never be less than 4.0

Fecal Coliform Bacteria

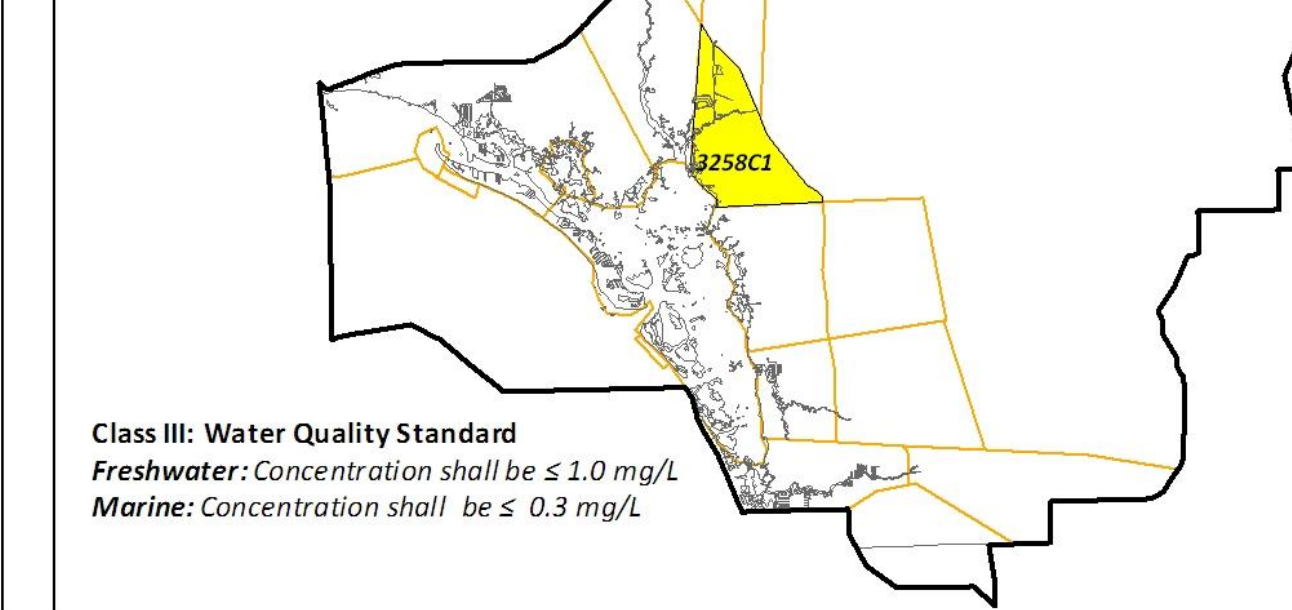
WBID	Water Body Name
3258B1	Hendry Creek-Marine
3258C	Estero Bay Drainage
3258D	Estero River
3258E	Imperial River
3258E1	Imperial River-Marine



Class III: Water Quality Standard
Counts shall not exceed a monthly average of 200, nor exceed 800 in 10% of the samples, nor exceed 800 on any one day.

Iron (Metals)

WBID	Water Body Name
3258C1	Estero Bay Drainage-Marine



Class III: Water Quality Standard
Freshwater: Concentration shall be ≤ 1.0 mg/L
Marine: Concentration shall be ≤ 0.3 mg/L