February 16, 2011

Ms. Stephanie Sanzone
Designated Federal Officer
EPA Scientific Advisory Board (1400R)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

RE: Scientific Advisory Board (SAB) Draft Report

Dear Ms. Sanzone:

We would like to thank you and the Scientific Advisory Board (SAB) for the informative discussion and the webinar that was held last week regarding the SAB's draft report on their review of EPA Technical Support Document (TSD) for the development of numeric nutrient criteria for Florida's estuaries, and coastal waters and southern canals. The discussion was very helpful to us and did clarify some of our questions. We realized as we listened to the SAB's conversation, however, that there is some relevant information about Florida's waters of which they may not be aware. We offer these comments in addition to our previous observations to clarify some important points as well as to comment on several issues raised by the Florida Department of Environmental Protection (FDEP) in their comment letter dated February 1, 2011. We hope these will be reviewed and considered along with our previous comments provided in our December 1, 2010 letter prior to the SAB finalizing their report.

Need for SAB to Provide a Protective Definition of Healthy Balanced Community

The SAB was wise to give substantial consideration to the definition of "balanced" in a well-balanced healthy community. We agree with the SAB that the endpoints (healthy sea grasses, balanced phytoplankton biomass, and balanced faunal communities) should be better defined quantitatively and in some cases be more clearly connected to the explanatory variables that would be the basis for setting numeric criteria.

One reason for our concern is that the implementation of this rule will be left to the state. The reason that there is such an urgency for Florida to have numeric nutrient criteria is that the state has not consistently, or even infrequently, implemented or enforced its narrative nutrient criteria which requires that in no case can nutrients be allowed to cause an *imbalance* in flora and fauna. If the new numeric nutrient criteria are set in vague or unquantified terms, then we are likely to see more of the same lax implementation and enforcement of the numeric criteria that degraded our waters to their present condition.

The FDEP has suggested in their comments that the SAB and EPA look to pages 6 – 10 of FDEP's TSD, titled "Overview of Approaches for Numeric Nutrient Criteria in Marine Waters" for proper guidance in developing a definition of a "healthy balanced community." Unfortunately, if

the state's TSD is carefully reviewed, you will find more vague, subjective terms that can be interpreted with an endless spectrum of options. The outcome for our waters will likely resemble something close to their present state or worse.

An example of how the state has used some of the methods that are recommended in its "Overview . . .Waters" can be found in the site specific alternative criteria (SSAC) for nutrients for the lower St. Johns River. In its effort to avoid implementation of the EPA's proposed Total Maximum Daily Load (TMDL) for nutrients for the lower St. Johns River, the state adopted a "Type 2" SSAC (less protective than the statewide criteria) for dissolved oxygen, which in turn allowed for *greater* amounts of nutrients in the system. [1] Using a "Type 2" SSAC, FDEP was able to justify a TMDL that allowed for much higher nutrient levels to remain in the lower St. Johns. The TMDL is based on a chlorophyll *a* target of 40 micrograms per liter (ug/L), not to be exceeded more than 10 percent of the time, in spite of the fact that Chapter 62-303 F.A.C. sets the threshold for nutrient impairment in estuarine waters at 11 ug/L. Additionally, a long-term average model for output was adopted, rather than model predictions for a worst-case, dry year, which allows for even more nutrients.

When the public objected to allowing excess nutrients in the river, the FDEP had to acknowledge that there would be uncertainty whether these levels would be fully protective of the designated uses of the river under critical, low-flow conditions or during the extended growing season with less than average flows. So, FDEP promised to continue to evaluate the system to determine if a seasonal average maximum or yearly average maximum level of chlorophyll *a* should be established to protect against imbalances in natural populations of aquatic flora and fauna. The long-term goal that is articulated by the FDEP's SSAC states:

> "Specifically, studies will be conducted to demonstrate the following: (1) that progress is being made towards reducing nutrient loads by the amount required under the TMDL (30 percent) or that progress towards reaching the percent reduction goal is being made; (2) that once the 30 percent reduction goal is reached, it results in chlorophyll *a* levels that do not exceed 40 µg/L more than 10 percent of the time; and (3) that once the chlorophyll *a* target is reached, it has resulted in the achievement of the narrative nutrient criterion (i.e., balanced, natural populations of aquatic flora and fauna)."

This is just one example of why the definition of a "healthy, balanced community" should be developed by the SAB. Without an adequately protective definition, other waterbodies will follow the St. Johns River with continued and steady increases in eutrophication, toxic algal blooms, fish kills, and no actual reductions in nutrient loading. Therefore, we strongly encourage the SAB and EPA to quantify exactly what a "healthy, balanced community" will mean in terms of numeric nutrient criteria in Florida, cognizant of aligning to uses that have been attained since Clean Water Act enacted – even if they are no longer being attained today.

<u>Need for SAB to Develop Swimmable / Fishable Criteria for South Florida Rivers and Streams</u>

During FDEP Numeric Nutrient Criteria workshops, the Conservancy queried why there was no streams/rivers criteria being developed for stream and rivers in the South Florida region - only the South Florida Flowing Waters criteria which the FDEP presented as being for canals. FDEP staff stated in response that there is only "one natural (freshwater) stream south of Lake Okeechobee". We strongly beg to differ and are enclosing several exhibits to depict at least 13 freshwater streams and rivers that we identified in our immediate area of Southwest Florida alone (see Exhibits 1-8). These freshwater streams and rivers do share the same swimmable/fishable designated use as Class III canals, but should be recognized as the natural rivers and streams they are when developing numeric nutrient criteria.

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[1] http://www.dep.state.fl.us/water/tmdl/docs/tmdls/final/gp2/lower-stjohns-nutrients.pdf

In fact, a 2006 study completed by the Conservancy science team of Estero Bay tributaries reveals that 9 of their sampling sites are freshwater year round including portions of the Estero River, Imperial River, and Spring Creek[2]. Moreover, FDEP lists at least 7 waterbodies in Southwest Florida as Class III Freshwater Streams, under the current water quality standards rule 62.303. In addition to the Estero River, Imperial River, and Spring Creek, more southerly freshwater streams include Halfway Creek, Oak Creek, Cocohatchee River, and the Gordon River. Some of these waterbodies do have estuarine qualities, but their upstream counterparts are considered fresh and are currently assessed as such.

Additionally, the Conservancy's 2006 study demonstrates that the Estero Bay Tributary fresh portions that are meeting the water quality standards for their designated use contain great biodiversity and support numerous species of fish and benthic invertebrates. According to the study, fish abundance also generally responds to long-term alterations of the physical habitat such as nutrient over-enrichment, whereas benthic invertebrates are more sensitive to localized pollutant loadings. A Spring Creek sample site (SC1) had the highest taxonomic richness of all samples taken, validating that there are functional, natural freshwater streams in South Florida which support abundant life.

Because FDEP currently classifies the subbasins (i.e. WBIDs) that these freshwater streams reside in as Class III Freshwater Streams, it would be logical to create a separate numeric nutrient standard for these streams that would better reflect the natural characteristics of the waterbody. With FDEP's current sentiment that canals cannot support aquatic life, it is vital to accurately distinguish the natural rivers and streams that we *do* have in the southern part of the state, so they are not compromised by future regulations - such as downgrading the designated use classification of canals.

Attached are closer views to some of South Florida's natural streams and rivers. As seen in the pictures, not all waterways have been channelized or "canalized", and should not be assessed as canal systems. These are clearly natural systems which support a diverse aquatic ecosystem and as such, the Conservancy urges the SAB to ensure that EPA recognize and to support the development of a streams / rivers criteria as part of the South Florida Flowing Water criteria for the South Florida region.

<u>Need for SAB to Protect Swimmable / Fishable Water Quality in Class III Canals</u>

In the SAB discussion last week, there was talk of making a greater distinction in the report and the criteria between canals and natural flowing waters. Many canals in Florida were dredged from where natural streams and/or wetlands formerly existed. Most are currently categorized as Class III (fishable/swimmable) waters. At times, it sounded as if it was not understood that canals all over Florida, especially in south Florida, run through residential areas and are used for swimming and fishing routinely. Because swimmable/fishable water quality in canals is critically important for downstream protection, as well as for public health reasons, the designated use and water quality standards should continue to support fishing and swimming. Many of these Class III canals do in fact meet most, if not all, their current Class III swimmable/fishable water quality standards.

Canals, although man-made, may constitute essential habitat for many species of Florida fish and wildlife. In South Florida, in particular, canal habitats are very important for imperiled species. As discussed on the call, alligators and crocodiles are known to nest on canal berms and the canals can act as deep-water refugia for adults[3]. Threatened American crocodile "nursery habitat are

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[2] Schmid, Jeffrey R. et al. Ecological Calibrations of Estero Bay Basins. October 2006.

[3] US Fish and Wildlife Service, 1999. South Florida Multi-Species Recovery Plan, American Crocodile. P.4-505 – 4-528.; US Fish and Wildlife Service, February 12, 2004. Species Conservation Guidelines American Crocodile. South

defined as areas that are protected from wind and wave action and have a low to intermediate salinity regime, abundant food, and places to hide from predators. In Florida, estuarine creeks, natural and man-made ponds, *and canals* meet these habitat requirements. On North Key Largo and at Turkey Point, the creation of canals not only unwittingly created nesting habitat, but also created a productive aquatic environment as evidenced by the growth rates of crocodiles and personal observation of abundant prey items at the two locations[4]."

Canals also provide warm water refugia for manatees which are critical to avoiding cold stress when temperatures dip in the winter months. Manatees have been documented to utilize canals for "feeding, resting, cavorting, mating and calving[5]." Canals and ditches are also known to support endangered wood stork (and other listed wading bird) foraging. In some canals, such as documented in the Collier County Henderson Creek canal and Cape Coral canal systems, oyster populations have been maintained[6]. In fact, the City of Cape Coral, known for it's over 400 miles of canals, both freshwater and saltwater, canals support a wide range of fish and wildlife resources. Mullet, snook, sheepshead, mangrove snapper, largemouth bass, bluegill, catfish, shiners, mosquito fish, crabs, alligators, banded water snakes and water moccasins, manatees, mud turtles, musk turtles, Florida red-belly turtles, and snapping turtle, all are enjoyed by residents in their backyard canals[7]. Cape Coral canals have even been identified as a "hot spot" for the critically-endangered smalltooth sawfish[8].

Nutrient criterion for canals is important because these systems are also sensitive to loading, and resulting eutrophication "by over-fertilization with nitrogen and phosphorus causes a shift from mainly submerged aquatic vegetation to a dominance of duckweed. This leads to anoxic conditions, poorly diversified assemblages which are always dominated by the same small set of species[9]." In other words, an absence of numeric nutrient criteria standards to support swimmable/fishable water quality for canals can depress their species diversity and habitat quality. "Species richness of macrophytes... is not correlated with structural quality of waterbodies. It depends on [its] nutrient content," as a key factor[10]. Families of otters, schools of fish, and flocks of native ducks use these waterways and do not seem to differentiate much their use of natural areas.

Most importantly, every canal in South Florida eventually drains to our rivers and streams and on into our estuaries. South Florida's wetlands, streams, rivers, and estuaries are highly impacted by the nutrient over-enrichment from agricultural runoff, stormwater and wastewater transmitted to them via canals.[11] Therefore, swimmable/fishable canals criteria are imperative not only for downstream water quality protection, but also for the implementation of appropriate pollution source-control requirements as well as for the protection of wildlife and human health. EPA recognizes that "[e]xcess nutrients in canals, in combination with poor water circulation and decreased levels of dissolved oxygen, can lead to accelerated eutrophication and adverse

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Florida Ecological Services Offices; Mazzotti and Cherkiss, 2003. Status and Conservation of the American Crocodile in Florida: Recovering an Endangered Species While Restoring an Endangered Ecosystem. University of Florida.

[4] Mazzotti and Cherkiss, 2003. Status and Conservation of the American Crocodile in Florida: Recovering an Endangered Species While Restoring an Endangered Ecosystem. University of Florida. P. 13. Emphasis added.

[5] US Fish and Wildlife Service, 2001. Florida Manatee Recovery Plan, third edition. P. 18.

[6] NOAA, December 1993. South Florida Environmental Quality. NOAA Technical Memorandum NOS ORCA 75.; City of Cape Coral, Summer 2009. Canal Owner's Manual. Environmental Resources Division.

[7] City of Cape Coral, Summer 2009. Canal Owner's Manual. Environmental Resources Division.

[8] Poulaskis, et al., February, 2010. Distribution, Habitat Use, and Movements of Juvenile Smalltooth Sawfish, Pristis Pectinata, in the Charlotte Harbor Estuarine System, Florida. Florida Fish and Wildlife Conservation Commission. FWRI.

[9] Langheinrich, et al., 2003. Ditches and Canals in Management of Fens: Opportunity or Risk? A Case Study in the Dromling Natural Park, Germany. Wetlands Ecology and Management 12: 429-445. P. 441.

[10] Langheinrich, et al., 2003. Ditches and Canals in Management of Fens: Opportunity or Risk? A Case Study in the Dromling Natural Park, Germany. Wetlands Ecology and Management 12: 429-445. P. 442.

[11] Lapointe, BE, JD O'Connell, and GS Garrett. 1990. *Nutrient couplings between on-site sewage disposal systems, groundwaters, and nearshore surface waters of the Florida Keys.* Biogeochemistry 10:289-307.

impacts on other forms of aquatic life such as fish and other aquatic animals"[12]. Because people recreate directly in canals, wildlife utilize them almost as they would a natural system, and because their health directly impacts downstream estuaries, it is crucial to maintain swimmable/fishable water quality within Class III canals to maintain proper source control.

Additionally, there are canal systems discharging directly into freshwater streams and rivers, which should be differentiated from canals and given their own swimmable/fishable streams & rivers numeric nutrient criteria for the South Florida ecoregion as well. Though EPA has proposed chl-a, TN, and TP canals criteria based on the designated uses of the canals themselves; consideration must also be given to protecting sensitive nearshore receiving waters by assigning downstream protective values (DPVs) as assigned to streams. As with DPVs for streams, the canals criteria should be reviewed and adjusted as necessary to ensure that their criteria is in alignment with meeting estuarine criteria once those are adopted. Therefore, we ask the SAB to support the development of DPVs for canals.

We support the use of the reference site approach based on canals that are currently unimpaired for nutrients. However, EPA should be aware that simply because a waterbody is not listed on the state's 303(d) List, does not mean it is in fact not impaired – many times they are not listed as impaired simply due to insufficient sampling. Not only is the current 303(d) List based on chl-a thresholds of 20µ/L, which is significantly higher than EPA's proposed 4µ/L, but lack of sampling can also exclude waters from the 303(d) List. Moreover, some waterbodies may be listed as impaired for Dissolved Oxygen (with TN and/or TP being the causative pollutant) and subsequently not listed as impaired for nutrients.

Streams Conditions Index (SCI) has been suggested by FDEP for use in evaluating flowing waters, including canals, However, SCI is not an appropriate methodology to employ in evaluating canals, due to the fact that they can fail based on their physical characteristics alone - regardless of their actual water quality. Downgrading the designated use of water quality standards or a waterbody based on physical characteristics alone should not be allowed. Therefore, we urge the SAB to provide guidance that physical characteristics alone cannot be the basis of lower uses and standards, and to discourage the use of SCI in evaluating canals - offering a suitable alternative approach.

Need for SAB to Provide Specific Guidelines on Proper Use of Reference Approach

We strongly support the concern expressed by some of the SAB members with the reference approach being used without looking at input into coastal zones which will not be done due to the expense involved. Contrary to what the FDEP comment letter (paragraph number 3) asserts, there are not many healthy estuaries in Florida and none in Southwest Florida that would be appropriate to use as references. In fact, we would argue that there are no estuaries in Florida that are not stressed to some degree by anthropogenic nutrient pollution. The Conservancy of Southwest Florida recently conducted a comprehensive water quality assessment and compiled a 252-page *2011 Estuaries Report Card of Southwest Florida* report, which found all ten estuaries in Southwest Florida are not meeting state-quality standards – many for nutrients or nutrient-related pollutant conditions.

Unfortunately, the FDEP continues to state that these estuaries are healthy, despite 7 of 11 Charlotte Harbor National Estuary Program's recognized estuaries being in "restoration" status due to their currently degraded condition. There are some estuaries in other areas of Florida, such as Apalachee Bay, that are extremely degraded. On the FDEP website regarding nutrients in Apalachee Bay, the agency states that the nutrients are primarily natural, even though they

[12] TSD for U.S. EPA's Proposed Numeric Nutrient Criteria for FL Inland Surface Fresh Waters. Chapter 4: Methodology for Deriving U.S. EPA's Proposed Criteria for Canals.

mention that a pulp mill's discharge flows into the Bay (an average of 50 million gallons per day of toxic wastewater from a facility that has not had a new permit in over 15 years and the last one was for a Class V industrial river).

There is also a 10-square mile dead zone at the mouth of the Fenholloway River. The FDEP website[13] says that there has been a gradual increase in seagrass coverage near the Econfina and Fenholloway Rivers; however, the scientific documentation does not support this. There are seasonal grasses that remain which come and go in the large bare zone surrounded by the Big Bend Aquatic Seagrass Preserve. They are not even native grasses and are described by estuarine ecologists are "opportunistic" and temporary at best. Also of concern, the mapping the FDEP relied on was paid for by the pulp and paper company.

The chlorophyll *a* levels in the estuary near the Fenholloway and Econfina Rivers are very low because the wastewater is at or near 100% of the flow of the Fenholloway River, most of the time. The color in the wastewater/river is extremely dark due to the lignans from the papermaking process and lack of sophisticated treatment at the 60-year old mill. The dark colored water blocks light and prevents the proliferation of algae until the color is sufficiently diluted within the estuary, and then the nutrients frequently cause red tides and other toxic algal blooms. The FDEP's recommendation for nutrients for Apalachee Bay is to maintain the status quo. This is just one of many examples of highly polluted estuaries in Florida where DEP has proclaimed that they are healthy, and that the status quo should be maintained. These instances highlight why there is a need for the SAB to provide detailed guidance to FDEP on how to properly use the reference approach.

Need for SAB to Address How Numeric Nutrient Criteria Will Uphold Dissolved Oxygen Criteria

The discussion by the SAB board gave the impression that some may not realize that Florida has a Dissolved Oxygen (DO) criterion that is separate from the nutrient criteria. The FDEP is moving toward many SSAC's for DO across the state based on their argument that low DO is a natural condition almost everywhere, regardless of the fact that these waters receive significant anthropogenic nutrient inputs as well as other anthropogenic influences to dissolved oxygen levels. While of course there are variations in DO levels depending on depth, time of day and flow, data do not bear out the FDEP's argument that a 24 hour average of 5 mg/l is too high for most Florida waters or that such a standard cannot be met once anthropogenic influences are addressed. Therefore, we request the SAB to recognize and address how to ensure estuarine numeric nutrient criteria will meet the existing DO criteria.

Need for SAB to Support Concentration-based Numeric Nutrient Criteria

Paragraph 6 in FDEP's comments on Seagrass Endpoints discourages using the Tampa Bay approach to the extent that it uses a target concentration for nutrients, based on the idea that nutrients are often not the sole stressor. As you are most likely aware, FDEP is discouraging concentration-based criteria, instead preferring loading rates or management goals. However, both load-based criteria and management goals are more subjective and less measurable than concentration-based criteria.

As we have provided in our previous comments (please see 12/1/10 letter previously sent), federal regulations require concentration-based criteria, and we support this because they are directly measurable in the waterbody (unlike loads) and allow for more effective pollution source control. As Dr. Reckow stated at the meeting this week, there is no way to measure atmospheric deposition and no way to measure nutrient inputs from natural sources or unknown sources so using a loading rate alone will simply not work. The more clearly defined and measurable the

[13] http://www.dep.state.fl.us/water/wqssp/nutrients/docs/estuarine/tallahassee/apalachee_bay_082410.pdf

numeric nutrient criteria is-the more understandable and more enforceable the numbers are, and the more likely that there will be a positive outcome for our waters. Therefore, we urge the SAB to support concentration-based numeric nutrient criteria in addition to loading-based criteria should they believe load criteria are also necessary.

Need for SAB to Support Downstream Protective Values (DPV) for All Flowing Waters to Downstream Estuaries

As we stated in our comments on the call, downstream protective values are absolutely imperative to ensure upstream waterbodies are appropriately regulated to control the pollutants that would cause downstream standards not to be met. Because the limiting nutrient in freshwater systems is phosphorus and the limiting nutrient in estuaries is nitrogen, the FDEP and others have considered not regulating nitrogen in the freshwater portions of the watershed as stringently as phosphorus. However, these waters are not closed systems; nitrogen loading from the freshwater portion of the watershed is contributing to the impairment of the estuarine portion.

Rather than addressing nutrient pollution reactively after impairment has already occurred in the TMDL process, DPVs would allow proactive regulation of such nutrients in order to prevent impairment from occurring downstream as well as promote better pollution source control. This is why this is one of the most controversial aspects of the proposed criteria, but also why it is one of the most important. We absolutely need downstream protective values on all South Florida Flowing Waters if we are to have effective criteria that will adequately promote pollution source control and protect the water quality in our estuaries.

Conclusion

In conclusion, we understand that the SAB is currently preparing their revisions to their draft report and will be provided a revised draft report on February 22nd to review, with further comments to be provided back to you by March 1st. We ask that this letter and its accompanying exhibits be provided to the SAB members as soon as possible along with our December 1st letter, in order for them to review and incorporate responses to the concerns and recommendations we have made. As Florida environmental advocates who represent the public's interests and are very familiar with state natural resources and regulations, we hope these comments are carefully considered. We again respectfully request a written response from the SAB as well. Thank you for your time and consideration in this matter, and please do not hesitate to contact us to discuss further should you desire to do so.

Sincerely,

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Russ Frydenborg, FDEP
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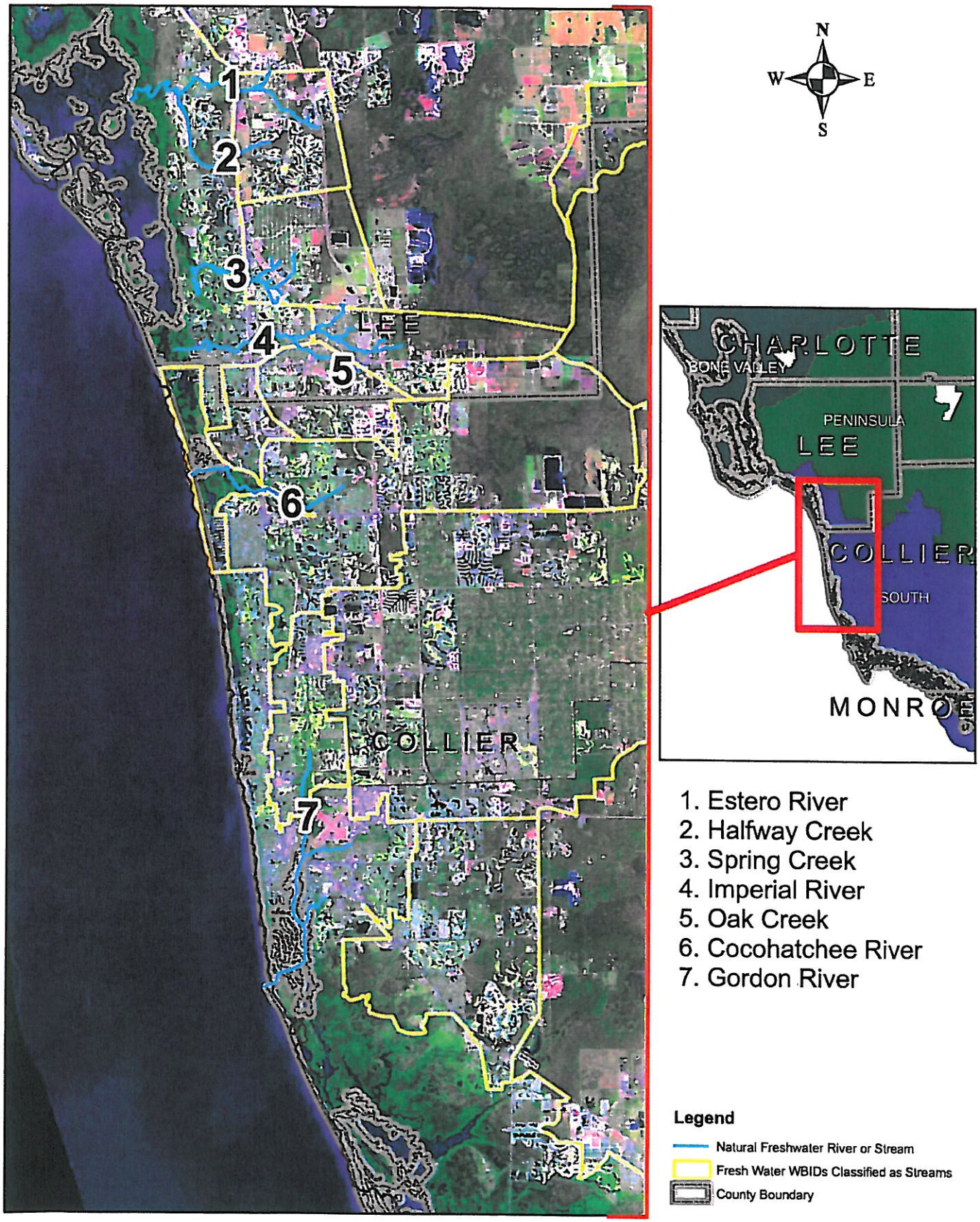
Fritz Wagner, US EPA
Jim Giattina, US EPA
Stanley Meiburg, US EPA
Gwen Keyes Fleming, US EPA

EXHIBIT 1

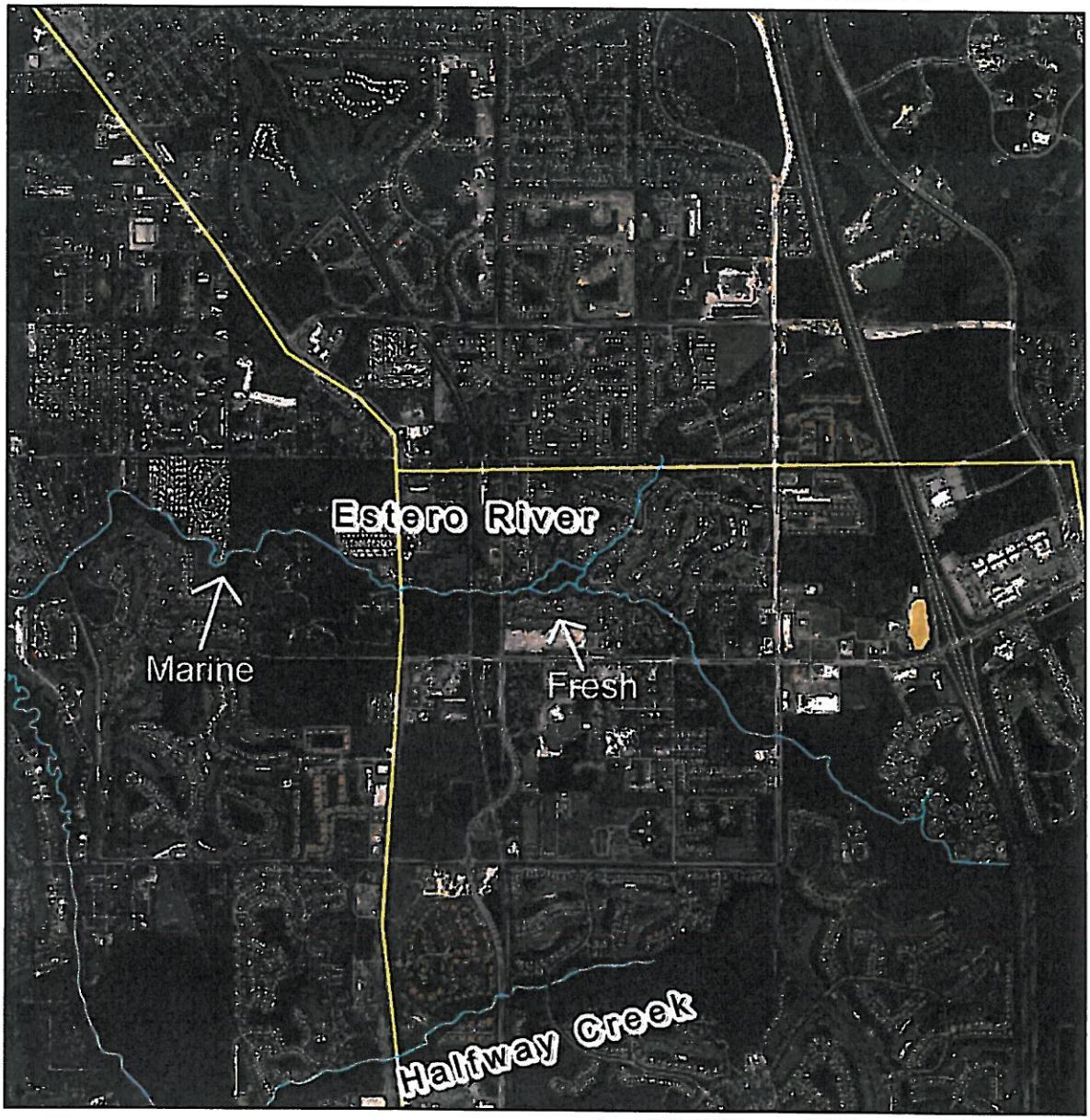
Natural Freshwater Streams



1. Estero River
2. Halfway Creek
3. Spring Creek
4. Imperial River
5. Oak Creek
6. Cocohatchee River
7. Gordon River

EXHIBIT 2

Estero River - Freshwater Portion



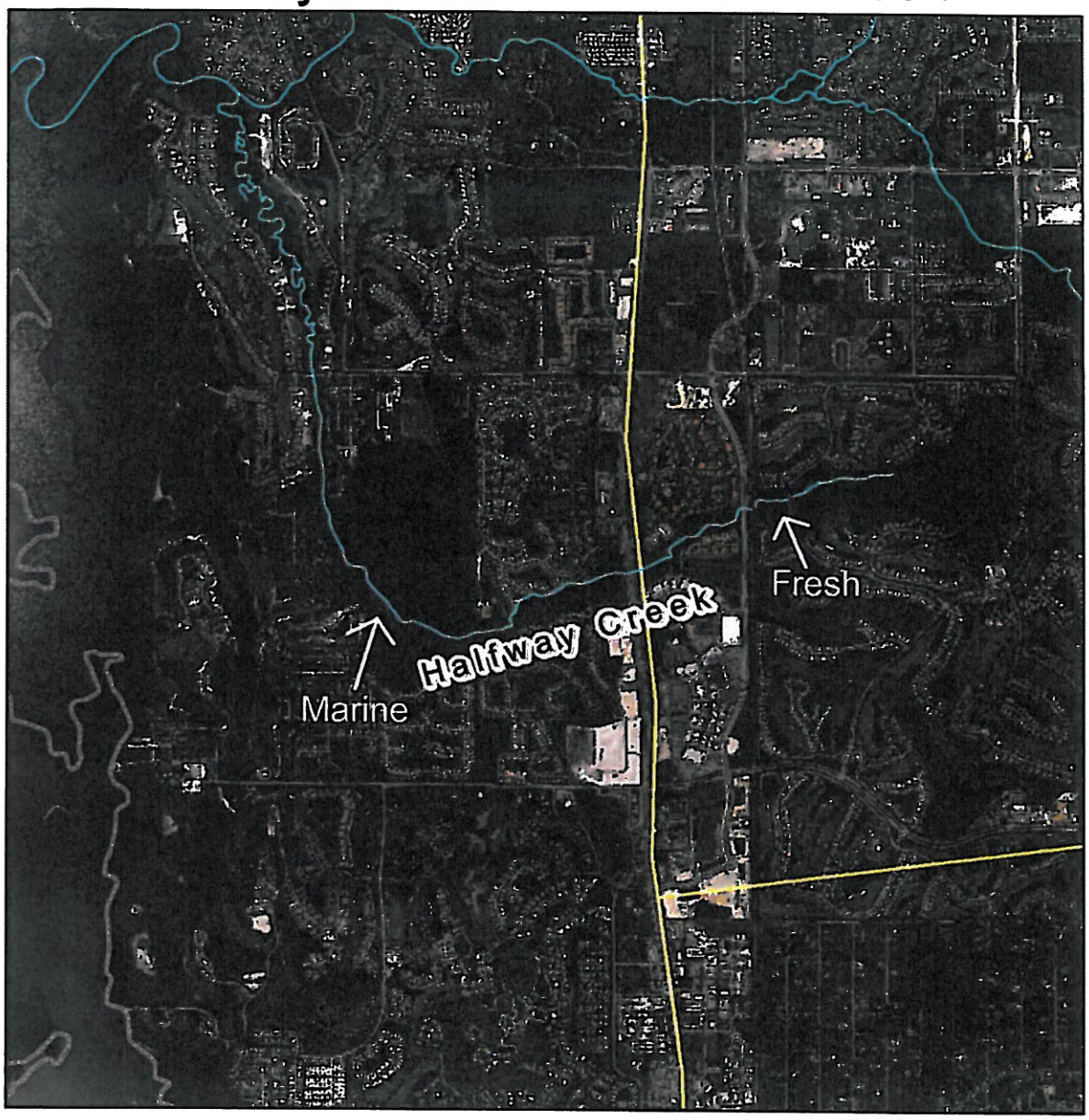
Legend

- Fresh Water WBID
- Natural River or Stream

0 1,150 2,300 4,600 6,900 9,200 Feet

EXHIBIT 3

Halfway Creek - Freshwater Portion



Legend

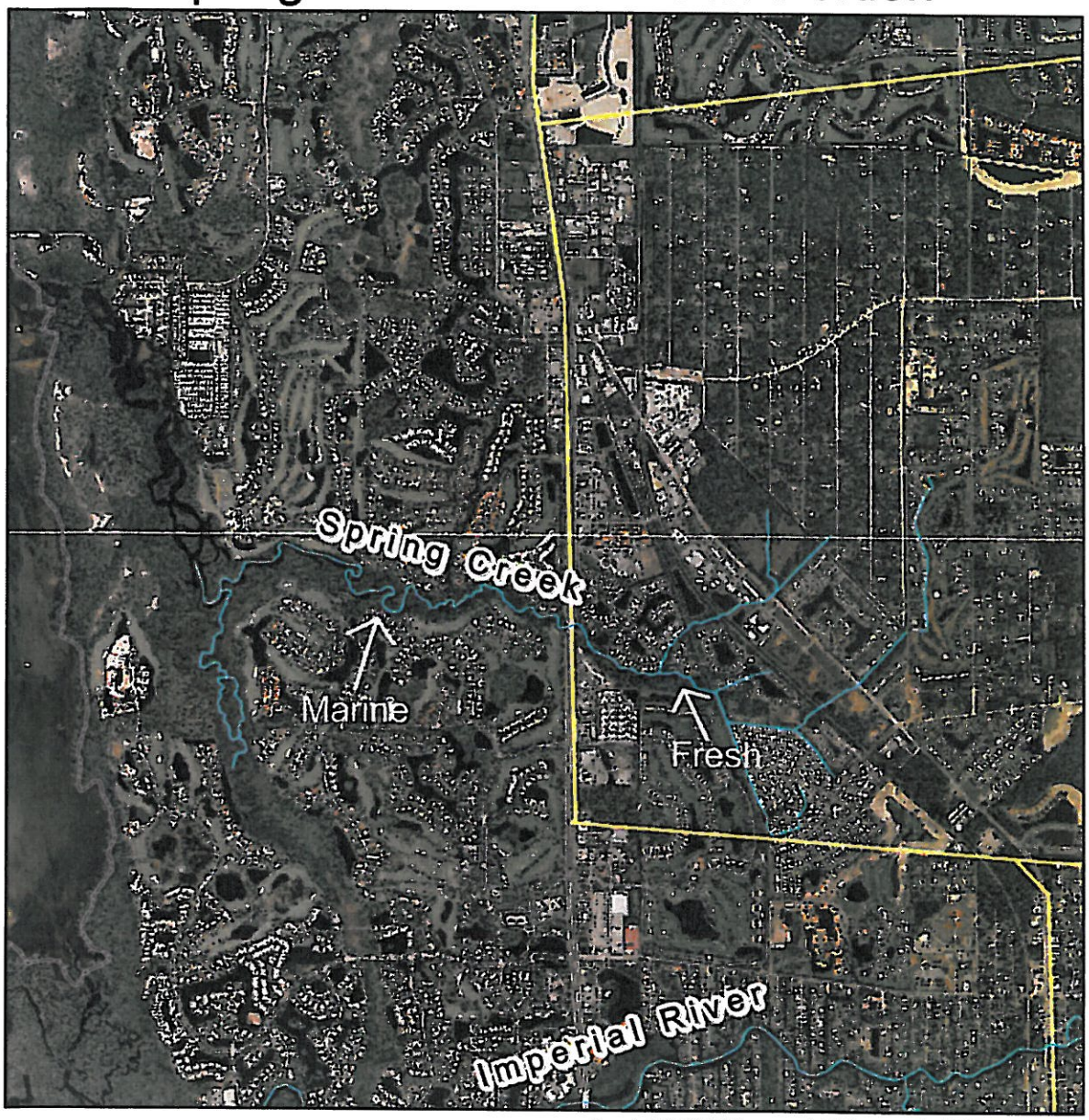
Fresh Water WBID

Natural River or Stream

0 1,150 2,300 4,600 6,900 9,200 Feet

EXHIBIT 4

Spring Creek - Freshwater Portion



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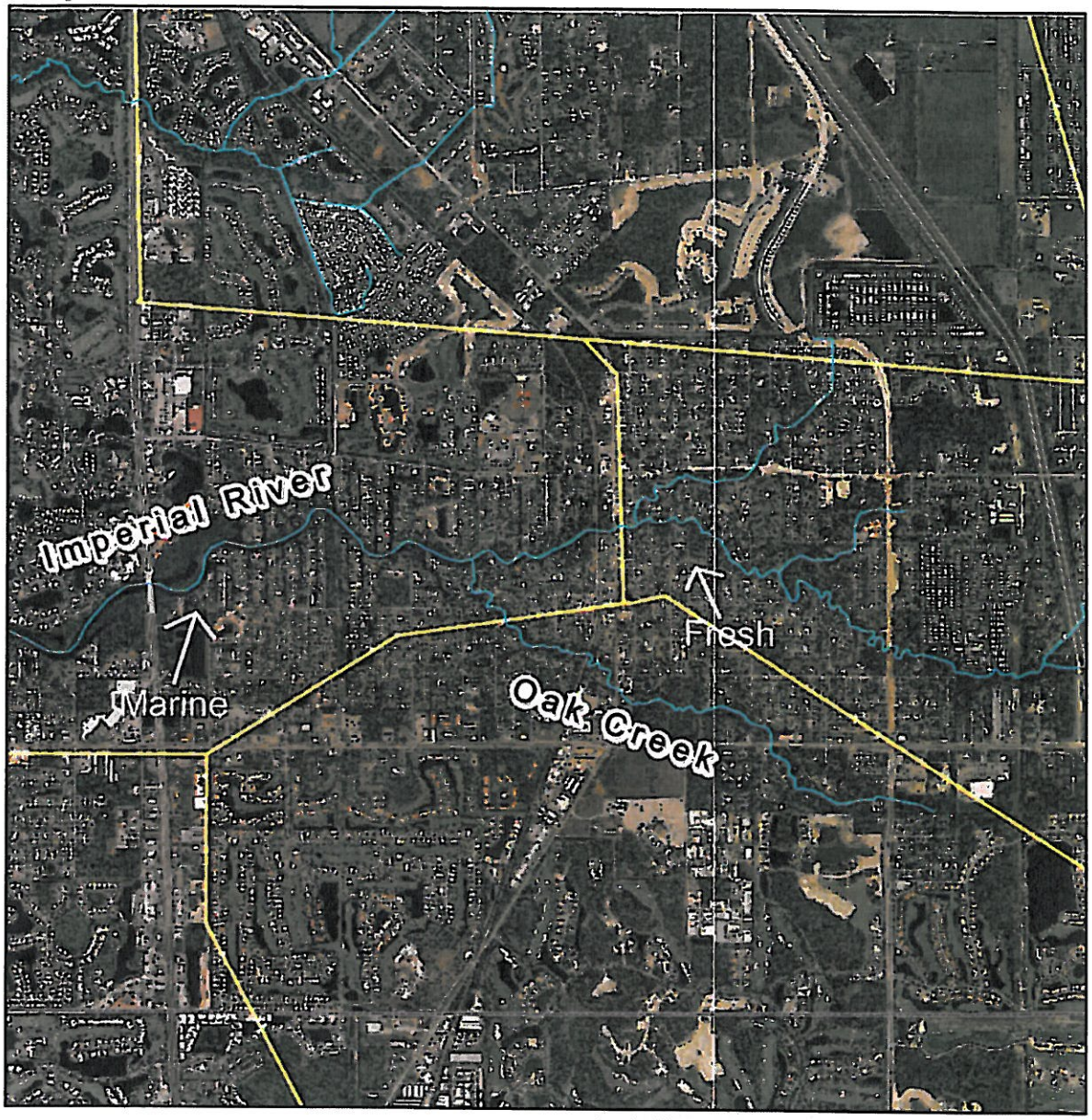
- Fresh Water WBID
- Natural River or Stream

0 1,150 2,300 4,600 6,900 9,200 Feet

EXHIBIT 5

Imperial River/Oak Creek - Freshwater Portions



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Fresh Water WBID

Natural River or Stream

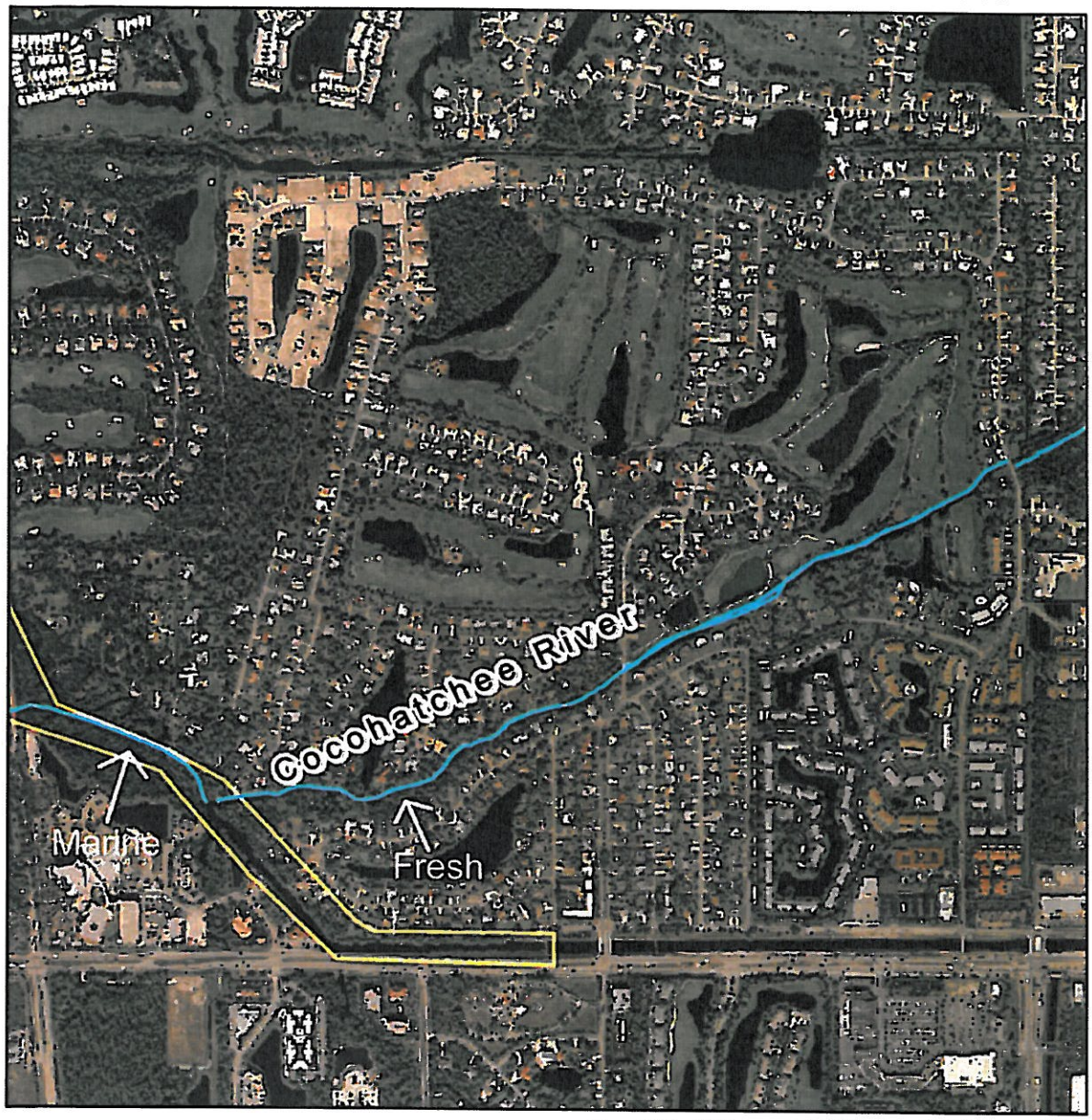
0 1,150 2,300 4,600 6,900 9,200 Feet

Oak Creek

Imperial River

EXHIBIT 6

Cocohatchee River - Freshwater Portion



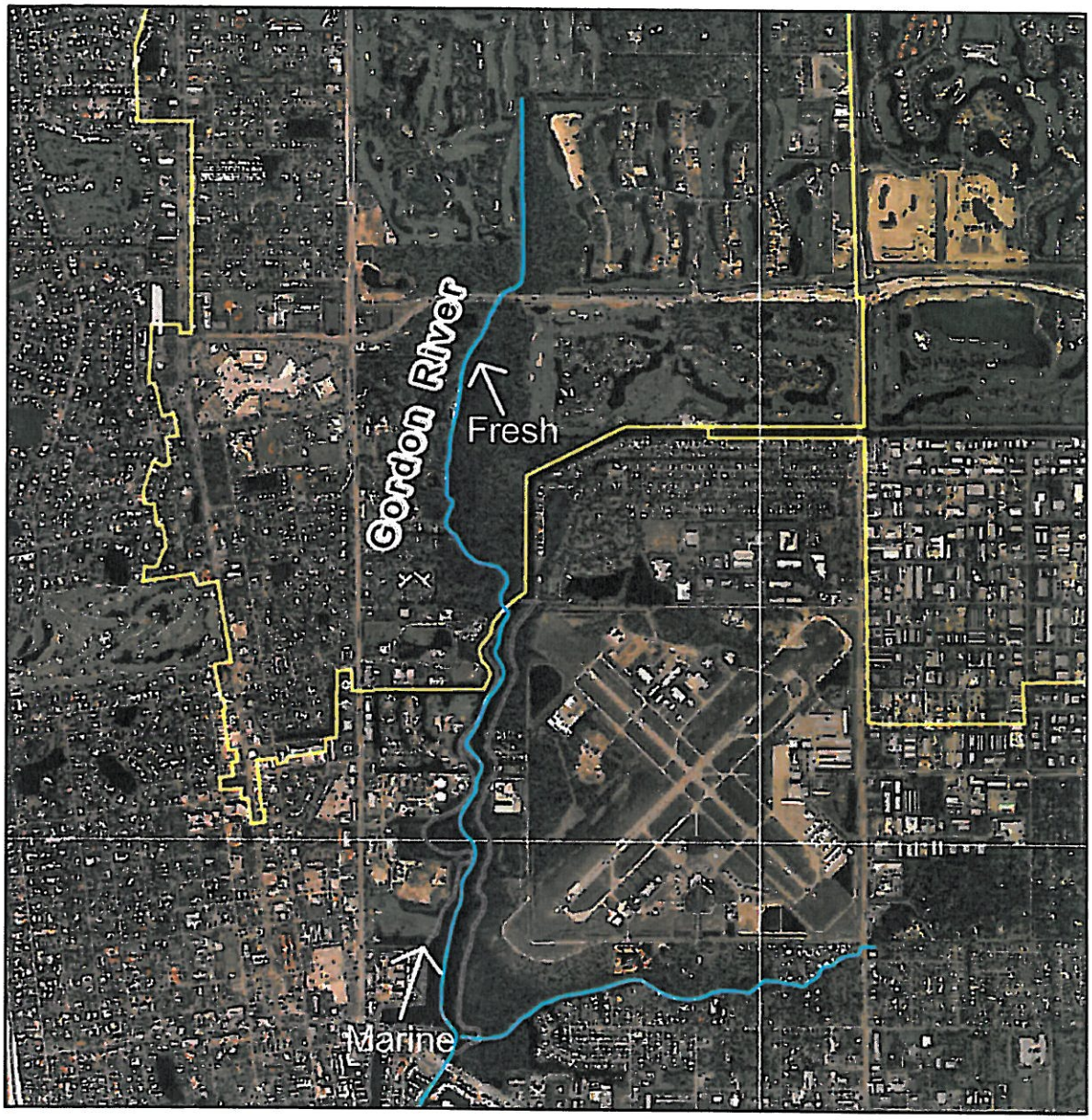
Legend

- Fresh Water WBID
- Natural River or Stream

0 385 770 1,540 2,310 3,080 Feet

EXHIBIT 7

Gordon River - Freshwater Portion



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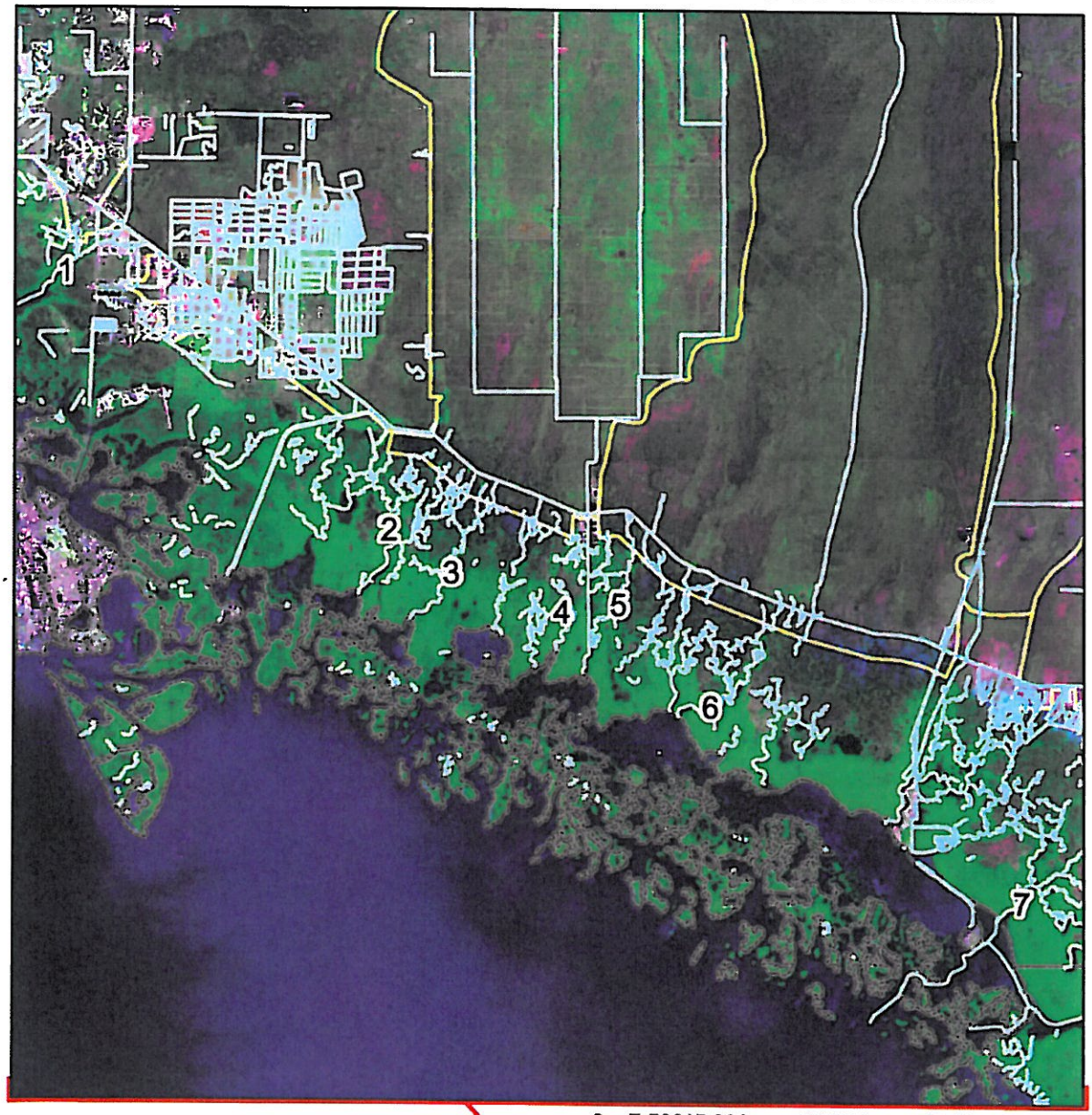
- Fresh Water WBID
- Natural River or Stream

0 950 1,900 3,800 5,700 7,600 Feet

EXHIBIT 8

Freshwater Rivers in Southwest Florida



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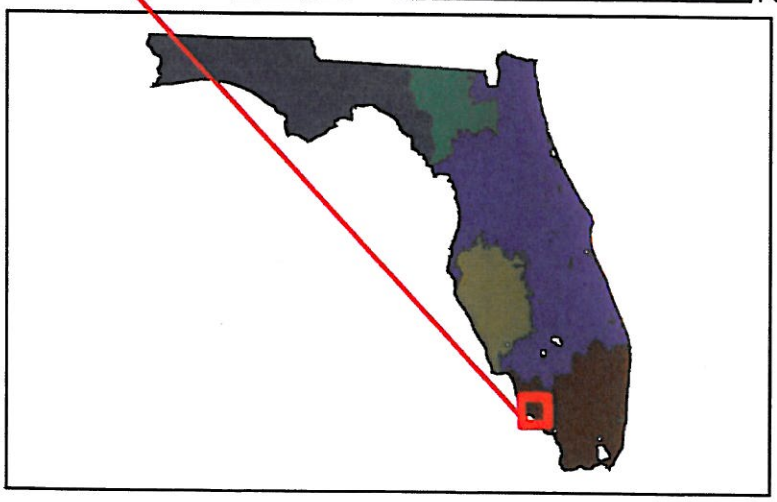
Fresh Water WBID

Waterway

0 7,500 15,000 30,000 45,000 60,000 Feet



1. Henderson Creek
2. Blackwater River
3. Whitney River
4. Wood River
5. Faka Union River
6. East River
7. Turner River