

Sanibel Communities for Clean Water Project  
2018 Water Quality Monitoring Report



October 2018

For The City of Sanibel Natural Resources Department

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## ***Description of the Project***

Community-owned lakes and stormwater collection systems are the receiving waterbodies for much of Sanibel's stormwater runoff. These systems are designed to retain large volumes of stormwater runoff before discharging offsite. Through this process, stormwater is effectively dissipated through evapotranspiration or directed through the soil and into the groundwater system. Factors such as rainfall, tides, irrigation and poor system design can allow discharges to surrounding surface water. When discharges from these systems occur, stormwater is conveyed to the Sanibel Slough, a waterbody designated as impaired for nutrients by the Florida Department of Environmental Protection (FDEP), or the estuarine and gulf waters surrounding Sanibel. The surficial groundwater aquifer on Sanibel is very shallow and effectively connected to most stormwater ponds through porous soils. In this way, groundwater quality and flow is affected by community stormwater systems and lakes. Groundwater discharges into the estuary and Gulf from Sanibel were recently estimated to be as significant as direct stormwater runoff. Knowledge of nutrient concentrations and potential loadings from community stormwater systems and lakes is essential for effective management of nutrient loading sources. Poor water quality can negatively impact our environment and resident wildlife, human health, property values, and overall quality of life; therefore, it is imperative that we educate citizens of Sanibel on the importance of improving water quality at the local-scale.

In this project we add to the information available for water quality in community stormwater ponds and lakes of Sanibel. A majority of the natural and man-made lakes on the Island were sampled during this study. The information obtained in this monitoring effort will be used by the City of Sanibel to update their Communities for Clean Water website, which provides water quality data for each individual community and a recommended list of Best Management Practices (BMPs) to improve water quality.

## ***Methods***

Surface water samples were taken at 78 unique sites around Sanibel (Table 1; Figure 1). Sites included public and privately owned stormwater systems, ponds, lakes and reservoirs which have possible interaction with Sanibel's surface water or groundwater.

Sampling was performed at approximately 25 sites per event with 3 events occurring during each season (wet and dry). Dry season sampling occurred in May when fertilizer use is allowed on Sanibel. Wet season sampling occurred in August and corresponded to the fertilizer ban period from July through September. Sampling was scheduled to occur within 48 hours of a rain event of at least 0.5 inches. All samples were analyzed for orthophosphate (OP), total phosphate (TP), nitrate-nitrite (NO<sub>x</sub>), ammonia (NH<sub>3</sub>), and total Kjeldahl nitrogen (TKN) using NELAC certified methods by Benchmark Laboratories in Palmetto Florida. Benchmark entered

data into the Florida Department of Environmental Protection (FDEP) STORET. In addition to the nutrient sampling, the Sanibel-Captiva Conservation Foundation (SCCF) obtained dissolved oxygen (DO), turbidity, colored dissolved organic matter (CDOM), chlorophyll *a*, pH, salinity and temperature data at each sampling site.

Results were compared with FDEP typical values for lakes (Hand 2008). Raw and summarized data is provided in an Excel workbook. A GIS map package is also provided as part of this data transfer.

Trophic State Index (TSI) scores are based on lake chlorophyll *a*, total nitrogen, and total phosphorus levels, and were calculated for each of these study lakes following the procedures outlined on pages 86 and 87 of the Florida's 1996 305(b) report.

Data was aggregated within an excel spreadsheet and manipulated for input to Minitab13® software for statistical analyses. Sample sites were ranked based upon combined mean inorganic phosphorus, inorganic nitrogen, chlorophyll *a* concentrations and TSI scores from both sampling events. The mean value of each of these four parameters was used to assign a rank score to each sample site with rank 1 indicating the poorest score for each parameter. The four rank scores were then added together to produce a total rank for each site. Total scores were listed from lowest to highest with lowest scoring site having overall poorest water quality condition.

Descriptive statistics were produced for each site and for each factor, which was used for comparison purposes. A 2 sample t-test was used to detect differences between sites within 50 meters of reclaimed water use and those not near reclaimed water. A site was classified as having reclaimed water if over 50,000 gallons per month were used on average for irrigation (City of Sanibel 2013 data). Mean parameter values were also compared between fertilizer application season (dry) and the fertilizer ban period (wet season). The legal fertilizer application period is October through June. Residential application of fertilizer is banned July through September. The fertilizer ban period is approximately the wet season on Sanibel. A significance level of 0.05 was used in all comparative analyses.

## ***Results and Discussion***

Mean total phosphorus (TP) in the sampled lakes ranged from 0.019 mg/l at the wooded wetland pond within Gulfside City Park (SCL19; natural land use type) to 3.595 mg/l in the Sanibel Bayous lake (SCL68; low density development land use type) positioned downstream of a former package wastewater treatment plant (WWTP) (Table 2). Mean TP values at 69% of the lakes were above the FDEP water quality criteria (0.05 mg/l), down from 89% of the lakes in 2016. Forty one percent were greater than the 90th percentile (0.092 mg/l) of Florida lakes (Hand 2008). This is down from 53% of the lakes in 2016. For 78% of the samples, TP was greater in May compared to August (wet season). This is the reverse of the results in 2016 when over 70% of TP values were greater in the wet season (Figure 2). The median TP value for the

wet season of 2018 (latest data) was the lowest of the four sampling events performed to date (Figure 2). Significantly lower TP values were found for the 2018 wet season compared to the 2016 wet season (2 sample t-test,  $p = 0.041$ ).

Using 2018 data, significantly greater concentrations of TP were found in waterbodies in the vicinity of reclaimed water (0.557 mg/l) irrigation compared to those without reclaimed water nearby (Figure 3; t-test,  $p < 0.01$ ). This supports the same finding of the 2016 data. Within the City of Sanibel's wastewater treatment plant (the source of reclaimed irrigation water) TN is reduced by a greater proportion than TP, resulting in irrigation water that contains concentrations of TN which are significantly lowered, but concentrations of TP remain high. However, concentrations of TN and TP in reclaimed irrigation water are still higher than much of the ambient waters of Sanibel. The reclaimed water supplied to customers will more likely have a measurable impact on phosphorus levels. Previous studies have shown significant positive relationships between reclaimed water use and phosphorus in stormwater and groundwater (Thompson et al. 2014, 2015). No significant difference was found for TP in lakes sampled during the fertilizer ban period from July through September than during the non-ban period.

The mean total nitrogen (TN) concentration in sampled lakes for 2018 ranged from 1.61 mg/l in the pond in the Olde Sanibel Shoppes (SCL73; commercial land use type) to 12.64 mg/l in the western pond (SCL72; natural land use type) at the former Bayous wastewater pond site owned by the City of Sanibel (Table 2). All sites sampled in 2018 had mean TN values above the Florida criteria for lakes (1.27 mg/l) compared to 89% in 2016. All but one site had mean TN greater than the 90th percentile (1.72 mg/l) of Florida lakes.

TN was significantly greater (paired t-test,  $p < 0.01$ ) in the dry season of 2018 compared to the 2016 dry season and for the wet season of 2018 compared to the 2016 wet season (paired t-test,  $p < 0.01$ ) (Figure 4). Inorganic nitrogen made up 7% of TN in 2018 compared to 5% in 2016. Similar to results in 2016, no significant difference was found in 2018 for TN values in lakes near reclaimed water use compared to those not near reclaimed water (Figure 5, t-test  $p = 0.24$ ).

The mean chlorophyll *a* (Chl<sub>a</sub>) concentration ranged from 5.7 ug/l at the pond behind Sanibel Community Park (SCL28; natural land use type), to over 200 ug/l at the lake adjacent Saint Isabel Catholic Church (SCL50; low density land use type) at the corner of Sanibel Captiva Rd and Rabbit Rd (Table 2). Seventy seven percent of the mean Chl<sub>a</sub> values were above the Florida criteria for lakes (20 ug/l), which is an increase from 60% in 2016. Mean Chl<sub>a</sub> values at 59% of the sites were greater than the 90th percentile (31.9 ug/l) of Florida lakes, up from 45% in 2016.

Mean chlorophyll over all sites was significantly greater in both the dry (55.3 ug/l) and wet season (44.3 ug/l) of 2018 compared to the dry (26.3 ug/l) and wet seasons (32.7 ug/l) of 2016 (paired t-test,  $P < 0.03$ ) (Figure 6).

In 2018, mean Chla was significantly greater at sites in the vicinity of reclaimed water use (50.4 ug/l) compared to sites with no reclaimed water used (37.9 ug/l) (Figure 7). No significant difference could be found for sites near reclaimed water use during the 2016 data analyses.

TSI scores are meant to be an integrated look at the magnitude of eutrophication in a lake. With phosphorus, nitrogen and chlorophyll *a* all factors included in the calculated TSI value, it is a good initial indication of a lake's overall eutrophic condition. TSI scores ranged from 61.3 at the wooded wetland pond within Gulfside City Park (SCL19; natural land use type) to 111.1 for the western pond (SCL72; natural land use type) at former Bayous package WWTP site (Table 2). The overall mean TSI score for lakes in the 2018 study was 78.3, up slightly from 72.5 which was the mean value in 2016. FDEP considers scores over 60 to be poor water quality and scores greater than 60 trigger evaluation of waterbodies for impairment.

Ranking the sampled lakes following procedures described in the methods section produced a list of lakes on Sanibel with water quality concerns (Figure 8; Table 2). The lowest ranking lakes (poorest water quality) were associated with golf courses, reclaimed water use, or wastewater treatment facilities. The 2018 rank results were compared to the 2016 results in table form (Table3) to provide a sense of how lakes may have changed over 2 years.

## ***Conclusions***

Lakes were ranked from poorest (rank 1) overall water quality to those with the least impaired (rank 78). The lakes with poorest water quality can be targeted for lake management plan development and other pertinent BMPs once the source of poor water quality is identified. Lakes associated with former or current wastewater treatment facilities displayed relatively high nutrient and chlorophyll *a* concentrations. In addition, lakes in high density development areas and on golf courses ranked near the top of the poor water quality list. Most of the poorest ranking lakes were associated with reclaimed water irrigation, and significantly greater phosphorus was found in these waterbodies.

The lakes sampled in the vicinity of the former Sanibel Bayous Wastewater Treatment Plant all had poor water quality and accounted for 5 of the 20 lakes with poorest water quality. These lakes include SCL68 (Herons Landing eastern lake, ranked 2<sup>nd</sup> poorest), SCL72 (western pond on former WWTP site, 5<sup>th</sup> poorest), SCL67 (pond just north of former WWTP site, 8<sup>th</sup> poorest), SCL80 (eastern pond on former WWTP site, 14<sup>th</sup> poorest) and SCL74 (Herons Landing western pond, 17<sup>th</sup> poorest). The City of Sanibel's reclaimed water pond, SCL05, ranked 4<sup>th</sup> poorest while a small wetland pond adjacent to the reclaimed ponds, SCL77, was ranked as poorest water quality in 2018. The Sanibel Golf Club reclaimed water irrigation pond, SCL13 ranked 3<sup>rd</sup> poorest. To summarize, the top five waterbodies with poorest water quality were directly associated with reclaimed water (treated wastewater) storage or former treated wastewater storage. The two ponds within Periwinkle Park also exhibited very poor water quality

(ranked 15<sup>th</sup> and 16<sup>th</sup> poorest) and regularly discharge to the Sanibel Slough through a pumped flow through system.

TSI scores increased an average of 7.5% in 2018 compared to 2016. Lakes which were notable for their increase in TSI score include: the lake just north of the former Sanibel Bayous WWTP site (SCL67 – 37.1% increase); the stormwater pond behind Periwinkle Place (SCL23- 27.6% increase); the western pond (SCL72- 26% increase) on the former Bayous WWTP site; the pond on Hurricane Lane (SCL42 – 23.5% increase); Dunes Lake 4 (SCL08 – 19% increase); RMP on Bailey Tract (SCL8 – 21.9% increase) and West Rocks lake (SCL56 – 19.8% increase). Several ponds were also notable for a decrease in TSI scores: the south pond at Tradewinds subdivision (SCL63 – 18.5% decrease; Palm Lake (SCL43 – 9.2% decrease); and Dunes Horseshoe Lake (DLHS - 4.5% decrease).

A high percentage of lakes sampled were above state nutrient criteria for lakes (69% for TP and 100% for TN) and 41% and 99% were above the 90<sup>th</sup> percentile of all Florida lakes for phosphorus and nitrogen. In 2018, samples collected during dry season had greater TN, TP and Chla concentrations than wet season samples. This is opposite from 2016 results but may be partly explained by the fertilizer black-out period during wet season on Sanibel and an unusually wet dry season due to an El Niño event.

Lakes on Sanibel are in general eutrophic to hyper-eutrophic with relatively high nitrogen and phosphorus concentrations. Any discharges to estuarine and Gulf waters from community lakes on the Island should be of concern due to their high nutrient concentrations. Lakes and surficial groundwater interact continuously and both should be considered when looking at a nutrient mass balance.

## *Figures and Tables*

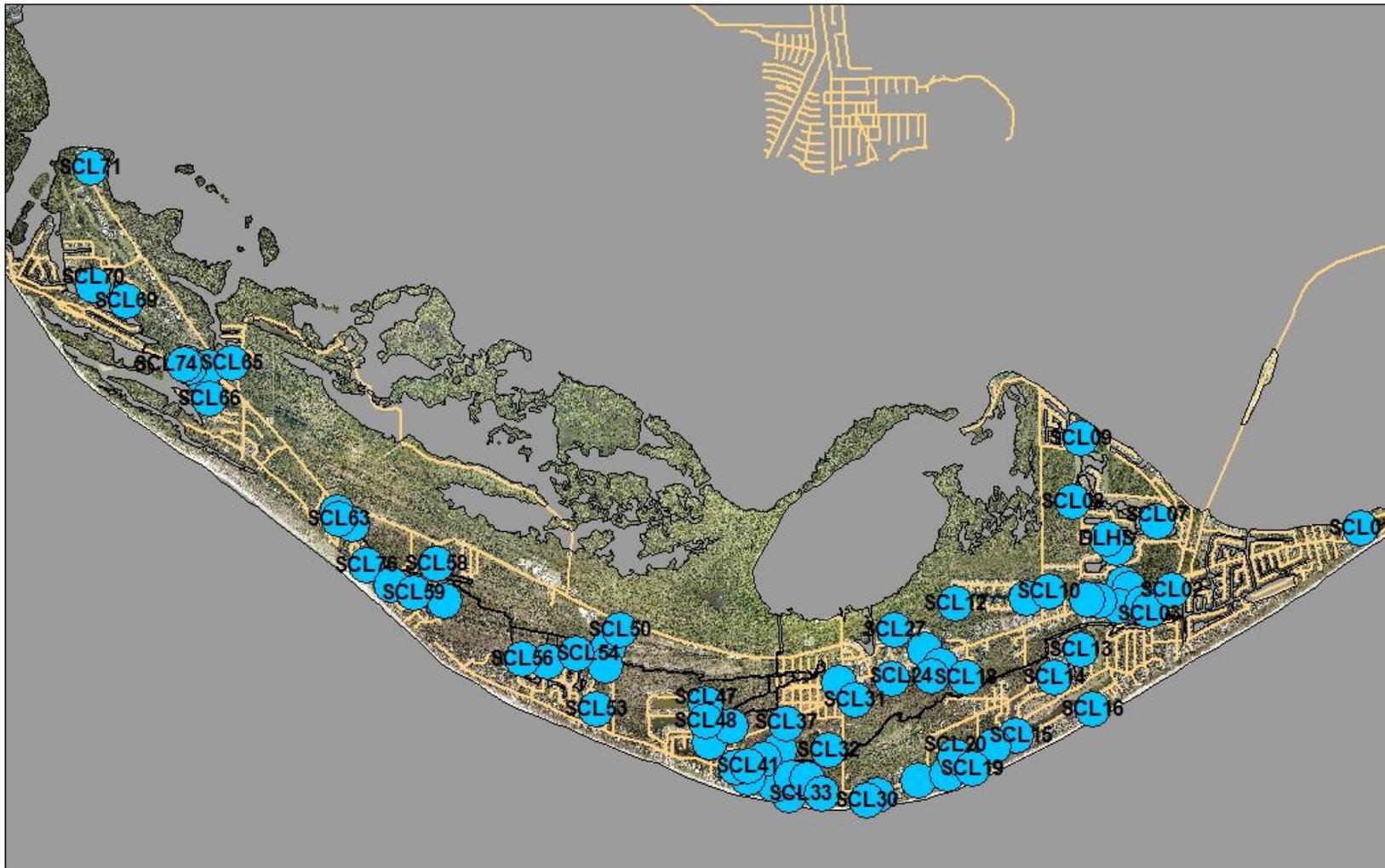
Table 1. Location of 78 sampling sites used in this project.

| <b>SiteID</b> | <b>Site</b>          | <b>Lat</b> | <b>Long</b> | <b>Description</b>                            |
|---------------|----------------------|------------|-------------|---|
| SCL01         | LightHsePtCondo      | 26.45230   | -82.01787   | Lighthouse Pt Condo Pond Periwinkle           |
| SCL02         | BeachRdVillasPnd     | 26.44554   | -82.04058   | Pond Behind Beach Rd Villas (end_Beach_Rd)    |
| SCL03         | PeriwinklePrkDuckPnd | 26.44338   | -82.04332   | Duck_Pond_at_Periwinkle Park                  |
| SCL04         | PrwnklePrkRVPond     | 26.44406   | -82.04404   | Pond_at_RVPark_PeriwinklePark                 |
| SCL05         | CityReclaimDschrge   | 26.44571   | -82.04570   | SmallPondatCityReclaimPonds                   |
| SCL06         | IslandWatrPond       | 26.44452   | -82.05083   | BehindRoadsidePark_IWAccessRd                 |
| SCL07         | DunesLake5           | 26.45300   | -82.04227   | Access tennis court area off Sand Castle      |
| SCL08         | DunesLake4           | 26.45515   | -82.05254   | Access from GC path Dunes Weir                |
| SCL09         | SCCFPnd              | 26.46196   | -82.05164   | JustNorthDunes_VenusDr                        |
| SCL10         | WhsperwdPond         | 26.44542   | -82.05534   | WhisperwoodLake_Dock_WhisperwoodWay           |
| SCL11         | GumboLimboEast       | 26.44465   | -82.05816   | Eastern_Lake_GumboLimbo 1565 Bunting          |
| SCL12         | GumboLimboWest       | 26.44412   | -82.06675   | Western_Lake_west_end_BuntingLn               |
| SCL13         | SanGolfReclmPnd      | 26.43910   | -82.05151   | AccessThru717BirdieView                       |
| SCL14         | SanGCslough          | 26.43614   | -82.05481   | SanibelSlough_AtSanGC_1331ParView             |
| SCL15         | PanamaCanal          | 26.42978   | -82.05942   | AtTrailBridge                                 |
| SCL16         | SundialEast          | 26.43266   | -82.05009   | SWPond_SundialEastMiddleUnits                 |
| SCL17         | RestaShore           | 26.42861   | -82.06213   | 1825MiddleGulf_BikeCrosswalk                  |
| SCL18         | SanibelLakeEst       | 26.43604   | -82.06535   | 1806_IbisLn_or_1995_Roseate                   |
| SCL19         | GulfsidePark_1       | 26.42619   | -82.06461   | AccessFromParkLot_or_Sandpiper                |
| SCL20         | GulfSidePrk_2        | 26.42752   | -82.06669   | AdjacentBikePath                              |
| SCL21         | OceansReachCondo     | 26.42559   | -82.06756   | CaminoDeMar_offAlgiers                        |
| SCL23         | PeriwinklePlaceSW    | 26.43735   | -82.06838   | SW_Pond_Behind Periwinkle Place               |
| SCL24         | SWPondPriwinkleProp  | 26.43621   | -82.06946   | 2050 Sunrise off Meridian Adj_PeriwinklePlace |
| SCL25         | PeriwinklePinesSW    | 26.43915   | -82.07040   | 2166 Egret Off Dunlop                         |
| SCL26         | CasaYbel             | 26.42493   | -82.07111   | LargePondAdjW.Gulf                            |
| SCL27         | CityHall             | 26.44124   | -82.07408   | FromGazebo                                    |
| SCL28         | SanComAssPark        | 26.43587   | -82.07435   | PndBehindCHRAAdjComHouse                      |
| SCL29         | SanibelCottages      | 26.42337   | -82.07602   | 2341 WestGulf_east of TB Rd                   |
| SCL30         | Pointe Santos        | 26.42268   | -82.07734   | WestGulf just east of Tarpon Bay Rd           |
| SCL31         | BaileysPond          | 26.43361   | -82.07880   | SW Pond Behind Baileys Sample on Point        |
| SCL32         | AniPondBailyTract    | 26.42813   | -82.08198   | SouthPondOff TrailNear_Gazebo                 |
| SCL33         | ByTheSea             | 26.42352   | -82.08273   | ByTheSeaCondo_W_Gulf_just_West_TarponBay      |
| SCL34         | SeagullEst_east      | 26.42499   | -82.08443   | East Lake in Seagull_Est.202 Daniel Dr        |
| SCL35         | SeagullEst           | 26.42520   | -82.08648   | WestLakeSeagull_252 Daniel Dr                 |
| SCL36         | SandPointe           | 26.42337   | -82.08674   | SWPond Sand PointeCondo West Gulf             |
| SCL37         | SmithLkBaileyTrct    | 26.43112   | -82.08708   | North_lake_Bailey Tract_adj_Island_Inn Rd     |
| SCL38         | RMPBaileyTrct        | 26.42818   | -82.08783   | SE Corner_MiddleLakeBailyTract_Trail          |

Table 1 (cont.). Sampling sites use in this project.

| SiteID    | Site  | Lat      | Long      | Description  |
|-----------|---|----------|-----------|--|
| SCL39     | LongAcreLake                                | 26.42440 | -82.08855 | Entrance Violet Drive                                    |
| SCL40     | RobinWoodLake                               | 26.42724 | -82.08980 | Sample at 255 Robinwood Circle                           |
| SCL41     | HurricaneLane                               | 26.42653 | -82.09170 | Access at Dock across 228 Hurricane Ln                   |
| SCL42     | HurricaneLn                                 | 26.42523 | -82.09172 | Adjacent West Gulf Bike Path                             |
| SCL43     | PalmLake                                    | 26.42626 | -82.09312 | Access behind 215 Palm Lake                              |
| SCL44     | TwinPondEast                                | 26.43083 | -82.09376 | 3003 TwinPond off Island Inn                             |
| SCL45     | NPoincianaPond                              | 26.43066 | -82.09434 | Access From Poincianna off Island End                    |
| SCL46     | Brghtwter_IslandInn                         | 26.42899 | -82.09620 | Access from open lot on Barra Circle                     |
| SCL47     | NlakeMurex                                  | 26.43316 | -82.09681 | Access 513 Lake Murex Circle                             |
| SCL48     | SLakeMurex                                  | 26.43137 | -82.09683 | Access from 493 Lake Murex Circle                        |
| SCL50     | StIsabelCathChrch                           | 26.44117 | -82.10718 | Access Behind St Isabel Church                           |
| SCL51     | NBikePathlake                               | 26.43916 | -82.10849 | Access behind 797 Rabitt Rd "Slater"                     |
| SCL52     | SBikePathLake                               | 26.43734 | -82.10889 | Access Behind 705 Rabitt Rd "Roberts"                    |
| SCL53     | SeaOatsDrSmlLake                            | 26.43259 | -82.10994 | Access 490 Sea Oats Open Lot                             |
| SCL54     | ERockNorthEndDurion                         | 26.43860 | -82.11232 | AccessBehind 732 Durion                                  |
| SCL55     | ERockWestEndCoquina                         | 26.43773 | -82.11592 | East Dead End Coquina Dr                                 |
| SCL56     | WRockEastEndCoquina                         | 26.43802 | -82.11892 | Access behind 3702 Coquina Dr.                           |
| SCL57     | GulfPines                                   | 26.44434 | -82.12827 | Bridge_OldBanyon_Before_Birdwalk                         |
| SCL58     | SCCFHaasPondAmerLeg                         | 26.44841 | -82.12927 | Access SCCF land_just_wst_of_SanCapMed                   |
| SCL59     | GulfPinesGage Station                       | 26.44516 | -82.13187 | Culvert on Gulf Pines Drive after Y                      |
| SCL60     | WhiteIbisGulfPines                          | 26.44600 | -82.13462 | Access from White Ibis Dr_lake_on_west                   |
| SCL62     | ChateauSurMerLake                           | 26.45264 | -82.13939 | Near discharge culvert under roadway                     |
| SCL63     | TradewindsSLake                             | 26.45323 | -82.14110 | Access 1389Tahiti  |
| SCL64     | TradewindsNLake                             | 26.45389 | -82.14111 | Access frm N 1339 Tahiti                                 |
| SCL65     | NBayousLake                                 | 26.47017 | -82.15402 | AccessFrom 2050Wild_Lime N Bayous                        |
| SCL66     | Bayous Middle Lake                          | 26.46620 | -82.15658 | Access jst South 1915SanBayousRd                         |
| SCL67     | WulfertSanCapPond                           | 26.46975 | -82.15674 | Access North of Entrance to Wulfert Rd.                  |
| SCL68     | BayousLake1                                 | 26.46867 | -82.15742 | Access SanBayousRd 100m S of Entrance                    |
| SCL69     | SanctuaryLake4                              | 26.47680 | -82.16666 | Access Behind 2361 Wulfert Rd                            |
| SCL70     | BluCrabLake                                 | 26.47856 | -82.17064 | Access off Wulfert Blue Crab Ct                          |
| SCL71     | SanctuaryLake7                              | 26.49135 | -82.17098 | AccessFrom Golf Cart Path                                |
| SCL72     | West Hollys Pond                            | 26.47007 | -82.15935 | At old Bayous WWTP Site                                  |
| SCL73     | Lake at Over Easy Café                      | 26.43549 | -82.08062 | Access from footbridge                                   |
| SCL 74    | Herons Landing Lake                         | 26.47001 | -82.15974 | Access from City Park near Hollys Pond west              |
| SCL 75    | Anchor Inn Pond                             | 26.44388 | -82.04701 | From lake bank behind Anchor Inn                         |
| SCL76     | ChateauSurMerBayou                          | 26.44827 | -82.13771 | behind Renny's House 4664 Rue Belle Mer                  |
| SCL77     | Pond under Shipley Trail at Pond Apple Park | 26.44627 | -82.04631 | Sample from boardwalk or bank just west of Reclaim Ponds |
| SCL80     | East Hollys Pond                            | 26.46967 | -82.15905 | At old Bayous WWTP Site                                  |
| DevittPnd | Pond at SCCF Homestead                      | 26.44440 | -82.04939 | Access at East end of lake near deck                     |
| DLHS      | Dunes Horseshoe Lake                        | 26.45110 | -82.04836 | North of Pelican Drive Access                            |
| DL09      | Dunes Lake 9                                | 26.45007 | -82.04718 | South of Pelican Drive                                   |

Figure 1. Sampling locations for this study. 78 total sites were sampled twice in 2018.



● ComLakes2018\_StudySite



Table 2. Sample sites with associated water quality data used for ranking. Land use associated with each site and proximity of each site to reclaimed water use is also shown. All parameter values shown are averages of wet and dry season results.

| Rank | Station | Description                        | IN<br>(mg/l) | TN<br>(mg/l) | OP<br>(mg/l) | TP<br>(mg/l) | Chla_Cor<br>ug/l | TSI   | IN Rank | OP Rank | Chla Rank | TSI Rank | Rank<br>Score | Land<br>Use | Reclaimed<br>Water |
|------|---------|------------------------------------|--------------|--------------|--------------|--------------|------------------|-------|---------|---------|-----------|----------|---------------|-------------|--------------------|
| 1    | SCL77   | Shipley Trail Pond/Pond Apple Park | 3.116        | 7.66         | 1.190        | 1.500        | 84.7             | 104.4 | 1       | 5       | 15        | 3        | 24            | Natural     | R                  |
| 2    | SCL68   | BayousLake 100m S Entrance         | 2.496        | 9.09         | 3.110        | 3.595        | 65.3             | 109.1 | 3       | 1       | 20        | 2        | 26            | Low         | NR                 |
| 3    | SCL13   | SanGolfReclmPnd                    | 0.553        | 4.92         | 0.781        | 1.405        | 121.8            | 102.7 | 15      | 6       | 2         | 4        | 27            | Natural     | R                  |
| 4    | SCL05   | CityReclmPond                      | 1.085        | 4.11         | 1.690        | 2.175        | 63.4             | 101.1 | 6       | 4       | 21        | 5        | 36            | Natural     | R                  |
| 5    | SCL72   | West Hollys Pond                   | 0.137        | 12.64        | 1.750        | 2.725        | 91.8             | 111.1 | 23      | 3       | 11        | 1        | 38            | Natural     | R                  |
| 6    | SCL36   | SandPointe                         | 0.202        | 5.18         | 0.113        | 0.297        | 107.4            | 89.5  | 20      | 17      | 5         | 13       | 55            | High        | R                  |
| 7    | SCL70   | BhuCrabLake                        | 1.139        | 5.29         | 0.072        | 0.125        | 106.9            | 84.3  | 5       | 22      | 6         | 22       | 55            | Low         | NR                 |
| 8    | SCL67   | WulfertSanCapPond                  | 2.834        | 6.85         | 0.165        | 0.301        | 47.2             | 90.9  | 2       | 13      | 35        | 11       | 61            | Natural     | NR                 |
| 9    | SCL76   | ChateauSurMerBayou                 | 0.615        | 2.87         | 0.437        | 0.531        | 71.2             | 83.6  | 14      | 8       | 19        | 23       | 64            | Comm        | NR                 |
| 10   | SCL75   | Anchor Inn Pond                    | 0.760        | 3.31         | 0.074        | 0.178        | 87.0             | 85.4  | 12      | 21      | 14        | 20       | 67            | High        | R                  |
| 11   | SCL16   | SundialEast                        | 0.107        | 3.41         | 0.220        | 0.422        | 61.7             | 88.5  | 26      | 11      | 23        | 15       | 75            | Low         | NR                 |
| 12   | SCL39   | LongAcreLake                       | 0.291        | 2.86         | 0.119        | 0.146        | 75.1             | 82.8  | 17      | 16      | 17        | 25       | 75            | Natural     | NR                 |
| 13   | SCL38   | RMPBaileyTrct                      | 0.050        | 9.15         | 0.096        | 0.093        | 104.5            | 89.2  | 38      | 18      | 8         | 14       | 78            | Natural     | R                  |
| 14   | SCL80   | East Hollys Pond                   | 0.041        | 7.61         | 0.075        | 0.309        | 91.6             | 93.8  | 42      | 20      | 12        | 9        | 83            | High        | NR                 |
| 15   | SCL04   | PrwnklePrkRVPond                   | 0.040        | 5.14         | 0.040        | 0.297        | 115.8            | 92.8  | 43      | 38      | 4         | 10       | 95            | High        | NR                 |
| 16   | SCL03   | PeriwnklePrkDuckPnd                | 0.037        | 6.91         | 0.039        | 1.688        | 104.7            | 99.5  | 44      | 40      | 7         | 7        | 98            | Low         | NR                 |
| 17   | SCL74   | Hérons Landing Lake                | 0.028        | 3.42         | 2.970        | 3.015        | 43.8             | 99.6  | 54      | 2       | 37        | 6        | 99            | Low         | NR                 |
| 18   | SCL65   | NBayousLake                        | 1.468        | 3.40         | 0.605        | 0.656        | 15.4             | 85.2  | 4       | 7       | 67        | 21       | 99            | Low         | NR                 |
| 19   | SCL40   | RobinWoodLake                      | 0.029        | 6.20         | 0.053        | 0.087        | 119.0            | 86.2  | 52      | 26      | 3         | 19       | 100           | Medium      | NR                 |
| 20   | SCL64   | TradewindsNLake                    | 0.920        | 3.33         | 0.043        | 0.106        | 59.9             | 78.1  | 10      | 35      | 24        | 34       | 103           | Low         | NR                 |
| 21   | SCL35   | SeagullEst                         | 0.026        | 6.10         | 0.053        | 0.128        | 95.8             | 88.1  | 55      | 27      | 10        | 16       | 108           | GlfCrse     | R                  |
| 22   | SCL08   | DunesWeir                          | 0.075        | 4.91         | 0.033        | 0.138        | 88.4             | 86.6  | 33      | 46      | 13        | 17       | 109           | GlfCrse     | R                  |
| 23   | SCL50   | StIsabelCathChrch                  | 0.047        | 9.04         | 0.021        | 0.232        | 244.2            | 96.6  | 39      | 65      | 1         | 8        | 113           | Low         | NR                 |
| 24   | SCL71   | SanctuaryLake7                     | 0.026        | 2.78         | 0.313        | 0.485        | 49.5             | 90.7  | 58      | 9       | 34        | 12       | 113           | Comm        | R                  |
| 25   | SCL51   | NBikePathlake                      | 0.726        | 4.86         | 0.031        | 0.040        | 74.9             | 77.7  | 13      | 47      | 18        | 35       | 113           | Low         | NR                 |

Table 2 (cont). Sample sites with rankings.

| Rank | Station  | Description            | IN<br>(mg/l) | TN<br>(mg/l) | OP<br>(mg/l) | TP<br>(mg/l) | Chla_Cor<br>ug/l | TSI  | IN Rank | OP Rank | Chla Rank | TSI Rank | Rank<br>Score | Land<br>Use | Reclaimed<br>Water |
|------|----------|------------------------|--------------|--------------|--------------|--------------|------------------|------|---------|---------|-----------|----------|---------------|-------------|--------------------|
| 26   | SCL52    | SBikePathLake          | 0.292        | 5.17         | 0.028        | 0.062        | 76.9             | 81.1 | 16      | 53      | 16        | 30       | 115           | Low         | NR                 |
| 27   | SCL32    | AniPondBailyTract      | 0.071        | 8.22         | 0.088        | 0.202        | 23.8             | 86.3 | 35      | 19      | 54        | 18       | 126           | Natural     | NR                 |
| 28   | SCL55    | ERockWestEndCoquina    | 0.108        | 2.54         | 0.043        | 0.054        | 52.0             | 74.0 | 25      | 33      | 28        | 43       | 129           | Medium      | NR                 |
| 29   | SCL29    | SanibelCottages        | 0.021        | 1.80         | 0.217        | 0.308        | 51.7             | 82.2 | 65      | 12      | 31        | 27       | 135           | High        | R                  |
| 30   | SCL14    | SanGCSlough            | 0.031        | 3.69         | 0.028        | 0.081        | 101.7            | 82.0 | 48      | 51      | 9         | 28       | 136           | High        | R                  |
| 31   | SCL26    | CasaYbel               | 0.046        | 2.16         | 0.037        | 0.147        | 63.1             | 80.0 | 40      | 42      | 22        | 32       | 136           | Medium      | R                  |
| 32   | SCL07    | DunesLake5             | 0.029        | 3.90         | 0.051        | 0.089        | 51.2             | 79.8 | 51      | 28      | 33        | 33       | 145           | GlfCrse     | R                  |
| 33   | DL09     | Dunes Lake 9           | 0.0855       | 3.47         | 0.0265       | 0.0325       | 51.8             | 81.2 | 32      | 56      | 30        | 29       | 147           | GlfCrse     | R                  |
| 34   | SCL42    | HurricaneLn            | 0.222        | 5.19         | 0.021        | 0.152        | 36.1             | 83.5 | 19      | 64      | 44        | 24       | 151           | Low         | NR                 |
| 35   | SCL54    | ERockNorthEndDurion    | 0.026        | 2.91         | 0.045        | 0.063        | 57.9             | 75.9 | 56      | 32      | 26        | 39       | 153           | Medium      | NR                 |
| 36   | SCL69    | SanctuaryLake4         | 0.022        | 2.67         | 0.308        | 0.403        | 22.0             | 82.3 | 64      | 10      | 58        | 26       | 158           | GlfCrse     | R                  |
| 37   | SCL60    | WhiteIbisGulfPines     | 1.068        | 3.07         | 0.020        | 0.073        | 40.5             | 75.4 | 7       | 71      | 41        | 40       | 159           | Low         | NR                 |
| 38   | SCL34    | SeagullEst_east        | 0.031        | 3.27         | 0.056        | 0.043        | 38.8             | 72.7 | 49      | 23      | 42        | 45       | 159           | Medium      | R                  |
| 39   | SCL15    | PanamaCanal            | 0.044        | 3.07         | 0.028        | 0.067        | 56.0             | 76.8 | 41      | 54      | 27        | 38       | 160           | Low         | NR                 |
| 40   | SCL57    | GulfPines              | 0.978        | 2.94         | 0.027        | 0.054        | 28.9             | 72.1 | 9       | 55      | 47        | 49       | 160           | Low         | NR                 |
| 41   | SCL33    | ByTheSea               | 0.021        | 2.83         | 0.046        | 0.173        | 44.9             | 80.5 | 66      | 31      | 36        | 31       | 164           | High        | R                  |
| 42   | SCL56    | WRockEastEndCoquina    | 0.026        | 2.88         | 0.054        | 0.073        | 34.0             | 74.2 | 57      | 25      | 45        | 42       | 169           | Medium      | NR                 |
| 43   | SCL25    | PeriwinklePinesSW      | 0.190        | 3.92         | 0.025        | 0.048        | 33.4             | 73.2 | 21      | 59      | 46        | 44       | 170           | Medium      | NR                 |
| 44   | SCL11    | GumboLimboEast         | 0.030        | 2.29         | 0.048        | 0.074        | 37.2             | 72.2 | 50      | 29      | 43        | 48       | 170           | Medium      | NR                 |
| 45   | SCL58    | SCCFHaasPondAmerLeg    | 0.137        | 3.54         | 0.013        | 0.077        | 42.7             | 77.6 | 22      | 75      | 39        | 36       | 172           | Natural     | NR                 |
| 46   | SCL17    | RestaShore             | 0.072        | 4.00         | 0.018        | 0.059        | 51.8             | 77.3 | 34      | 72      | 29        | 37       | 172           | Low         | NR                 |
| 47   | SCL62    | ChateauSurMerLake      | 0.099        | 2.67         | 0.021        | 0.046        | 51.4             | 72.6 | 28      | 67      | 32        | 46       | 173           | Natural     | NR                 |
| 48   | Devitt01 | Pond at SCCF Homestead | 0.088        | 4.97         | 0.011        | 0.038        | 58.7             | 75.3 | 31      | 77      | 25        | 41       | 174           | GlfCrse     | NR                 |
| 49   | SCL59    | GulfPinesGage Station  | 1.045        | 3.02         | 0.024        | 0.042        | 26.8             | 69.8 | 8       | 61      | 50        | 60       | 179           | GlfCrse     | NR                 |
| 50   | SCL66    | Bayous Middle Lake     | 0.282        | 2.76         | 0.035        | 0.042        | 26.6             | 66.8 | 18      | 44      | 51        | 66       | 179           | Low         | NR                 |

Table 2 (Cont). Sample sites and rankings.

| Rank | Station | Description            | IN<br>(mg/l) | TN<br>(mg/l) | OP<br>(mg/l) | TP<br>(mg/l) | Chla_Cor<br>ug/l | TSI  | IN Rank | OP Rank | Chla Rank | TSI Rank | Rank<br>Score | Land<br>Use | Reclaimed<br>Water |
|------|---------|------------------------|--------------|--------------|--------------|--------------|------------------|------|---------|---------|-----------|----------|---------------|-------------|--------------------|
| 51   | SCL63   | TradewindsSLake        | 0.907        | 2.90         | 0.025        | 0.074        | 21.6             | 71.2 | 11      | 58      | 59        | 53       | 181           | Medium      | NR                 |
| 52   | SCL01   | LightHsePtCondo        | 0.017        | 2.21         | 0.153        | 0.222        | 28.2             | 70.8 | 75      | 14      | 48        | 54       | 191           | High        | NR                 |
| 53   | SCL12   | GumboLimboWest         | 0.036        | 1.90         | 0.147        | 0.162        | 10.4             | 70.7 | 46      | 15      | 75        | 55       | 191           | Medium      | NR                 |
| 54   | SCL53   | SeaOatsDrSmlLake       | 0.106        | 2.05         | 0.033        | 0.034        | 22.9             | 64.9 | 27      | 45      | 56        | 73       | 201           | Low         | NR                 |
| 55   | DLHS    | Dunes Horseshoe Lake   | 0.110        | 2.340        | 0.020        | 0.040        | 19.8             | 70.6 | 24      | 68      | 62        | 56       | 210           | Medium      | NR                 |
| 56   | SCL23   | PeriwinklePlaceSW      | 0.069        | 2.23         | 0.024        | 0.085        | 20.9             | 70.1 | 36      | 62      | 60        | 58       | 216           | Comm        | NR                 |
| 57   | SCL45   | NPoincianaPond         | 0.022        | 2.46         | 0.043        | 0.034        | 26.3             | 66.1 | 61      | 34      | 52        | 70       | 217           | Low         | NR                 |
| 58   | SCL28   | SanComAssPark          | 0.098        | 5.39         | 0.035        | 0.039        | 5.7              | 66.5 | 29      | 43      | 78        | 68       | 218           | Natural     | NR                 |
| 59   | SCL30   | Pointe Santos          | 0.024        | 2.09         | 0.009        | 0.061        | 43.2             | 72.3 | 59      | 78      | 38        | 47       | 222           | High        | R                  |
| 60   | SCL06   | IslandWatrPond         | 0.033        | 2.69         | 0.031        | 0.043        | 17.7             | 67.8 | 47      | 48      | 64        | 64       | 223           | Natural     | NR                 |
| 61   | SCL10   | WhsperwdPond           | 0.018        | 2.50         | 0.040        | 0.056        | 22.2             | 69.9 | 72      | 37      | 57        | 59       | 225           | Medium      | NR                 |
| 62   | SCL46   | Brghtwter_IslandInn    | 0.022        | 2.06         | 0.030        | 0.037        | 27.1             | 67.2 | 62      | 49      | 49        | 65       | 225           | Low         | NR                 |
| 63   | SCL73   | Lake at Over Easy Café | 0.019        | 1.61         | 0.020        | 0.095        | 41.7             | 71.2 | 70      | 70      | 40        | 52       | 232           | Comm        | NR                 |
| 64   | SCL09   | SCCFPnd                | 0.097        | 3.64         | 0.013        | 0.047        | 16.1             | 69.1 | 30      | 76      | 65        | 61       | 232           | Medium      | NR                 |
| 65   | SCL43   | PalmLake               | 0.020        | 2.55         | 0.048        | 0.024        | 19.8             | 64.2 | 67      | 30      | 61        | 75       | 233           | Low         | NR                 |
| 66   | SCL47   | NlakeMurex             | 0.022        | 3.72         | 0.025        | 0.057        | 18.4             | 71.4 | 63      | 60      | 63        | 50       | 236           | Medium      | NR                 |
| 67   | SCL27   | CityHall               | 0.018        | 3.44         | 0.039        | 0.059        | 15.4             | 70.4 | 73      | 41      | 66        | 57       | 237           | Comm        | NR                 |
| 68   | SCL37   | SmithLkBaileyTrct      | 0.016        | 4.02         | 0.041        | 0.072        | 12.0             | 71.4 | 78      | 36      | 74        | 51       | 239           | Natural     | NR                 |
| 69   | SCL41   | HurricaneLane          | 0.029        | 2.60         | 0.020        | 0.043        | 23.2             | 68.7 | 53      | 69      | 55        | 62       | 239           | Low         | NR                 |
| 70   | SCL24   | SWPondPriwinkleProp    | 0.037        | 2.13         | 0.030        | 0.040        | 15.0             | 64.7 | 45      | 50      | 70        | 74       | 239           | Comm        | NR                 |
| 71   | SCL31   | BaileysPond            | 0.051        | 2.17         | 0.018        | 0.085        | 15.2             | 67.9 | 37      | 73      | 69        | 63       | 242           | Comm        | NR                 |
| 72   | SCL21   | OceansReachCondo       | 0.019        | 2.33         | 0.039        | 0.074        | 14.7             | 66.7 | 69      | 39      | 71        | 67       | 246           | High        | NR                 |
| 73   | SCL44   | TwinPondEast           | 0.018        | 2.17         | 0.026        | 0.029        | 25.6             | 65.2 | 71      | 57      | 53        | 72       | 253           | Low         | NR                 |
| 74   | SCL18   | SanibellLakeEst        | 0.022        | 2.21         | 0.028        | 0.047        | 14.1             | 66.1 | 60      | 52      | 73        | 69       | 254           | Natural     | NR                 |
| 75   | SCL20   | GulfSidePrk_2          | 0.016        | 2.99         | 0.055        | 0.035        | 7.8              | 63.4 | 77      | 24      | 77        | 76       | 254           | Medium      | NR                 |
| 76   | SCL48   | SLakeMurex             | 0.018        | 2.13         | 0.021        | 0.048        | 14.3             | 65.3 | 74      | 66      | 72        | 71       | 283           | Medium      | NR                 |
| 77   | SCL02   | BeachRdVillasPnd       | 0.017        | 2.57         | 0.022        | 0.038        | 15.2             | 62.7 | 76      | 63      | 68        | 77       | 284           | Low         | NR                 |
| 78   | SCL19   | GulfsidePark_1         | 0.019        | 3.69         | 0.017        | 0.019        | 8.3              | 61.3 | 68      | 74      | 76        | 78       | 296           | Natural     | NR                 |

Table 3. Change in lake rank status between 2016 and 2018 monitoring periods.

| 2018 Rank | 2016 Rank | Station  | Description            | 2016 TSI | 2018 TSI | TSI Score Change |
|-----------|-----------|----------|------------------------|----------|----------|------------------|
| 8         | 44        | SCL67    | WulfertSanCapPond      | 66.3     | 90.9     | 37.1             |
| 46        | 53        | SCL17    | RestaShore             | 60.0     | 77.3     | 28.9             |
| 56        | 71        | SCL23    | PeriwinklePlaceSW      | 55.0     | 70.1     | 27.6             |
| 37        | 46        | SCL34    | SeagullEst_east        | 69.3     | 88.1     | 27.1             |
| 5         | 7         | SCL72    | West Hollys Pond       | 88.1     | 111.1    | 26.1             |
| 34        | 55        | SCL42    | HurricaneLn            | 67.6     | 83.5     | 23.5             |
| 64        | 66        | SCL09    | SCCFPnd                | 56.1     | 69.1     | 23.3             |
| 12        | 23        | SCL38    | RMPBaileyTrct          | 73.2     | 89.2     | 21.9             |
| 42        | 69        | SCL56    | WRockEastEndCoquina    | 62.0     | 74.2     | 19.8             |
| 14        | 29        | SCL04    | PrwnklePrkRVPond       | 78.0     | 92.8     | 19.1             |
| 21        | 34        | SCL08    | DunesLake4             | 72.8     | 86.6     | 19.0             |
| 44        | 70        | SCL25    | PeriwinklePinesSW      | 61.9     | 73.2     | 18.3             |
| 11        | 38        | SCL39    | LongAcreLake           | 70.2     | 82.8     | 17.9             |
| 59        | 58        | SCL30    | Pointe Santos          | 61.7     | 72.3     | 17.2             |
| 47        | 68        | Devitt01 | Pond at SCCF Homestead | 64.5     | 75.3     | 16.7             |
| 45        | 41        | SCL58    | SCCFHaasPondAmerLeg    | 66.5     | 77.6     | 16.7             |
| 27        | 39        | SCL32    | AniPondBailyTract      | 74.0     | 86.3     | 16.6             |
| 17        | 35        | SCL40    | RobinWoodLake          | 74.8     | 86.2     | 15.2             |
| 24        | 40        | SCL50    | StIsabelCathChrch      | 73.1     | 84.0     | 14.9             |
| 18        | 19        | SCL65    | NBayousLake            | 74.4     | 85.2     | 14.6             |
| 77        | 72        | SCL02    | BeachRdVillasPnd       | 54.8     | 62.7     | 14.4             |
| 53        | 43        | SCL12    | GumboLimboWest         | 62.4     | 70.7     | 13.3             |
| 10        | 18        | SCL16    | SundialEast            | 78.3     | 88.5     | 13.0             |
| 15        | 4         | SCL03    | PeriwnklePrkDuckPnd    | 88.1     | 99.5     | 12.9             |
| 35        | 56        | SCL54    | ERockNorthEndDurion    | 68.2     | 75.9     | 11.4             |

Table 3 (cont.). Change in lake rank status between 2016 and 2018 monitoring periods.

| 2018 Rank | 2016 Rank | Station | Description           | 2016 TSI | 2018 TSI | TSI Score Change |
|-----------|-----------|---------|-----------------------|----------|----------|------------------|
| 28        | 60        | SCL55   | ERockWestEndCoquina   | 67.0     | 74.0     | 10.4             |
| 40        | 49        | SCL57   | GulfPines             | 65.4     | 72.1     | 10.2             |
| 67        | 71        | SCL27   | CityHall              | 64.1     | 70.4     | 9.8              |
| 52        | 67        | SCL01   | LightHsePtCondo       | 64.7     | 70.8     | 9.4              |
| 31        | 25        | SCL14   | SanGCSlough           | 75.1     | 82.0     | 9.2              |
| 30        | 28        | SCL26   | CasaYbel              | 73.8     | 80.0     | 8.4              |
| 39        | 36        | SCL60   | WhiteIbisGulfPines    | 70.5     | 75.4     | 7.0              |
| 73        | 62        | SCL44   | TwinPondEast          | 61.2     | 65.2     | 6.6              |
| 3         | 2         | SCL13   | SanGolfReclmPnd       | 96.5     | 102.7    | 6.5              |
| 68        | 37        | SCL37   | SmithLkBaileyTrct     | 67.1     | 71.4     | 6.4              |
| 49        | 45        | SCL59   | GulfPinesGage Station | 65.6     | 69.8     | 6.4              |
| 22        | 8         | SCL71   | SanctuaryLake7        | 85.4     | 90.7     | 6.2              |
| 41        | 20        | SCL33   | ByTheSea              | 76.0     | 80.5     | 6.0              |
| 25        | 12        | SCL52   | SBikePathLake         | 76.7     | 81.1     | 5.7              |
| 29        | 9         | SCL29   | SanibelCottages       | 78.4     | 82.2     | 4.9              |
| 62        | 64        | SCL46   | Brghtwter_IslandInn   | 65.0     | 67.8     | 4.3              |
| 60        | 57        | SCL06   | IslandWatrPond        | 65.1     | 67.8     | 4.1              |
| 6         | 6         | SCL36   | SandPointe            | 86.1     | 89.5     | 3.9              |
| 4         | 3         | SCL05   | CityReclaimDschrge    | 97.6     | 101.1    | 3.6              |
| 72        | 50        | SCL21   | OceansReachCondo      | 64.5     | 66.7     | 3.5              |
| 33        | 15        | DL09    | Dunes Lake 9          | 78.5     | 81.2     | 3.4              |
| 48        | 33        | SCL62   | ChateauSurMerLake     | 70.9     | 72.9     | 2.9              |
| 2         | 1         | SCL68   | BayousLake1           | 106.2    | 109.1    | 2.7              |
| 58        | 61        | SCL28   | SanComAssPark         | 65.0     | 66.5     | 2.4              |
| 7         | 10        | SCL70   | BluCrabLake           | 82.5     | 84.3     | 2.2              |

Table 3 (cont.). Change in lake rank status between 2016 and 2018 monitoring periods.

| 2018 Rank | 2016 Rank | Station | Description                                 | 2016 TSI | 2018 TSI | TSI Score Change |
|-----------|-----------|---------|---|----------|----------|------------------|
| 20        | 16        | SCL35   | SeagullEst                                  | 86.5     | 88.1     | 1.9              |
| 70        | 63        | SCL24   | SWPondPriwinkleProp                         | 63.6     | 64.7     | 1.8              |
| 36        | 14        | SCL69   | SanctuaryLake4                              | 81.1     | 82.3     | 1.5              |
| 75        | 59        | SCL18   | SanibelLakeEst                              | 65.7     | 66.1     | 0.7              |
| 38        | 27        | SCL15   | PanamaCanal                                 | 76.5     | 76.8     | 0.5              |
| 19        | 17        | SCL64   | TradewindsNLake                             | 78.1     | 78.1     | 0.1              |
| 69        | 54        | SCL41   | HurricaneLane                               | 68.8     | 68.7     | -0.1             |
| 32        | 11        | SCL07   | DunesLake5                                  | 80.7     | 79.8     | -1.1             |
| 43        | 26        | SCL11   | GumboLimboEast                              | 73.5     | 72.2     | -1.8             |
| 66        | 42        | SCL47   | NlakeMurex                                  | 72.7     | 71.4     | -1.8             |
| 76        | 52        | SCL48   | SLakeMurex                                  | 67.0     | 65.3     | -2.5             |
| 71        | 51        | SCL31   | BaileysPond                                 | 70.0     | 67.9     | -3.0             |
| 23        | 13        | SCL51   | NBikePathlake                               | 80.5     | 77.7     | -3.5             |
| 55        | 21        | DLHS    | Dunes Horseshoe Lake                        | 73.9     | 70.6     | -4.5             |
| 50        | 24        | SCL66   | Bayous Middle Lake                          | 71.0     | 66.8     | -5.9             |
| 61        | 32        | SCL10   | WhsperwdPond                                | 74.7     | 69.9     | -6.4             |
| 57        | 30        | SCL45   | NPoincianaPond                              | 71.4     | 66.1     | -7.4             |
| 54        | 47        | SCL53   | SeaOatsDrSmlLake                            | 70.5     | 64.9     | -7.9             |
| 65        | 31        | SCL43   | PalmLake                                    | 70.7     | 64.2     | -9.2             |
| 74        | 22        | SCL20   | GulfSidePrk_2                               | 71.9     | 63.4     | -11.8            |
| 78        | 48        | SCL19   | GulfsidePark_1                              | 70.1     | 61.3     | -12.5            |
| 51        | 5         | SCL63   | TradewindsSLake                             | 87.4     | 71.2     | -18.5            |
| 1         | NR        | SCL77   | Pond under Shipley Trail at Pond Apple Park |          | 101.8    |                  |
| 9         | NR        | SCL75   | Anchor Inn Pond                             |          | 85.4     |                  |
| 13        | NR        | SCL80   | East Hollys Pond                            |          | 93.8     |                  |
| 16        | NR        | SCL74   | Hérons Landing Lake                         |          | 99.6     |                  |
| 26        | NR        | SCL76   | ChateauSurMerBayou                          |          | 75.8     |                  |
| 63        | NR        | SCL73   | Lake at Over Easy Café                      |          | 71.2     |                  |

Figure 2. Median total phosphorus concentrations for all lakes and all periods sampled during the Sanibel Communities for Clean Water project.

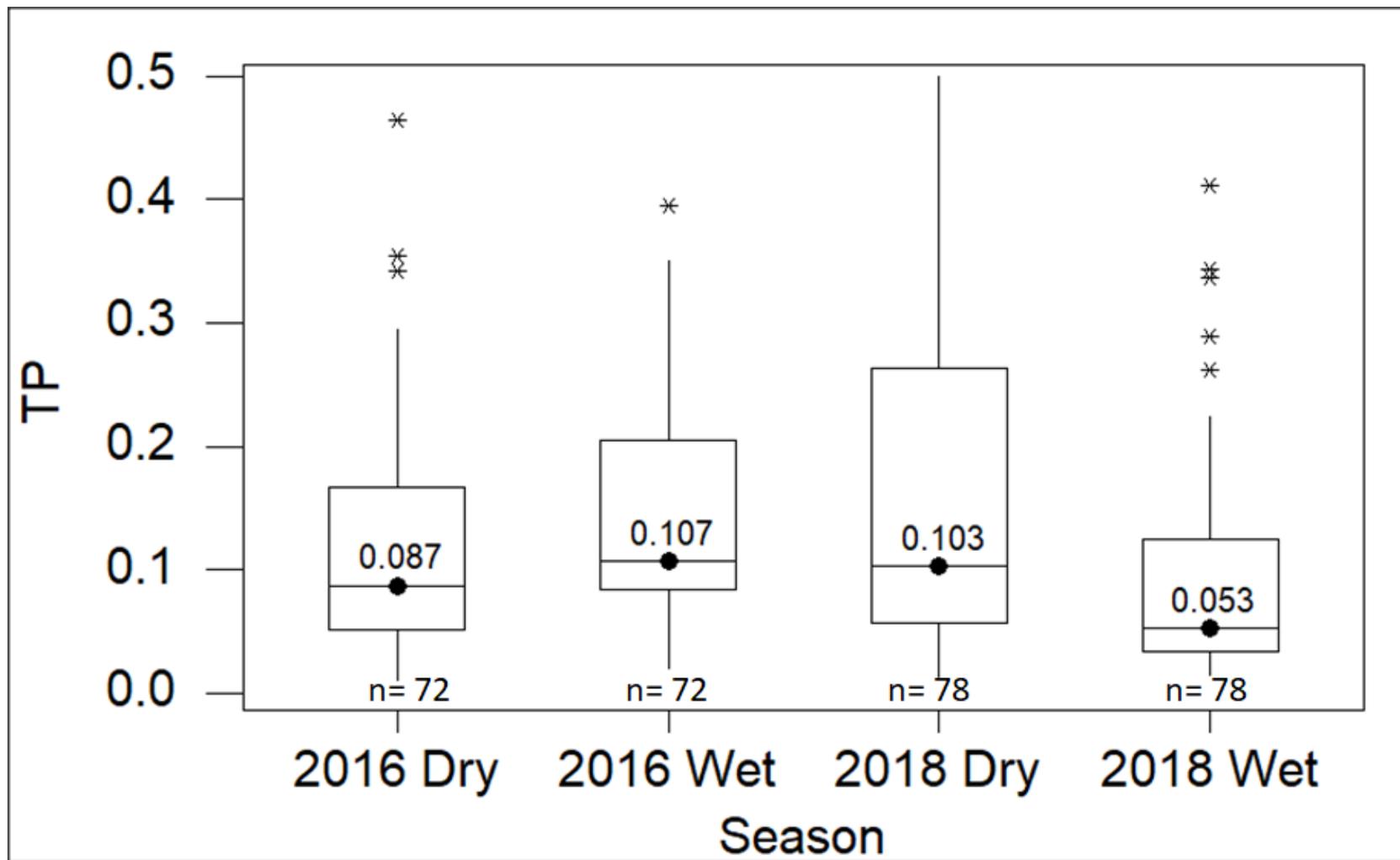


Figure 3. Mean TP (mg/l) at sites using reclaimed water for irrigation verses sites that did not. Significantly greater concentrations were found in lakes near reclaimed water irrigation.

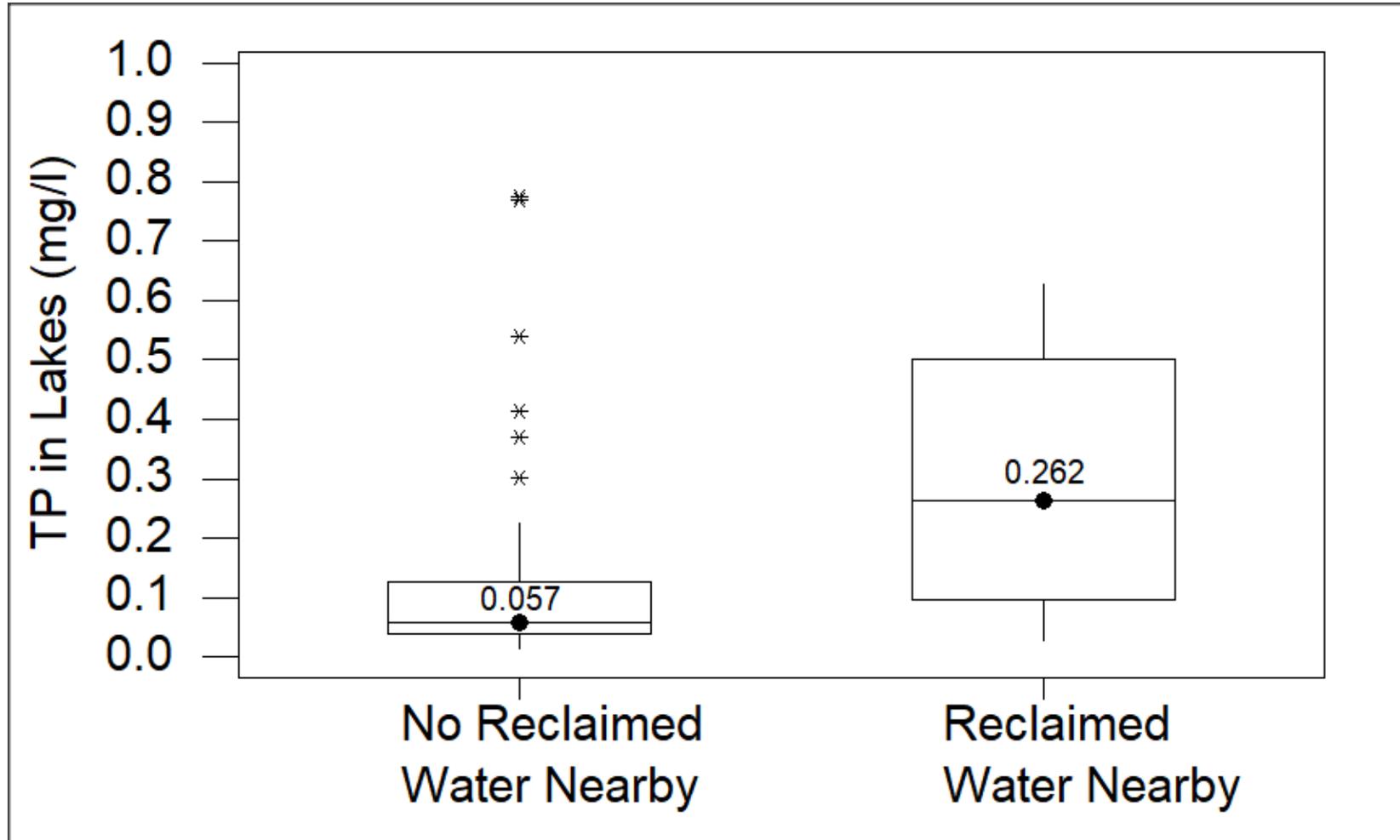


Figure 4. Median total nitrogen concentrations for all lakes and all periods sampled during the Sanibel Communities for Clean Water project.

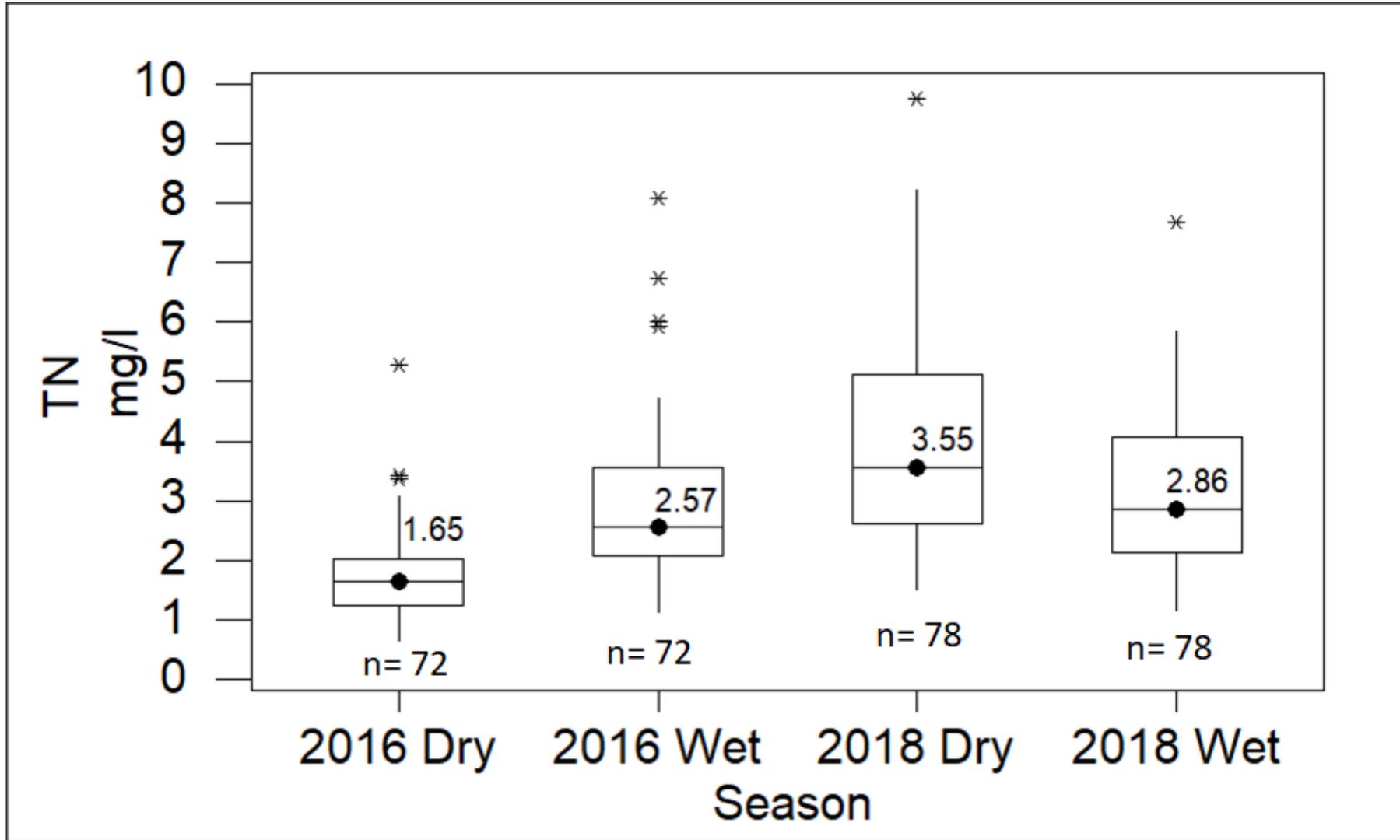


Figure 5. Box plot showing mean TN (mg/l) at sites using reclaimed water for irrigation versus sites that did not. No significant difference was found for this factor.

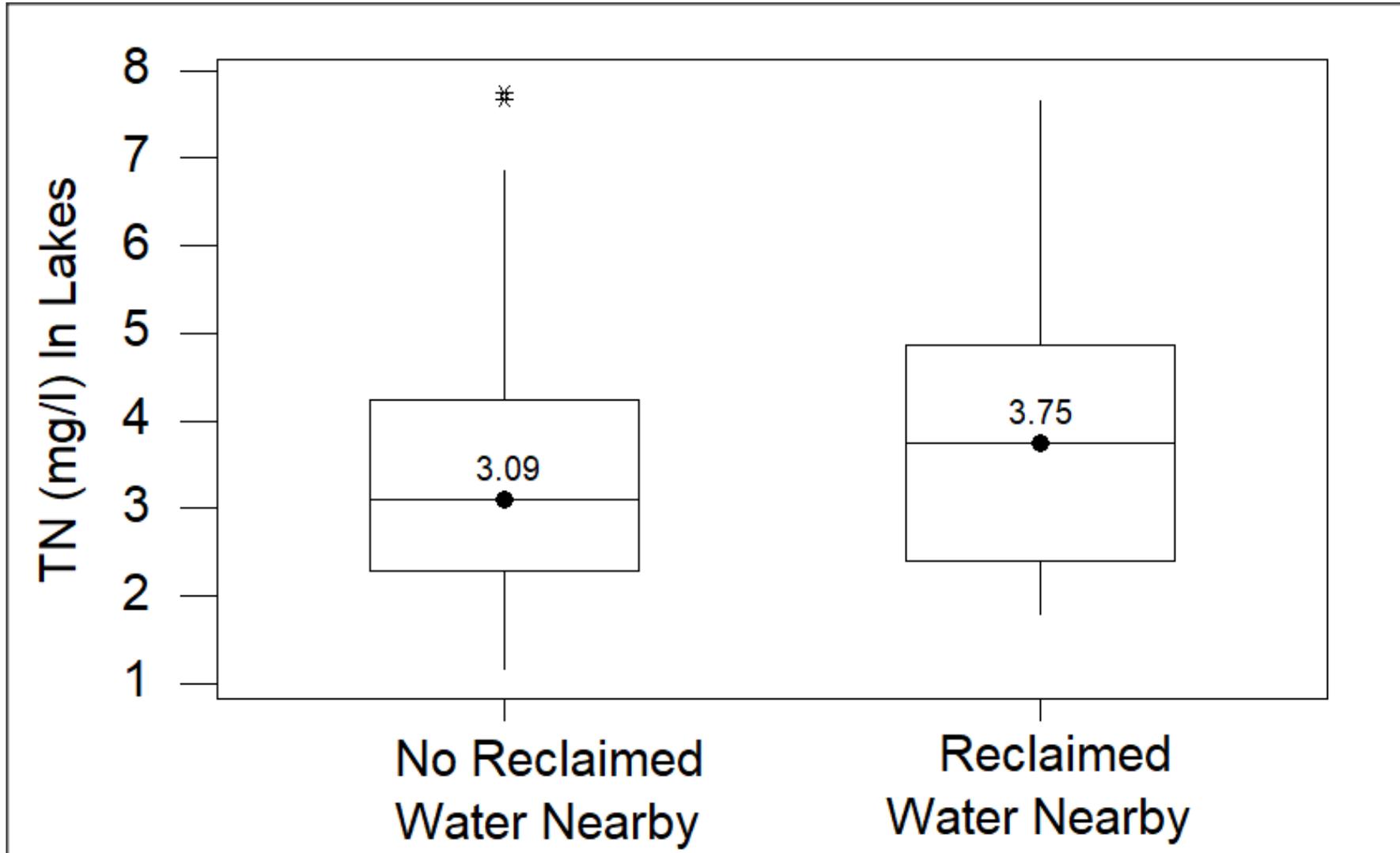


Figure 6. Median chlorophyll *a* concentrations for all lakes and all periods sampled during the Sanibel Communities for Clean Water project.

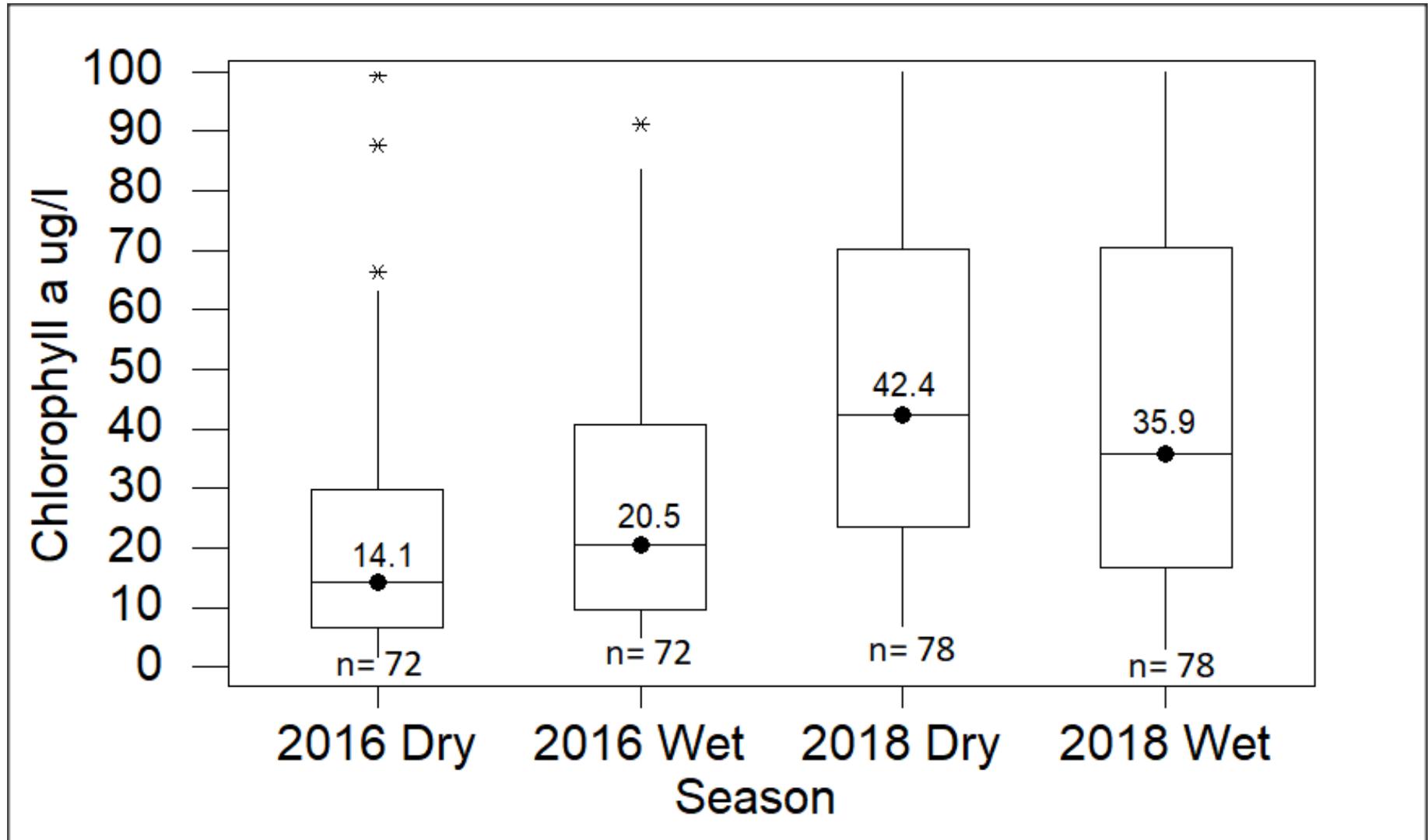


Figure 7. Box plot showing mean chlorophyll a (ug/l) at sites using reclaimed water for irrigation versus sites that did not. Significantly greater chlorophyll a was found at sites with reclaimed water use nearby.

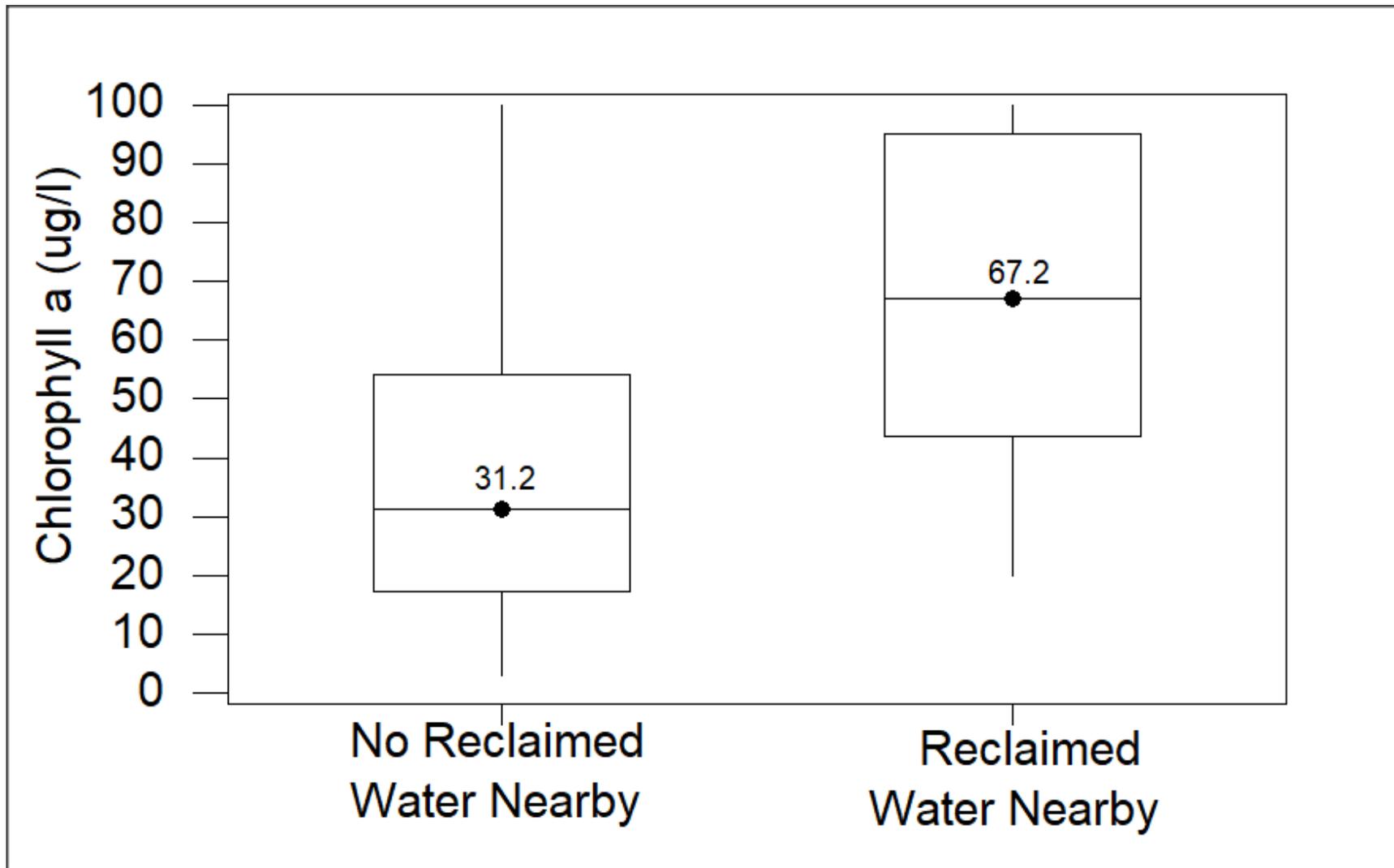


Figure 8. Ranking the community lakes on Sanibel by water quality values. The lowest ranked lakes have the poorest water quality and are represented by red and orange dots.

