

Table 1. Primary Tasks Data Requests

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
Static Model Update	Watershed Boundary	Area that drains partially or completely into the NIRL ¹ , CIRL ² , BRL ³	GIS ⁴ format (shapefile or feature class); provide metadata	Basins within stakeholders' political boundaries draining into the Indian River Lagoon (IRL) will be reviewed. Provide method used to delineate basins (LiDAR ⁵ , field inspection, etc.).
Static Model Update	Land Use Land Cover (LULC) – current (2020/2021)	Type of land cover using either traditional FLUCCS ⁶ or the consolidated land use classes (see Table 3)	GIS format (shapefile or feature class); provide metadata	Only provide data if different than latest LULC by SJRWMD ⁷ or SFWMD ⁸ ; data should correspond to recent conditions (2019/2020/2021); No overlapping polygons or gaps anticipated; please provide methodology used to develop the land use land cover. If other classification method used, please describe classes. Please crosswalk to the SWIL LUs (Table 3) if using codes different from FLUCCS codes.
	LULC – 2015	Type of land cover using either traditional FLUCCS or the consolidated land use classes (see Table 3)	GIS format (shapefile or feature class); provide metadata	Only provide data if different than SJRWMD or SFWMD datasets; data should correspond to 2014/2015/2016 conditions; No overlapping polygons or gaps between anticipated; please provide methodology used to develop the land use land cover. If other classification method used, please describe classes. Please crosswalk to the SWIL LUs (Table 3) if using different FLUCCS codes.
	LULC – 2010	Type of land cover using either traditional FLUCCS or the consolidated land use classes (see Table 3)	GIS format (shapefile or feature class); provide metadata	Only provide data if different than SJRWMD or SFWMD datasets; data should correspond to 2009/2010 conditions; No overlapping polygons or gaps anticipated; please provide methodology used to develop the land use land cover. If other classification method used, please describe classes. Please crosswalk to the SWIL LUs (Table 3) if using different FLUCCS codes.

¹ North Indian River Lagoon² Central Indian River Lagoon³ Banana River Lagoon⁴ Geographic Information System⁵ Light Detection and Ranging⁶ Florida Land Use, Cover, and Forms Classification System⁷ St. Johns River Water Management District⁸ South Florida Water Management District

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
	LULC – 2004	Type of land cover using either traditional FLUCCS or the consolidated land use classes (see Table 3)	GIS format (shapefile or feature class); provide metadata	Only provide data if different than SJRWMD or SFWMD datasets; data should correspond to 2004/2005 conditions; No overlapping polygons or gaps anticipated; please provide methodology used to develop the land use land cover. If other classification method used, please describe classes.
Static Model Update	Soils – Hydrologic Group	Type of land cover using either traditional FLUCCS	GIS format (shapefile or feature class); provide metadata	Only provide data if different than USDA ⁹ NRCS ¹⁰ soils data; please provide methodology used to develop the soils layer; avoid using urban soil classification.
Static Model Update	Stormwater Treatments – recent (2020/2021)	ERP ¹¹ basin areas – areas being treated due to permit requirements	GIS format (shapefile or feature class); provide metadata	Complete coverage of areas being treated by ERPs from 1986-current. Please provide, at minimum, type of ERP (wet/dry pond) and year of implementation. Additional information, such as % volume, % water quality concentration reduction by treated area are welcome and can be included in the model. <u>Do not</u> include retrofit projects in this layer request.
Static Model Update	Impoundments	Areas within the Lagoon system that were traditionally impounded for mosquito control	GIS format (shapefile or feature class); provide metadata	Only provide data for impoundments confirmed to have been closed to the Indian River Lagoon (IRL) system after 2003. Provide management information in item below.
Direct Runoff Model Update	Impoundments – Management Schedule	Areas within the Lagoon system that were traditionally impounded and managed for mosquito control	Tabular format (related GIS tables to impoundments or spreadsheet/database) with management description and year the change took place	Only provide data for recent management changes of impoundments each stakeholder was directly involved with; management changes of concern include seasonally connecting the impoundment to the Lagoon or connecting it permanently; please provide year the change occurred.

⁹ United States Department of Agriculture¹⁰ Natural Resources Conservation Service¹¹ Environmental Resource Permit

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Direct Runoff Model Update	Event Mean Concentrations (EMCs) for Surface Runoff	Average anticipated TN and TP concentrations in runoff by land use type (mg/L) (see Table 4)	Basin(s) monitored in GIS-format; calculated EMCs with backup data in database or spreadsheet format	EMCs currently exist for 27 land use categories based on many IRL specific data (Table 2 below); stakeholder EMCs derived from long-term (2+ years) monitoring data for a specific basin in the IRL will be accepted. Please provide the calculated EMCs, and all supportive information; basins dominated by one specific land use would be ideal.
Direct Runoff Model Update	Rainfall	Monthly rainfall totals from 2004-current by specific spatial location(inches)	Gauge locations in GIS formats or coordinates; data as related tables, Excel files, CSV ¹² , or database files	Rainfall gauges need to have been calibrated, location needs to be provided accurately (within 50 meters); data needs to have gone through QA/QC ¹³ process; missing data needs to be clearly indicated and not provided as a "0"; monthly totals. only accepted when less than 10% of missing data per month.
Direct Runoff Model Update	Runoff Coefficients (ROCs)	Monthly amount of runoff anticipated by land use type and soil hydrologic classification	Tabular/spreadsheet data; if based on monitoring data, basins provided in GIS format	ROCs derived from long-term (2+ years) monitoring datafor a specific basin in the IRL will be accepted. Please provide the calculated ROCs by month associated by specific land use/hydrologic group (e.g. medium residential A soils), and all supportive information.
Subsurface Flow Model Update	Evapotranspiration (ET) – 2017 through current	Mean water evaporation and transpiration from a surface area to the atmosphere. (inches)	Raster data format (Esri grid, TIFF ¹⁴ , ASCII, etc.) for ET based on remote sensing studies; location in GIS format and associated spreadsheets for field collected data	For remote sensing products, please provide ET raster data that has associated methodology and cells no larger than 1 kilometer by 1 kilometer; we would also welcome field collected site-specific information, such as those that use Lysimeters, as long as QA/QC processes have been implemented.
Calibration Effort	Continuous or representative flow monitoring data locations	Location of continuous flow monitoring device	GIS format with unique identifier; provide metadata	Provide monitoring data locations as points; if possible, basin area draining into monitoring canal/tributary/system. Only provide locations that have representative seasonal data, high frequency, or continuous readings for a minimum of 3 years. Do not provide USGS ¹⁵ /Water Management District data.

¹² Comma separated values¹³ Quality Assurance/Quality Control¹⁴ Tag Image File Format¹⁵ United States Geological Survey

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
Calibration Effort	Continuous or representative flow datasets	Datasets associated with above requested flow monitoring locations	Tabular format (spreadsheet, feature table, or database) linking previously provided flow monitoring locations	Only provide datasets that include representative seasonal flow data, high frequency, or continuous readings for a minimum of 3 years. Monitoring devices should have been calibrated and data collected using FDEP SOPs. Do not provide USGS/WMD data.

Table 2. Data-dependent Tasks Data Requests

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
Subsurface Flow Model Update	Surficial Groundwater Well Information	Well location and well log information for monitoring wells	GIS format for coordinates; well log information in PDF ¹⁶ format/permits	Provide permit and well log information. Only monitoring wells representing the surficial aquifer within the IRL watershed are of interest.
Subsurface Flow Model Update	Ground Water Quality	Groundwater nutrient water quality datasets	Tabular data (spreadsheet or database format) and associated metadata	Provide water quality datasets that include, at minimum, total nitrogen (TN) or total phosphorus (TP) data by location and month of collection. Data should have been collected using DEP ¹⁷ SOPs ¹⁸ and represent seasonal variation (monthly data). Preference for 12-month or longer datasets.
Subsurface Flow Model Update	WWTP ¹⁹ Service Areas	Areas within the IRL watershed services by reclaimed water	GIS format (shapefile or feature class); provide metadata	Provide areas currently or previously receiving reclaimed water. Please indicate which year service initiated and specific WWTP facility providing the service.
Subsurface Flow Model Update	WWTP Permitted and Mean Discharge Info	WWTP specific information on permitted and typical measured discharged via reclaimed water	Tabular format (spreadsheet, feature table, or database) linking previously provided WWTP service area by Facility Name	Provide current and past (2004–current) information by facility on permitted and typical measured TN and TP water quality discharged via reclaimed water; total discharged volume and concentration monthly by facility will also be accepted.

¹⁶ Portable document format¹⁷ Florida Department of Environmental Protection¹⁸ Standard Operating Procedures (<https://floridadep.gov/dear/quality-assurance/content/dep-sops>)¹⁹ Wastewater Treatment Plant

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
Subsurface Flow Model Update	RIBs ²⁰ /spray fields/absorption fields service location	Location other surface discharge methods within the IRL	GIS format (shapefile or feature class); provide metadata	Provide current and past location of functional RIB/Spray field/absorption fields within the IRL watershed associated with Facility name/unique identifier.
Subsurface Flow Model Update	RIBs/spray fields/absorption fields permitted or/and measured information	Volumes and mean TN and TP discharge information by RIB/spray field/absorption fields	Tabular format (spreadsheet, feature table, or database) linking previously provided WWTP service area by Facility Name	Provide current and past (2004–current) information by facility on permitted and typical measured TN and TP water quality discharged surface using spray field, RIB, absorption field, etc.
Subsurface Flow Model Update	Septic inventory - current	Locations of parcels or communities on OSTDS ²¹	GIS format (shapefile or feature class); provide metadata	Provide data of individual septic locations or parcels on septic within each stakeholder's jurisdiction. Provide method used to validate the dataset. Do not provide FDOH ²² OSTDS inventory.
Subsurface Flow Model Update	Best Management Practices (BMPs)	Basins treated using BMPs, or retrofit projects	GIS format with unique identifier; provide metadata	Complete coverage of areas being treated by BMPs until current (2020/2021). Please provide at minimum type of retrofit project (wet/dry pond) and year of implementation. Additional information, such as % volume, % water quality concentration reduction by treated area are welcome and can be included in the model. <u>Do not</u> include ERP required treatments in this layer.
Calibration Effort	Flow-weighted surface water (SW) monitoring locations	Location of flow-weighted water quality monitoring	GIS format with unique identifier; provide metadata	Provide monitoring data locations as points; if possible, basin area draining into monitoring system. Only provide locations that have long-term (min. 3 years) of seasonally representative data. Do not provide USGS/Water Management District locations.
Calibration Effort	Flow-weighted representative surface water quality data	Datasets associated with above requested flow-weighted water quality sampling locations	Tabular format (spreadsheet, feature table, or database) linking previously provided flow monitoring locations	Only provide datasets that include flow-weighted collected TN and/or TP data. At minimum seasonal representative samples for wet and dry season are available for 3+ years. Provide local rainfall dataset as well. Monitoring devices should have been calibrated and data collected using FDEP SOPs. Do not provide USGS/ Water Management District data.

²⁰ Rapid Infiltration Basins²¹ Onsite sewage treatment and disposal systems²² Florida Department of Health

Model Relevance	Data Type	Data Description	Requested Data Format	Criteria for acceptance
Allocation	Stakeholder Boundaries	Municipal/WCD ²³ /federal facility boundaries used for allocation	GIS format (shapefile or feature class); provide metadata	Provide if any changes have taken place (e.g., annexation) since previous allocation effort took place. If unsure, please provide current boundaries.
Natural Background Run	LULC – pre-development (prior to 1950s or older)	Simplified land use land cover data representing natural conditions prior to development	GIS format (shapefile or feature class); provide metadata	Provide any pre-development datasets including only natural land use types. Simplified land use categories will be accepted, please look at Table 1 for natural land uses. Only provide data if different than 1943 SJRWMD land use data. Please provide methodology used to develop the land use land cover.

²³ Water Control District

Table 3. Consolidated Land Use Classes with Typical Hydrologic Characteristics

Land Use	Percent Impervious (%)	DCIA ²⁴ (% of total area)
Agriculture	5	0
Citrus	0	0
Commercial	80	60
Dry Prairie	0	0
High Density Residential	50	30
Hydric Hammock	0	0
Industrial	30	10
Institutional	20	10
Low Density Residential	15	0
Medium Density Residential	40	20
Mesic Flatwoods	0	0
Mining	0	0
Open	0	0
Pasture	0	0
Recreational 1	5	0
Recreational 2	20	10
Row Crops	0	0
Ruderal	0	0
Scrub	0	0
Transportation	50	30
Upland Flatwoods	0	0
Upland Mixed	0	0
Water	0	0
Wet Flatwoods	0	0
Wet Prairies	0	0
Wetland	0	0
Xeric Hammock	0	0
Grand Total	10.9	5.7

²⁴ Directly Connected Impervious Area

Table 4. Currently used EMCs by Land Use Type for the SWIL

Land Use	Area (acres)	Percent of Total (%)	Percent Impervious (%)	Percent DCIA (%)	Runoff emc (mg/l)		Reference
					Total N	Total P	
Wetland	89,572	20.8	0	0	1.50	0.100	Available Wetland STORET Data for IRL Area
Medium Density Residential (MDR)	47,106	11.0	40	20	1.87	0.301	Florida emc Database
Scrub	36,697	8.5	0	0	1.16	0.096	ERD (2009) - Xeric Scrub
Citrus	30,305	7.0	0	0	2.07	0.152	Florida emc Database
Pasture	25,711	6.0	0	0	3.30	0.621	Florida emc Database
Wet Flatwoods	23,243	5.4	0	0	1.18	0.015	ERD (2009)
Upland Flatwoods	22,838	5.3	0	0	1.00	0.034	ERD (2009) - Mesic Flatwoods
Low Density Residential (LDR)	22,673	5.3	15	0	1.51	0.178	Average of MDR & open space
Dry Prairie	18,038	4.2	0	0	1.95	0.107	ERD (2009)
Water	16,921	3.9	100	100	Deposition Values		Use Atmospheric Deposition Conc.
Institutional	15,668	3.6	20	10	1.51	0.178	Assumed equivalent to LDR
High Density Residential (HDR)	14,543	3.4	50	30	2.10	0.497	Florida emc Database
Open	11,603	2.7	0	0	1.15	0.055	Harper and Baker (2007)
Commercial	11,560	2.7	80	60	1.64	0.214	Average of low and high intensity commercial
Xeric Hammock	7,795	1.8	0	0	1.32	2.82	ERD (2009)
Wet Prairies	6,407	1.5	0	0	0.78	0.009	ERD (2009)
Hydric Hammock	6,121	1.4	0	0	1.07	0.026	ERD (2009)
Recreational 1 - Golf Courses	5,566	1.3	5	0	1.87	0.301	Assumed equivalent to MDR
Transportation	5,552	1.3	50	30	1.37	0.167	Florida emc Database
Industrial	4,728	1.1	30	10	1.19	0.213	Florida emc Database
Recreational 2 - Parks, etc.	2,268	0.5	20	10	1.51	0.178	Assumed equivalent to LDR
Agriculture	1,361	0.3	5	0	2.61	0.485	Florida emc Database
Ruderal	1,321	0.3	0	0	1.32	0.347	ERD (2009)
Mesic Flatwoods	1,275	0.3	0	0	1.00	0.034	ERD (2009)
Mining	594	0.1	0	0	1.18	0.150	Florida emc Database
Row Crops	501	0.1	0	0	2.46	0.489	Florida emc Database
Upland Mixed Forest	131	0.0	0	0	0.68	2.29	ERD (2009)
Grand Total/Mean Value	430,098	100	10.9	5.7	1.64	0.231	

Updated version of runoff characterization data outlined in "Performance Efficiency Evaluation of Stormwater Management Systems in Florida", Harper and Baker, 2007

"Runoff Characteristics of Natural Vegetation Communities in Florida", Environmental Research & Design, Inc. (ERD), 2009

"Performance Efficiency Evaluation of Stormwater Management Systems in Florida", Harper and Baker, 2007