SECTION 4

FUTURE WITHOUT PROJECT CONDITION

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SECTION 4
FUTURE WITHOUT PROJECT CONDITION

This section provides a definition as to what is meant by the future "without plan" condition and how and why it was developed. The future "without plan" condition describes the planning area's future if there is no Federal action taken to solve the problem at hand. This condition is vitally important to the evaluation and comparison of alternative plans and identifying the impacts (both beneficial and adverse) attributable to proposed federal actions.

4.1 "WITH AND WITHOUT" COMPARISONS

The U.S. Water Resources Council's (USWRC) *Principles and Guidelines* provides the instructions and rules for Federal water resources planning (USWRC, 1983). One *Principles and Guidelines* requirement is to evaluate the effects of alternative plans based on a comparison of the most likely future conditions with and without those plans. In order to make this kind of comparison, descriptions - often called forecasts - must be developed for two different future conditions: the future without plan condition, and the future with-plan condition.

The future without plan condition describes what is assumed to be in place if none of a study's alternative plans are implemented. The without-plan condition is the same as the "no action" alternative required by the Federal regulations implementing the *National Environmental Policy Act of 1969 (NEPA).* The future without condition forecast provides a description of anticipated actions external to the project and the anticipated consequences of these actions.

Future "with plan" conditions describe the anticipated effects attributable to the implementation of each alternative plan that is being considered in this study. With plan conditions are developed for each alternative plan; therefore, there are as many with plan conditions, as there are alternative plans.

The differences between the "without plan" condition and the "with plan" condition are the effects or impacts of the plan. Note that the plan referred to in this context is any one of the alternative plans that have been considered in the Indian River Lagoon - South (IRLS) study. The formulation of alternative plans is described fully in ***Section 6.***

4.1.1 "With-and-Without" Versus "Before-and-After"

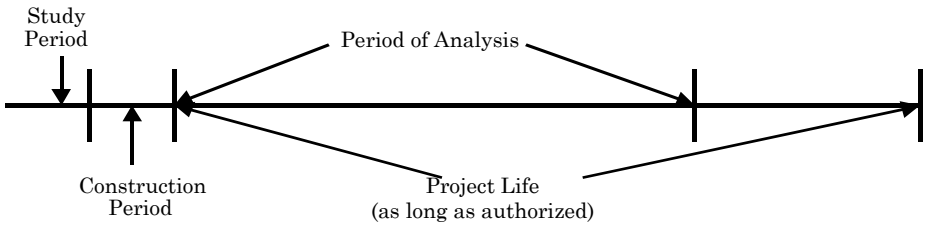
Many people typically think about the effects of alternative plans in terms of "before and after"; that is, they compare the condition that exists now, before it is changed by a plan, to the condition they expect to exist in the future after it has been changed by a plan. For example, if a proposed levee were to cover four acres of an existing 10-acre wildlife habitat, then, using a before-and-after comparison, the levee could be said to result in a loss of four acres of that habitat. Whereas the "with and without" condition uses the "future without project" condition as a baseline to compare the various project alternatives.

During the "with and without project" process a need exists to maintain both a system-wide perspective as well as a sub-regional perspective. The benefit and impact analyses conducted for this study was accomplished at both the local and system-wide scale. For example, the proposed 4-acre levee could have adverse impacts to the wetlands within the footprint of the project while the storage function of the 4 acre levee reservoir (in combination with other features) could have significant ecological benefits by restoring the downstream estuary. The impacted wetlands would be considered a "local" effect, while the ecological benefits to the downstream estuary would be considered "system-wide" effect. Regional models are used to assess impacts to the overall system, while sub-regional models were used to assess impacts to the project area.

4.1.2 Planning Horizon

The planning horizon encompasses the study period, the construction period, the economic analysis period, and the effective life of the project. The time period for forecasting future without-plan and with-plan conditions, and considering the impacts of alternative plans is called the period of economic analysis or the period of analysis. It is the period of time over which we think it is important to extend our analysis of plan impacts. This time period is frequently confused with the planning horizon, which is a longer and more encompassing concept. ***Figure 4-1*** shows that the period of analysis is part of the planning horizon.

FIGURE 4 - 1: PLANNING HORIZON



The period of analysis for water resources projects is usually 50 years and never over 100 years. Forecasting conditions and impacts beyond 100 years is pure

guessing, even if some structural projects may last more than 100 years. One of the most common measures of impacts has to do with the time value of money. Future dollar values, whether benefits or costs, are worth less than current dollar values. Discounting is the process used to place dollar values incurred at different times on an equivalent time basis. After 50 years, the discount factor alone reduces monetary values to a mere fraction of their former value. Unless the future dollar values being discounted are large, there is no apparent point to continue to include these values among project impacts. Therefore, the period of economic analysis for the purposes of this study will be 50 years.

4.2 AUTHORIZED FEATURES NOT INCLUDED IN THE FUTURE WITHOUT-PROJECT CONDITION

Traditionally, the Corps includes authorized projects in the without plan condition. However, the future without project condition for Comprehensive Everglades Restoration Plan (CERP) projects is unique in that the with- and without project conditions are defined with and without the CERP project. The CERP project condition is defined by all CERP projects that are authorized, unauthorized and under refinement. The following paragraphs include a description of authorized projects that are not included in the future without plan condition for the Indian River Lagoon – South (IRLS) Feasibility Study. This study is unique in that its purpose is to investigate, with greater detail, all the components within the study area. This includes features that were initially authorized by Congress in the Water Resources Development Act of 2000 (WRDA 2000). This allowed the study team to reformulate and compare all components of the plan with a common future condition.

4.2.1 Comprehensive Everglades Restoration Plan

With the passage of the WRDA 2000, Congress conditionally authorized the C-44 Basin Storage Reservoir component of the IRLS as an "Initial Project". This conditional authorization, as are all CERP project authorizations, is contingent with the completion of this Project Implementation Report (PIR). A PIR is a new requirement specific to CERP projects.

4.2.2 C-131 Authorized Plan

The Flood Control Act of August 13, 1968 authorized a modification to the Central and Southern Florida (C&SF) Project to add a flood control and irrigation system for Martin and St. Lucie Counties. The same legislative action also authorized a backflow system to return surplus runoff from these same project works into Lake Okeechobee. A General Design Memorandum, Part III, Supplement 11 was completed in 1984. While it offered improvements for the

quality of water entering the Lake and presented a strategy for handling a volumetric balance of inflows and outflows to and from the Lake, it did not satisfy the needs of local interests for protection of the environmental values of Lake Okeechobee. Further, water quality and stage management concerns for Lake Okeechobee have only become more intense since the 1984 Study. New water quality standards for the Lake make the addition of water from new sources challenging. Likewise, the U. S, Army Corps of Engineers (Corps) and The South Florida Water Management District (SFWMD) are intent on managing Lake Okeechobee at lower stages making the addition of large quatities of water from new sources very difficult. To achieve benefits for the St Lucie River (SLR) and the IRL equal to the Recommended Plan of the current IRLS, a C-131-like plan would need to divert approximately 150,000 acre-feet of additional water per year to Lake Okeechobee. This diversion is clearly not compatible with the environmental needs of the Lake and does not represent a viable option for responsible water management in this region. Therefore, this feature is not included in the future without-project condition.

4.3 FORECASTED HYDROLOGIC CONDITIONS

The future without plan was developed from existing hydrology with modifications for anticipated changes in the watershed. The changes to the hydrology are driven by climatic conditions, land use changes, water supply changes, water quality changes, and changes caused by other water resources projects in the watershed. For example, the Ten Mile Creek Project, urban and agricultural best management practices and the restoration of native lands already purchased by local governments will impact future conditions and therefore are included in the future without plan.

In addition, Lake Okeechobee fresh water releases are an operational condition that directly affects the quantity of water in the St Lucie Estuary (SLE). These discharges, while not a part of this CERP project, will directly affect the estuarine environment and must be considered in the future without plan. The discussion of regulatory discharges is discussed in the plan formulation and evaluation section in this report. Other operational issues related to the diversion of water to Lake Okeechobee via the C-44 canal are also covered in the plan and evaluation section of this report and will continue whether or not this project is constructed.

The future without plan hydrology is derived from a set of basin-scale hydrologic models. There are basin-scale models for each of the major drainage basins in the watershed: C-25 Basin, Basin 1 (Fort Pierce Farms), Ten Mile Creek Basin, the uncontrolled North Fork SLR Basin, C-24 Basin, C-23 Basin, C-44 Basin, S-153 Basin, Basin 4-5-6, and the South Fork SLR Basin.

Each model produces thirty-one years of daily runoff and agricultural demands. 1965-1995 daily rainfall (eleven stations) and potential evapo-transpiration data from the study area drive the thirty-one years of simulated runoff and demands. This covers a wide variety of climate conditions and is compatible with other regional modeling efforts including the South Florida Water Management Model (SFWMM) which was used to evaluate the CERP.

Forecasting the future hydrology began with the existing (1995) hydrology, which was calibrated against measured stream and stage data. The 1995 hydrology is modeled using the HSPF (Hydrologic Systems Program Fortran, Version 12) watershed hydrology model. This model is landuse based and uses simplified values from the Florida Land Use, Cover and Forms Classification System coverage (FLUCCS) There are five modeled landuses: non-irrigated pasture, irrigated citrus, wetlands, forest, and urban areas and all FLUCCS codes were transformed into one of these five landuses. Changing the acreage of each modeled landuse created the forecasted hydrology. The assumed 2050 landuse is described in ***Section 4.3.2***.

4.3.1 Climate

The hydrologic data used for modeling in this study are based on a 31-year period of record. For the modeling effort, the climatic record from 1965 to 1995, was used for both the existing (1995) condition, and the future (2050) without plan condition. This climatic record is considered appropriate in that it includes wet, dry and average years which are and have been typical of conditions in the Upper East Coast region. The wet years are considered to be 1969-1970, 1982-1983 and 1994-1995, the dry or drought years are 1971, 1975, 1981, 1985 and 1989 and a typical, average year is 1984. Rainfall and potential evapo-transpiration are the key climatic inputs. This same record was used in the evaluation of plan alternatives. For the purpose of this study, it is assumed that the 31-year period of record used for the hydrologic modeling is representative of conditions that are expected to occur in the study area in the future. Recent wet years (1994, 1995) coupled with recent drought years (1999-2000) demonstrates the volatility in the annual average rainfall for the Upper East Coast area.

4.3.2 Land Use

For the Upper East Coast region, 2050 land use projections were based on local government Comprehensive Plans. The Florida Legislature adopted the Local Government Comprehensive Planning Act in 1975 requiring each local governmental jurisdiction to prepare and adopt a local Comprehensive Plan. The Future Land Use Element is a major component of the local plan designed to guide the future disposition of land use. Urban land use coverage in the future without plan condition was developed from the 2020 and 2025 Comprehensive Plans and

modified to include estimated decreases in certain agriculture practices, increases in residential areas, and other changes, such as identifying areas approved for development.

Land use in the Upper East Coast, Martin and St. Lucie Counties, has been predominately agricultural and is expected to remain so in the future. However, the percentage of agricultural land use in Martin and St. Lucie Counties is anticipated to decrease while urban land uses increase because of anticipated population growth. Urban growth will cause conversion of some of the geographically desirable agricultural areas as well as expansion into vacant or natural areas.

Citrus is by far the dominant irrigated crop in this area and it occupies over four-fifths of the irrigated agricultural acreage in the region (***Figure 4-2***). Irrigated citrus in this area is projected to remain constant through the planning horizon. It is projected that the eastern-most citrus areas will be replaced by residential and urban land uses. In turn, this may cause the citrus industry to displace pasture in western portions of the two counties.

FIGURE 4 – 2: CITRUS

Land use was forecasted for every basin in the study area and is based on changes in 1995 land use. A basin-by-basin display of 1995 modeled landuses is shown in ***Table 4-1***. A basin-by-basin display of 2050 modeled landuses is shown in ***Table 4-2***. The 2050 land use estimates assume no-growth in irrigated agriculture and substantial urban growth. Accommodations in range, forest and pasture land result from the urban growth. Urban growth estimates were obtained from Martin and St. Lucie Counties and the Regional Planning Council. Growth generally follows the I-95 corridor with much of the projected growth in the North Fork SLR Basin. Projections assume no growth in agriculture (and also no growth in agricultural demands). This estimate is consistent with the SFWMD Upper East Coast Water Supply Plan as well as estimates from the agricultural community. In some basins, urban growth displaces agriculture resulting in minor shifts in agriculture between basins. More importantly, urban growth replaces pasture and forests but not wetlands. The zero net loss of wetland area is an estimate based on two trends: an offset of lost wetlands by urban development through regulatory mitigation and an increase in stormwater detention storage in both urban and agricultural lands. Keeping wetland acreage the same results in slightly lower peak runoff and higher evapotranspiration caused by increases in the Best Management Practices (BMP's) on urban and agricultural lands. The 2050 base landuse table, ***Table 4-2***, takes into account natural area lands that are purchased during the IRLS Feasibility Study phase such as the Atlantic Ridge purchase. However, the restoration of these lands is considered in the plan evaluation alternates discussed in Section 6 of this report.

TABLE 4 - 1: 1995 BASIN LAND USE (ACRES)

	Forest	Irrigated Agriculture	Pasture	Urban	Wetland	Total
C-25	6,421	64,410	25,154	2,638	18,683	117,306
Basin 1	3,394	14,217	4,973	5,654	1,681	29,919
Ten Mile Creek	3,962	21,245	1,586	1,694	821	29,308
North Fork (non-capturable)	11,499	3,946	3,630	47,341	9,889	76,305
C-24	10,548	20,253	40,494	3,284	14,956	89,535
C-23	12,233	34,479	42,300	4,453	18,940	112,405
S-153	3,771	1,690	5,269	672	1,710	13,112
C-44	15,176	47,258	23,944	5,917	24,291	116,586
Basins 4, 5, 6	3,550	359	2,029	7,485	1,321	14,744
South Fork (capturable)	326	1,107	7,185	247	2,702	11,567
South Fork (non-capturable)	10,524	4,935	5,174	11,561	5,082	37,276
Total	81,404	213,899	161,738	90,946	100,076	648,063

TABLE 4 - 2: 2050 BASE LANDUSE (ACRES)

	Forest	Irrigated Agriculture	Pasture	Urban	Wetland[1]	Total
C-25	5,521	65,010	21,674	6,418	18,683	117,306
Basin 1	3,154	14,697	4,025	6,362	1,681	29,919
Ten Mile Creek	3,242	16,745	956	7,544	821	29,308
North Fork (Non-capturable)	3,242	746	359	62,069	9,889	76,305
C-24	9,108	22,128	34,875	8,468	14,956	89,535
C-23	12,233	36,159	40,170	4,903	18,940	112,405
S-153	3,771	1,690	5,269	672	1,710	13,112
C-44	13,496	50,058	19,974	8,767	24,291	116,586
Basins 4, 5, 6	2,913	689	844	8,977	1,321	14,744
South Fork (capturable)	326	1,807	6,485	247	2,702	11,567
South Fork (Non-capturable)	7,997	4,170	5,174	14,853	5,082	37,276
Total	65,003	213,899	139,805	129,280	100,076	648,063

1 Wetland area is constant over time based on regulatory practices in this region.

4.3.3 Urban and Agricultural Water Supply Demands

The Upper East Coast Region municipal and industrial water demand forecast by sector is shown in ***Table 4-3***. Figures are based on University of Florida Bureau of Economic and Business Research population and employment projections. A range of projected water supply usage is provided to reflect water usage based on implementation of the SFWMD mandatory regulations and programs. The data are shown for both restricted and unrestricted water usage for the Upper East Coast region for 1990 and 2050. Overall, municipal and industrial water supply demands are projected to increase up to as much as 125.8 million gallons per day by the year 2050 from 53.6 million gallons per day in 1990. This is a 135 percent increase over the 60-year period. In the Upper East Coast Region groundwater is the predominant source of water for municipal and industrial uses. This trend is expected to continue in the future.

Agriculture is the primary land use of the Upper East Coast region, accounting for 85 percent of the overall water demand. Currently, citrus crops occupy four-fifths of the irrigated agricultural acreage in the region (Gulf South Research Corp. & G.E.C. Inc, 1998). St Lucie Canal (C-44) Basin demands are estimated to be approximately 28,000 acre-feet on an average annual basis; these demands are not expected to increase in the future (Gilpin-Hudson et al., 1998a). The same trend is expected for the remainder of the Upper East Coast Region with irrigation demands remaining stable in the future (Gilpin-Hudson et al., 1998b). The primary source of water for agriculture in the Upper East Coast Region is

surface water however; in most areas the Floridan Aquifer System is an important source of water (SFWMD, 1998c).

TABLE 4 - 3: ESTIMATED 2050 UPPER EAST COAST MUNICIPAL AND INDUSTRIAL DEMANDS (MILLION OF GALLONS PER DAY)

End Use	1990 Unrestricted to Restricted Demand	2050 Range of Unrestricted to Restricted Demand
Residential	35.2	83.6 –70.1
Commercial & Industrial	13.4	33.5 – 31
Public & Other	5.0	8.7 - 7.9
Total	53.6	125.8 – 108.9

Note: Since most water conservation measures in the UEC region were enacted in the early 1990's, the study assumed that water use in 1990 was unaffected by the measures and will be the same for the unrestricted demands. It should also be noted that the table did not include golf courses which demanded 14.0 mgd in 1990 and 65 mgd in 2050 for the unrestricted and restricted scenarios

4.3.3.1 Agricultural Water Use

Surficial waters (canals, shallow groundwater, and ponds) provide the majority of the irrigation demands in the watershed. Excepting the C-25 basin, which has many irrigation reservoirs, the surficial aquifer provides about 70% of the irrigation water. The remaining 30% must be imported from either the Floridan aquifer or Lake Okeechobee. Unfortunately surficial supplies are inadequate at some time nearly every year, resulting in a level of service of 1 years in 10 years for most of the basins and 3 in 10 for the water rich C-25 basin. Details are shown in ***Table 4-4***. These imported waters are a problem because of the high salinity in the Floridan waters and the increasingly problematic supplies of Lake Okeechobee. Table 4-4 lists the irrigation demands for each reservoir contemplated in the IRLS plan. This table shows the remote demand (that portion of the demand that can be supplied by a reservoir), the current source of irrigation and the 2050 level of service provided by surficial waters alone.

TABLE 4 - 4: FORECASTED 2050 IRRIGATION DEMANDS

Basin	Remote Demand (ac-ft/yr)	Total Demand* (ac-ft/yr)	Secondary Irrigation Source **	L.O.S. *** Without Remote Supply
C25/ Basin1	11,500	27,000	Floridan	3 – in – 10
North Fork	10,000	34,000	Floridan	1 – in – 10
C23/C24	19,000	64,000	Floridan	1 – in – 10
C44/S153	21,000	59,000	Lake Okeechobee	1 – in – 10
Total	59,000	184,000		

*Total Demand includes surficial demands plus remote demands
**Primary Irrigation Source is surficial water, (stream water, shallow groundwater and farm ponds)
***The LOS, Level Of Service (years in a typical ten year period) when irrigation demands can be completely met using surficial supplies only.

4.3.3.2 Urban Water Use

Urban water supply is ignored in this study because urban areas are expected to rely exclusively on the Floridan aquifer by 2050. The Floridan is hydrologically disconnected from the surficial aquifer, is recharged by waters from outside the watershed, and has, therefore, no demand on basin runoff.

4.3.3.3 Lack of freshwater in the estuary during low flow periods

Throughout Florida agricultural and urban water demands compete with environmental needs. This competition can be damaging to the environment during low flow periods. This competition issue is addressed in detail elsewhere in the report (see establishment of an environmental reservation) and in the Minimum Flows and Levels Study for the SLE. Briefly, these reports show no significant competition in the SLE because the natural system had very low flows entering the SLR during dry periods. This (unexpected) characteristic of the basin results from a poor drainage network in the pre-developed watershed combined with relatively low soil conductivity that minimizes groundwater seepage into the estuary.

4.3.4 Water Quality

Several ongoing watershed programs in the Upper East Coast and IRL area are expected to be completed which would beneficially affect water quality conditions in the SLR and SLE and the IRL. The SFWMD IRL Surface Water Improvement and Management (SWIM) Plan has developed numerous programs and objectives to improve water quality conditions in the area. Many of the water quality remediation activities being implemented by the IRL SWIM focus on reducing agricultural and urban pollutant loads in the IRL watershed and urban/suburban pollutant loads in the rapidly developing coastal region surrounding the SLE and IRL. Implementation of more environmentally sensitive Lake Okeechobee regulation schedules should also reduce pollutant loading to the SLE and IRL systems. The IRL National Estuary Program (NEP), jointly administered by the U.S. Environmental Protection Agency (EPA) and the State of Florida Department of Environmental Protection (FDEP) will also result in water quality improvement activities and a reduction of pollutant loads to the IRL in the future.

The SFWMD is participating in a voluntary Best Management Practices (BMP) program for the Upper East Coast region that is being managed by Florida Department of Food and Agricultural Services. It is focused on agricultural activities. The SFWMD will expand a second BMP program into the urban areas within the next year. The concept behind BMP's is to identify and establish effective measures to prevent polluted stormwater from entering the receiving waterbodies.

The program includes education for growers and applicators as well as implementation of BMP techniques that have been proven effective in the Everglades Agricultural Area. For the purpose of this study, the study team developed conservative estimates for future BMPs based on input from USDA and other local governments responsible for monitoring the program.

In addition to the above programs, many local governments in the Upper East Coast region, including Martin and St. Lucie counties, have implemented and funded stormwater master programs. Cities including Sewall's Point, Stuart, Ft. Pierce, Port St. Lucie have similar programs, as well. Each program has an identified funding source (either a millage rate, or utility fee), and similar goals in that they strive to ultimately improve urban drainage problems, while at the same time clean surface water runoff entering the SLE and IRL. Often, these local programs match funds with the IRL SWIM and IRL NEP programs to maximize project effectiveness.

The identified pollutants in the watershed are phosphorus and nitrogen. The estimates of 2050 phosphorus loads are very close to today's estimates. This is because the increase in load caused by growth in urban lands is offset by decreases in loads from urban and agricultural lands that are expected to occur as a result of BMP's implementation. Phosphorus (P) targets for the estuary are about half of current or future without plan loads. ***Table 4–5*** shows the average annual nutrient loads under "future without plan" and with "current" conditions.

TABLE 4 - 5: FORCASTED AVERAGE ANNUAL NUTRIENT LOADS

	Total Phosphorus (kg / year)	Total Nitrogen (kg / year)
Current loads *	282,500	1,725,000
Future without plan**	296,000	1,804,500
Removal by BMP	26,500	134,500
Removal by Ten Mile Creek	7,000	18,500
Load leaving Watershed	263,000	1,649,000
To IRL	42,000	304,500
To SLE	192,500	1,166,000
To LOK	28,000	178,500

*Current Loading based on 1995 values.
** 2050 Loading

In summary, as a result of these ongoing watershed management programs, water quality in the Upper East Coast is expected to improve slightly in the future. The above programs are effective on a small scale, but do not begin to mitigate the effects of C&SF project canal discharges to the water bodies in the Upper East Coast. Without implementation of this study, improvements in water quality in the region will be negligible.

Looking at CERP without- project condition, no CERP features in-place, in 2050 we see an increase in the nutrient loading from regulatory releases from Lake Okeechobee. However if the other CERP project components especially those connected to the Lake Okeechobee Watershed are implemented, the frequency of those regulatory releases and the nutrient loading both will be reduced.

4.3.5 Physical Facilities and Operations

This section discusses the physical facilities operational changes that are planned for the study area and are assumed to be in place for the future without plan condition.

4.3.5.1 C&SF Project Modifications

The C&SF Project was authorized by the Flood Control Act of 1948 and modified by subsequent acts, as a plan of improvement for flood control, drainage, and other purposes covering a 18,000 square mile area of both central and southern Florida. Within the IRLS Study area, C&SF canals include Canal 44, 23, 24 and 25. A number of efforts are currently underway by the Corps to modify the project for environmental improvement. The following is an inventory of C&SF Project modifications either in the planning, design, or construction phase that are included in the future without plan condition.

4.3.5.1.1 Manatee Protection

The West Indian manatee (*Trichechus manatus*) is listed as a Federally endangered species and is one of the most endangered species in Florida. As a response to recent manatee mortality trends associated with water control structures, this project will provide operational changes and implement the installation of a manatee protection system at seven sector gates at navigational locks near Lake Okeechobee. The beneficial outcome of this project will be the reduction of risk, injury, and mortality of the manatee. The seven sector gates include S-193 at Okeechobee and S-310 at Clewiston on Lake Okeechobee; St. Lucie Lock and Port Mayaca Lock on the St. Lucie Canal; and Moore Haven Lock, Ortona Lock, and W. P. Franklin Lock on the Caloosahatchee River. The future without plan condition assumes that the automatic gate sensor devices are installed on these lock sector gates.

4.3.5.1.2 Critical Projects

The WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects that are deemed critical to the restoration of the south Florida ecosystem. These projects are referred to as “Critical Projects.” Of the

projects approved to date under this authority, the Ten Mile Creek Water Preserve Area is the only project located in the Upper East Coast Region. This 550-acre reservoir and 130-acre stormwater treatment area facility will attenuate water by pumping surface water from Ten Mile Creek (the headwaters of the North Fork of the SLR) into the reservoir. That water then will be gravity fed through the stormwater treatment area back into the Creek. The project time frame includes construction commencing in September of 2002, with completion by April of 2004.

4.3.6 Save Our Rivers Program, Preservation 2000 and Conservation and Recreation Lands

In 1981, the State of Florida enacted the Resource Rivers Act, also known as the Save Our Rivers Program (SOR), Florida Statutes Section 373.59. The Act created the Water Management Lands Trust Fund (WMLTF). The program uses bond proceeds, supported by the general revenue portion of the State's Documentary Stamp Tax, to acquire lands for the purposes of water management, water supply, and the conservation and protection of the State's water resources. Manageability, surface and ground water systems, and the formation of corridors for the critical interaction of wildlife populations are major considerations in the land acquisition process. Prime requisites in managing these public lands are to ensure that the water resources, fish and wildlife populations, and native plant communities are maintained in an environmentally acceptable manner, and made available for appropriate outdoor recreational activities consistent with their environmental sensitivity. The Preservation 2000 Act (Florida Statutes 375.045) enacted by the State of Florida in 1990 also added land acquisition funds to the SOR Program. The SFWMD is allocated 30 percent of the yearly moneys in the WMLTF. To date the District has acquired more than 330,000 acres with the SOR Program funding.

Florida Statutes Section 259.032 entitled Conservation and Recreation Lands Trust Fund, (CARL) established within the FDEP a non-lapsing, revolving fund to fund the Land Acquisition Trust Fund for the SOR Program and to purchase other lands for state-designated parks, recreation areas, preserves, reserves, historic or archaeological sites, geologic or botanical sites, recreational trails, forests, wilderness areas, wildlife management areas, urban open space, or other state-designated recreation or conservation lands.

The SFWMD P-2000 needs and priority study identified an additional 491,000 acres of priority projects; however, available funding from P-2000, plus funds from other federal, state and local programs will allow for the purchase of 316,000 acres. The SFWMD has identified 50 other projects.

One of the projects directly related to the IRL Study is the purchase of the Allapattah Ranch SOR/CARL land. This 42,348 acre parcel is located in northern

Martin County, south and adjacent to C-23. Other SOR/CARL lands include approximately 20,800-acres in the Atlantic Ridge, North Fork Buffer and Cypress Creek/Trail Ridge. Many of these parcels have been or will be purchased with the aid of local government funds. In the Upper East Coast, St. Lucie County has for purchasing environmentally sensitive land such as those mentioned above. In Martin County, a $20 million voter approved bond referendum in 1989 has given way to a one cent sales tax increase for three years (1999 – 2002) that has generated $49.4 million. This money will be split evenly between preservation lands and lands needed to support the goals of the IRL Study.

4.4 FORECASTED SOCIO-ECONOMIC AND ENVIRONMENTAL CONDITIONS

The study area of Martin and St. Lucie counties is characterized by greater population growth than the rest of the State and the Nation. The important features of the economic landscape are agricultural activity, construction, fishing, tourism, and recreation. This picture is expected to continue to be the case through 2050.

The study area had a 2000 census population of 319,426 persons. The population of these two counties increased 27.2 percent from 1990 to 2000. The population of Florida and the United States increased 23.5 percent and 13.1 percent respectively during the same period.

Population in the region is expected to more than double from 1990 to 2050. Despite this anticipated population growth, the region is not expected to have the large population like its neighboring counties to the south. The population of St. Lucie and Martin counties in 2050 is estimated be 529,000.

Florida's economy is characterized by strong wholesale and retail trade, government and service sectors. Florida's warm weather and extensive coastline attracts vacationers and other visitors and helps make the state a significant retirement destination for people from all over the country. Agricultural production and fisheries are also important sectors of the state's economy, and are especially significant to portions of the study area. While compared to the national economy, the manufacturing sector has played less of a role in Florida, but high technology manufacturing has begun to emerge in the State over the last decade.

4.4.1 Recreation

The Upper East Coast's climate and unique ecosystems offer a wide variety of recreational opportunities. Due to the region's high population growth rate, more recreational facilities and opportunities will be needed in the future. Without the

IRLS Study, hunting, fishing, boating and wildlife viewing will continue; however, the quality of these recreational activities can be expected to decline concurrent with ecosystem decline. Given the likelihood of an increased demand in these activities occurring in direct proportion to the growth in population in the Upper East Coast area, the impacts of the potential loss of recreational opportunities due to ecosystem decline is predictable.

4.4.2 Environment

The eastern portions of St. Lucie and Martin counties are largely urban and suburban. It is likely, even with county growth restrictions, that the population of the coastal areas, including along the North and South Forks SLR, will continue to increase and gradually spread west. In doing so, agricultural areas near I-95 and the Florida Turnpike are likely to become more residential and the magnitude of short-term, high-volume runoff (or "spikes in the hydrograph") will increase. As more residential areas are built to the west, agricultural areas will be reduced.

Natural areas, such as pine flatwoods, cypress, and bayheads could also be cleared to make room for more citrus, row crops, sod farms, rangeland, or residential developments. The number and sizes of ditches and canals will likely increase causing additional losses in wetland habitat and associated species.

Although new agricultural areas would most likely be more sensitively planned to reduce impacts on wetlands relative to older agricultural conversions, and although compensatory mitigation for urban impacts would likely be more effective in the future than in the past, the U.S. Fish & Wildlife Service (USFWS) has stated that some loss of wetlands (and native upland habitats) will be unavoidable. Although the USFWS anticipates some loss of wetlands by 2050, the exact extent of that loss is difficult to predict and has not been quantified as it is dependent on a number of factors. For modeling purposes, this study assumed that there would be no net loss of wetland acreage within the study boundary. Because the area of irrigated agriculture is assumed to remain unchanged by 2050, and because substantial areas of active or recently abandoned citrus will be converted to urban development, the SFWMD modelers' predicted total acreage of rangeland (improved and unimproved pasture) would be expected to decrease from 161,500 ac in 1995 to 140,000 ac in 2050, resulting in a study area-wide reduction in rangeland of slightly less than 14 percent.

Native upland and wetland habitats will also be converted to citrus groves. Forested uplands (primarily pine flatwoods, with some oak hammocks) will be significantly reduced by 2050 through urban development.

Without the project, wide annual variations in flows (except for the storage to be provided by the Ten Mile Creek Critical Restoration Project, Reservoir-Assisted

Stormwater Treatment (RaSTA)) would continue. During the wet season, large pulses of stormwater runoff would decrease salinities and reduce or eliminate seagrass and oyster populations and force many species of estuarine and marine organisms out of the SLE. Reproduction and recruitment of economically valuable species of fish, mollusks, and crustaceans would be severely reduced. During the dry season, salt water would move further into the oligohaline and freshwater zones of the North and South Forks, causing saltwater intrusion into drinking water supply wells, and a loss of freshwater habitat for the rare diadromous fish species.

Wetland habitat will be degraded, and water levels in the canals during the dry season would, on average, be lower. The increase in human population near the coast is likely to occur regardless of project implementation. Although new development projects would be subject to BMP's to better control runoff, this would merely lessen these impacts, not eliminate them. Increased water supply and flood control demands under the no action alternative would most likely exacerbate the current problems with the salinity regime in the SLE and IRL. Lacking the additional treatment of contaminated stormwater runoff (the reservoirs and STAs in the selected plan), the study team expects further losses of oysters, seagrass, and reduction in the overall diversity and abundance of estuarine and marine life that depend upon those habitats. As freshwater, estuarine, and associated marine ecosystems further deteriorate, the economic income from eco-tourism, commercial/recreational fishing, and real estate would be reduced. The $730,000,000 annual economic impact of the IRL (Day and Hart 1996) would be jeopardized.