

APPENDIX A

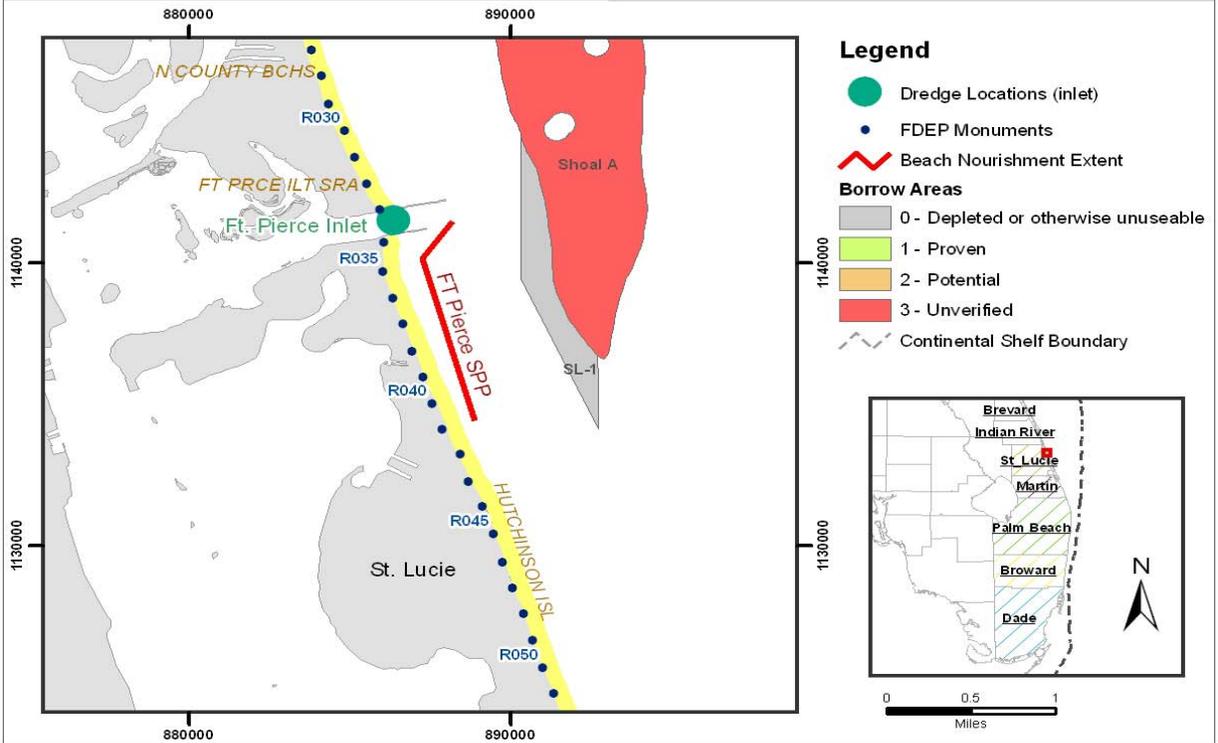
Beach Nourishment Project Information

St. Lucie County

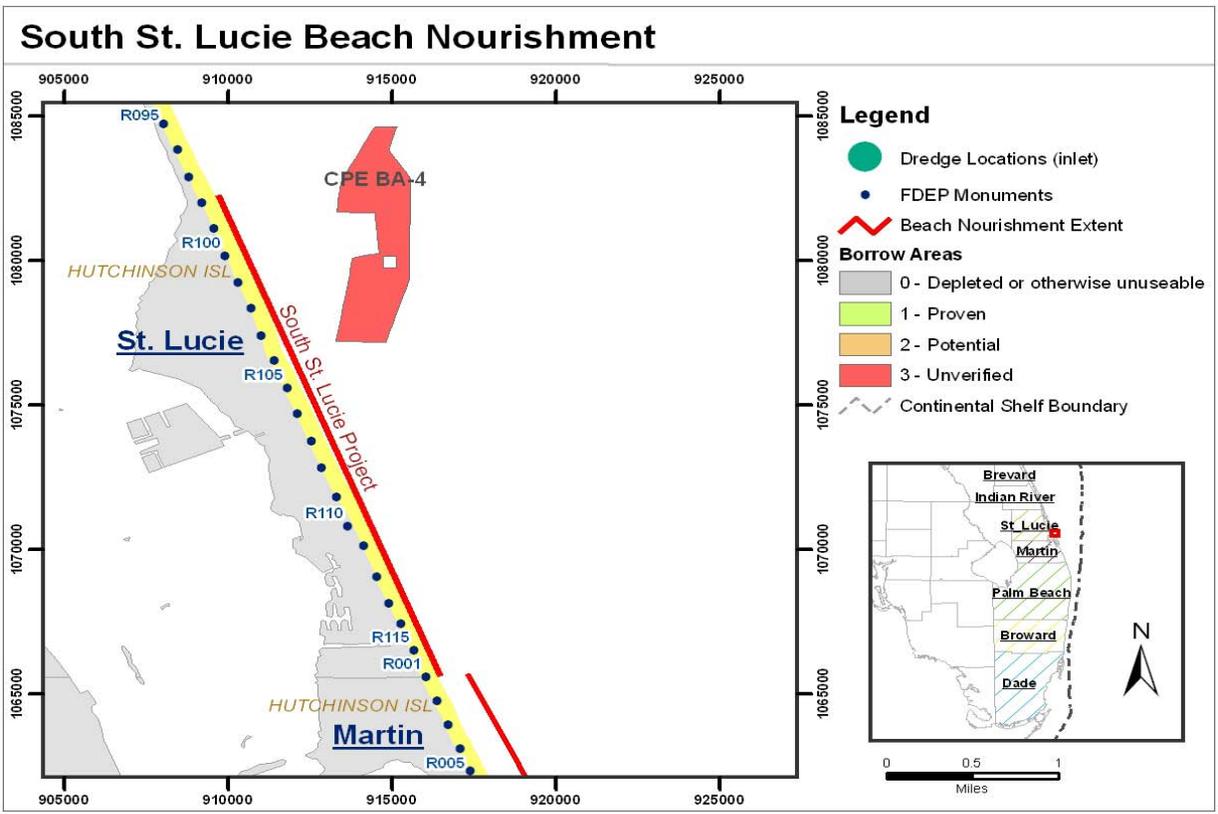
St. Lucie County Beach Nourishment Inventory

Project Name	Project Type	Year Started	Monument Range	Renour. Volume (cy)	Renour. Interval (yr)	Year of Last Renour.	Year of Next Renour.	No. Events before End of 2059	50-yr Volume Req. (cy)	Historic Sand Source	Narrative	Ref. ID
FT Pierce SPP	Federal	1971	R034 - R041	550,000	2	2007	2009	26	14,300,000	Capron Shoal	Project constructed in 1971 and renourished in 1980, 1999, 2003/04 (partial projects), 2005, 2007. Current authorized renourishment interval equals 2 years	Ref 44
South St. Lucie Project	Federal	-	R088.5 - R090.3, R098 - R121	780,000	4	-	2011	13	10,140,000	St Lucie Shoal (proposed)	Project in planning and design phase, anticipated nourishment in 2011; apply same erosion rate and renourishment interval as Martin County SPP project	Ref 44

Ft Pierce SPP Beach Nourishment



<u>Project Name:</u>	FT Pierce SPP
<u>Started in:</u>	1971
<u>Owner:</u>	Federal
<u>Volume Required:</u>	550,000 cy
<u>Nourishment Interval:</u>	2 yrs
<u>50 year Volume:</u>	14,300,000 cy
<u>History:</u>	600,000 cy in 2007
<u>Narrative:</u>	Project constructed in 1971 and renourished in 1980, 1999, 2003/04 (partial projects), 2005, 2007. Current authorized renourishment interval equals 2 years
<u>Historic Sandsource:</u>	Capron Shoal



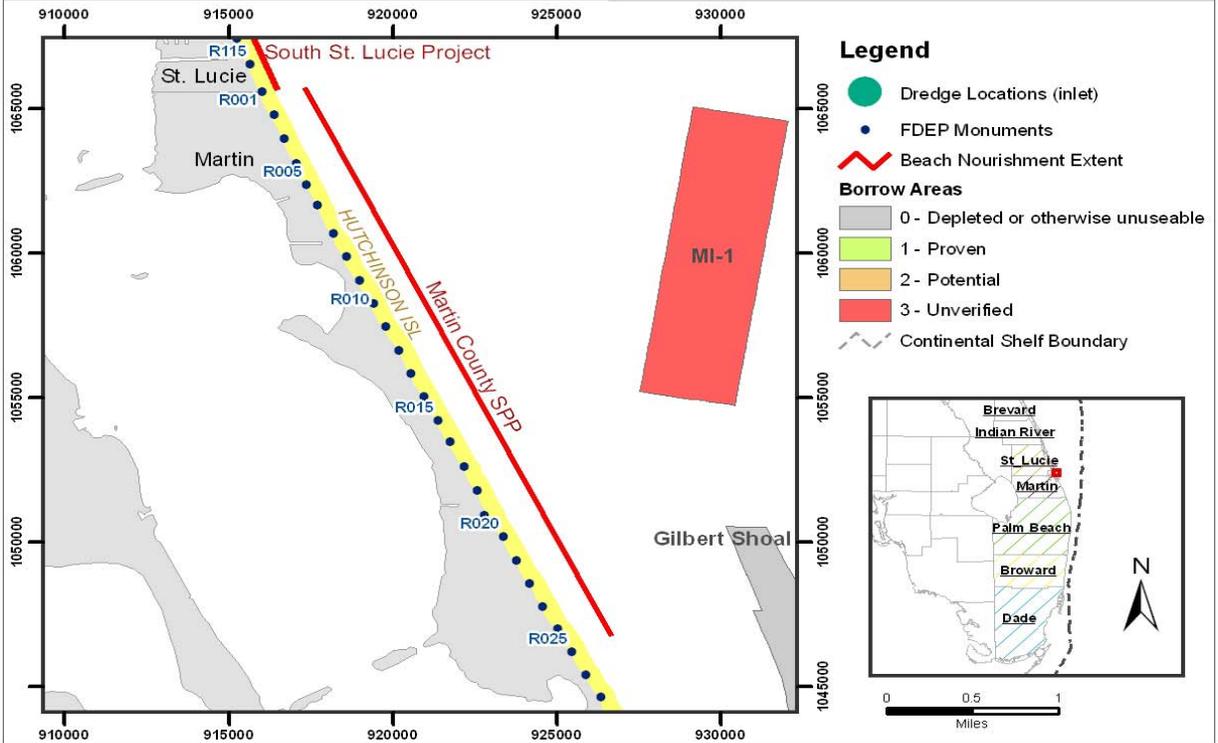
<u>Project Name:</u>	South St. Lucie Project
<u>Started in:</u>	0
<u>Owner:</u>	Federal
<u>Volume Required:</u>	780,000 cy
<u>Nourishment Interval:</u>	4 yrs
<u>50 year Volume:</u>	10,140,000 cy
<u>History:</u>	Scheduled for first nourishment in 2011
<u>Narrative:</u>	Project in planning and design phase, anticipated nourishment in 2011; apply same erosion rate and renourishment interval as Martin County SPP project
<u>Historic Sandsource:</u>	St Lucie Shoal proposed for initial project

Martin County

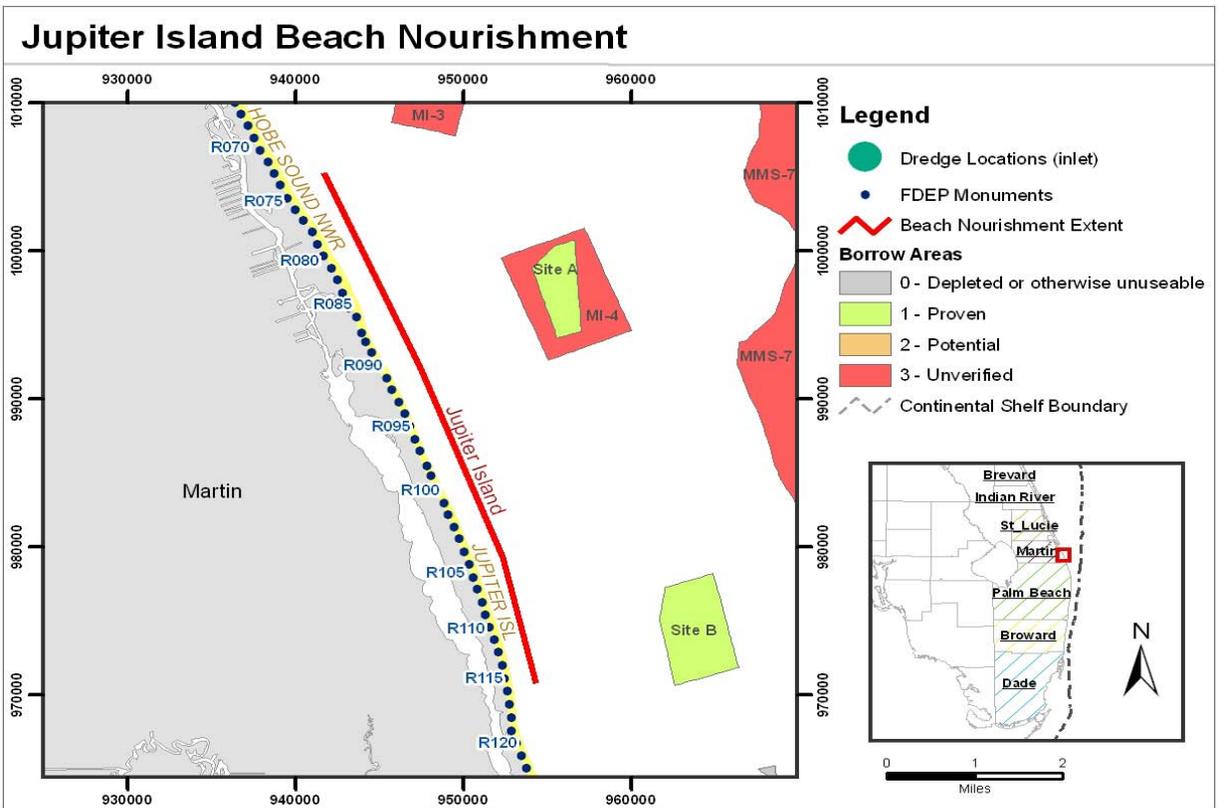
Martin County Beach Nourishment Inventory

Project Name	Project Type	Year Started	Monument Range	Renour. Volume (cy)	Renour. Interval (yr)	Year of Last Renour.	Year of Next Renour.	No. Events before End of 2059	50-yr Volume Req. (cy)	Historic Sand Source	Narrative	Ref. ID
Martin County SPP	Federal	1996	R001 - R025	800,000	4	2005	2011	13	10,400,000	Gilbert Shoal	Project constructed in 1995, 2001/02 (partial projects) and 2005. Gilbert Shoal applied as borrow source	Ref 44
Jupiter Island	Local	1997	R075 - R116	1,500,000	4	2007	2011	13	19,500,000	Site A and Site B	Jupiter Island project originally constructed in early 1970's with many small (targeted) renourishments. Major renourishments in 2002/03 and 2006/07, locally funded project	Ref 44

Martin County SPP Beach Nourishment



<u>Project Name:</u>	Martin County SPP
<u>Started in:</u>	1996
<u>Owner:</u>	Federal
<u>Volume Required:</u>	800,000 cy
<u>Nourishment Interval:</u>	4 yrs
<u>50 year Volume:</u>	10,400,000 cy
<u>History:</u>	1.34 myc in 1996; 304,000 cy in 2001/2002; 885,000 cy in 2005
<u>Narrative:</u>	Project constructed in 1995, 2001/02 (partial projects) and 2005. Gilbert Shoal applied as borrow source
<u>Historic Sandsource:</u>	Gilbert Shoal for past projects



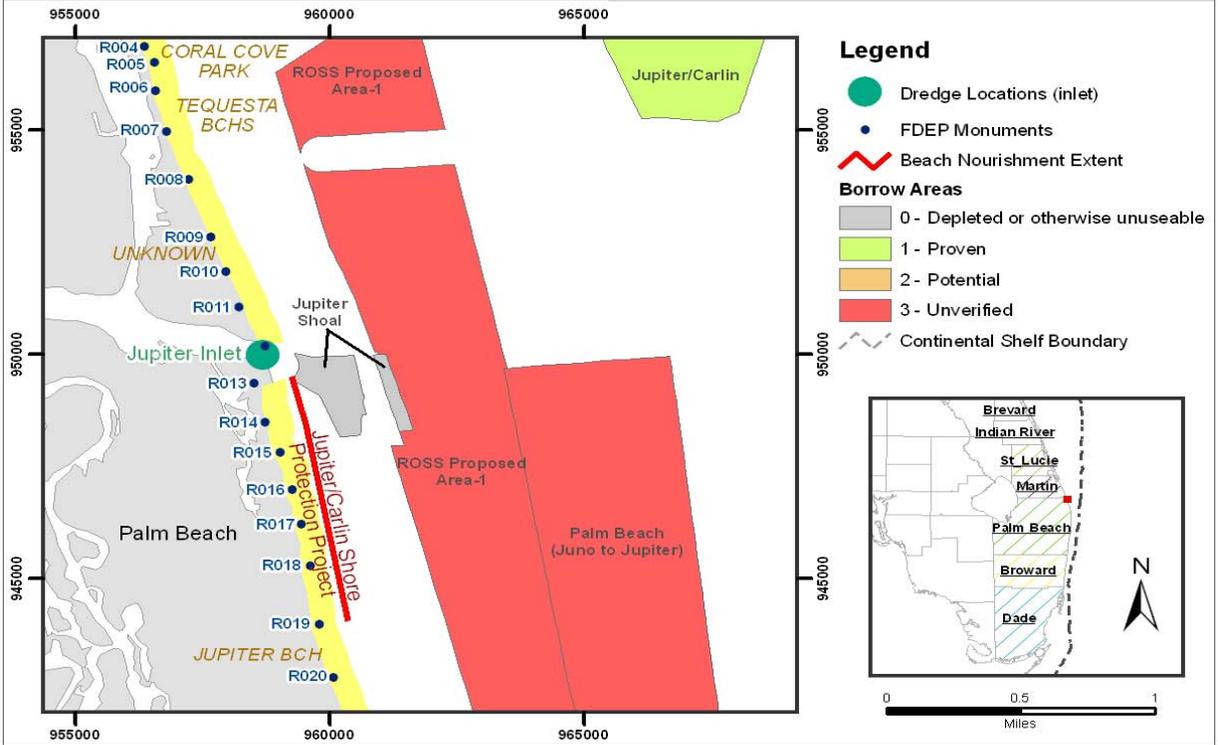
<u>Project Name:</u>	Jupiter Island
<u>Started in:</u>	1997
<u>Owner:</u>	Local
<u>Volume Required:</u>	1,500,000 cy
<u>Nourishment Interval:</u>	4 yrs
<u>50 year Volume:</u>	19,500,000 cy
<u>History:</u>	Last major renourishment in 2006/07
<u>Narrative:</u>	Jupiter Island project originally constructed in early 1970's with many small (targeted) renourishments. Major renourishments in 2002/03 and 2006/07, locally funded project
<u>Historic Sandsource:</u>	Site A and Site B applied for previous large projects

Palm Beach County

Palm Beach County Beach Nourishment Inventory

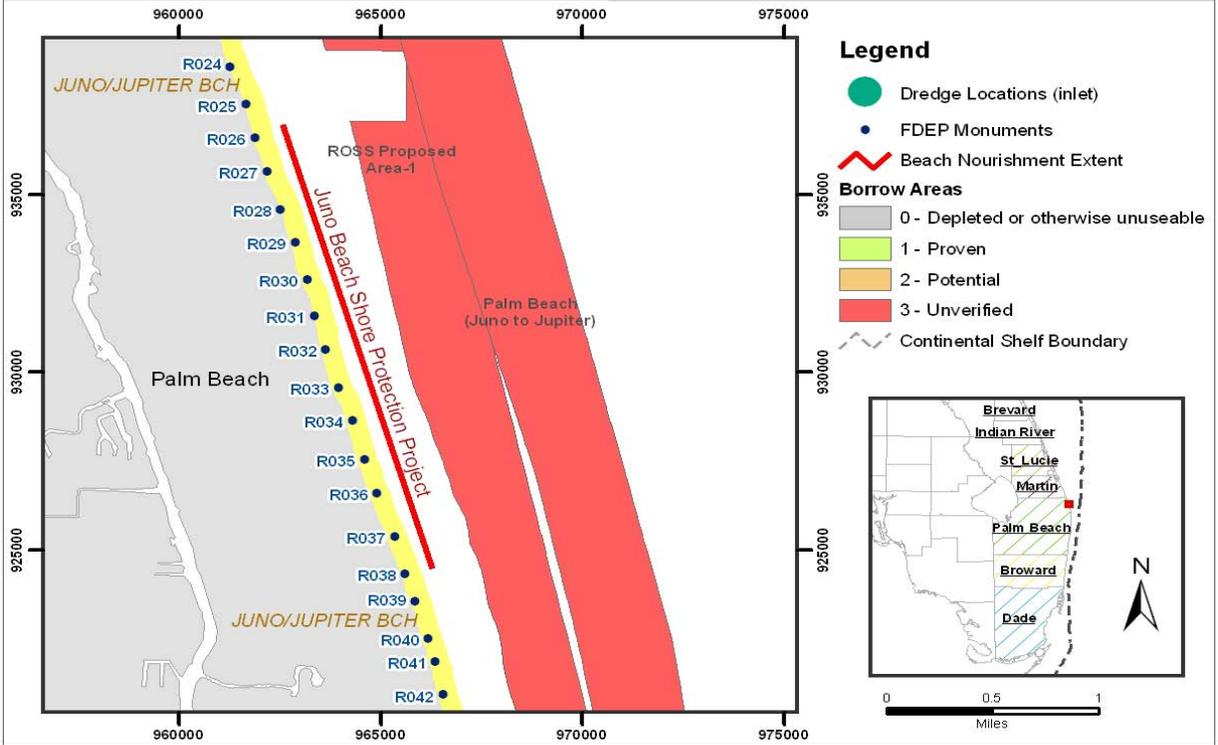
Project Name	Project Type	Year Started	Monument Range	Renour. Volume (cy)	Renour. Interval (yr)	Year of Last Renour.	Year of Next Renour.	No. Events before End of 2059	50-yr Volume Req. (cy)	Historic Sand Source	Narrative	Ref. ID
Jupiter/Carlin Shore Protection Project	Federal	1995	R013.5 - R019	625,000	7	2002	2010	26	17,836,000	2 miles NE of Jupiter Inlet	6-7 years renourishment interval, http://www.pbcgov.com/erm/enhancement/jupiter.asp	Ref 8
Juno Beach Shore Protection Project	Local	2000	R026 - R038	700,000	7	2008	2015	7	4,900,000	BA-1, BA-2	Initially nourished using imported oolitic aragonite sand. Beach is stable 3 yrs after construction, no significant erosion. Possible renourishment in next 5 years. Treat as 21 year renourishment interval..	Ref 8
Lake Worth Inlet (Reach 2)	-	-	R078 - R090	-	-	-	-	-	-	-	Project cancelled due to environmental issues (Feb 2008, pers. comm. with James Bowser, City of Palm Beach)	
Midtown Palm Beach Shore Protection Project	Local	1995	R090.4 - R101.4	1,000,000	7	2006	2013	7	7,000,000	South of Lake Worth Inlet	http://bcs.dep.state.fl.us/env-prmt/palm_bch/issued/0164713%20Mid-Town_Beach_Renourishment/Compliance/2002%20Compliance%20Tracing/01647tbl.doc , PBC shows no record of 2006 renourishment	Ref 5
South of Midtown Beach Reach 5	-	-	R100 - R110	-	-	-	-	-	-	-	Project cancelled due to environmental issues (Feb 2008, pers. comm. with James Bowser, City of Palm Beach)	Ref 5
Phipps Ocean Park Beach Reach 7	Local	2006	R119 - R126	1,100,000	6	2006	2012	8	8,800,000	Offshore Sources (unspecified)	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf PBC - no record shows of renourishment in 2006, planned renourishment is for 2009	Ref 5
Palm Beach - Reach 8	Local	2009	R126 - R134	500,000	5	-	2012	10	5,000,000	Offshore Sources (unspecified)	Awaiting permit (January 2008). PBC - shows record of renourishment in 2006 and 2007 and planned for 2009, no details about volumes placed.	Ref 4
Ocean Ridge Shore Protection Project	Federal	1998	R153 - R159	558,000	7	2005	2012	7	3,906,000	Offshore Sources (unspecified)	REF 21 - renourishment volume of 433,800 cy every 6 years	-
Delray Beach Shore Protection Project	Federal	1973	R175 - R188.5	412,000	10	2005	2012	5	5,700,000	BA-I, BA-II	http://www.mydelraybeach.com/Delray/Departments/Planning+and+Zoning/For+Visitors/Beach+Nourishment+Project.htm	Ref 25, Ref 5
North Boca Raton Shore Protection Project	Federal	1988	R205 - R212	680,000	8	2008	2016	6	4,080,000	Offshore Sources (unspecified)	Ref 26. PBC - shows renourishment in 2007 and next in 2015	Ref 8
Central Boca Raton Shore Protection Project	Federal	2004	R216 - R222	340,000	8	2006	2011	7	2,380,000	Offshore Sources (unspecified)	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf . PBC - shows renourish interval of 8 years	Ref 8
South Boca Raton Shore Protection Project	Local	1985	R223 - R228	300,000	6	2008	2014	8	2,400,000	Boca Raton Inlet Ebb Shoal	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf	Ref 8

Jupiter/Carlin Beach Nourishment

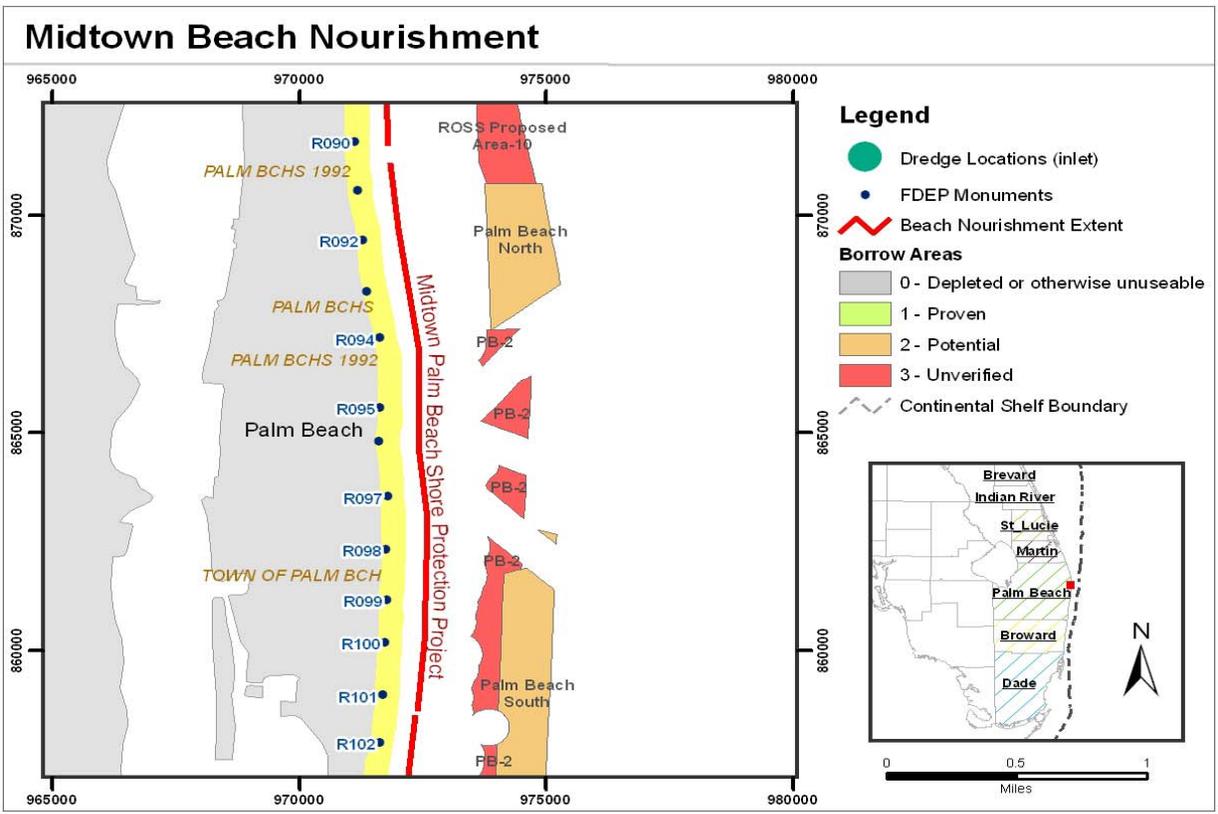


<u>Project Name:</u>	Jupiter/Carlin
<u>Started in:</u>	1995
<u>Owner:</u>	Federal
<u>Volume Required:</u>	625,000 cy
<u>Nourishment Interval:</u>	7 yrs
<u>50 year Volume:</u>	5,000,000 cy
<u>History:</u>	604,000 cy in April 1995; 625,000 cy in 2001/2002
<u>Narrative:</u>	6-7 years renourishment interval, http://www.pbcgov.com/erm/enhancement/jupiter.asp
<u>Historic Sandsource:</u>	About 2 miles NE of Jupiter Inlet

Juno Beach Nourishment

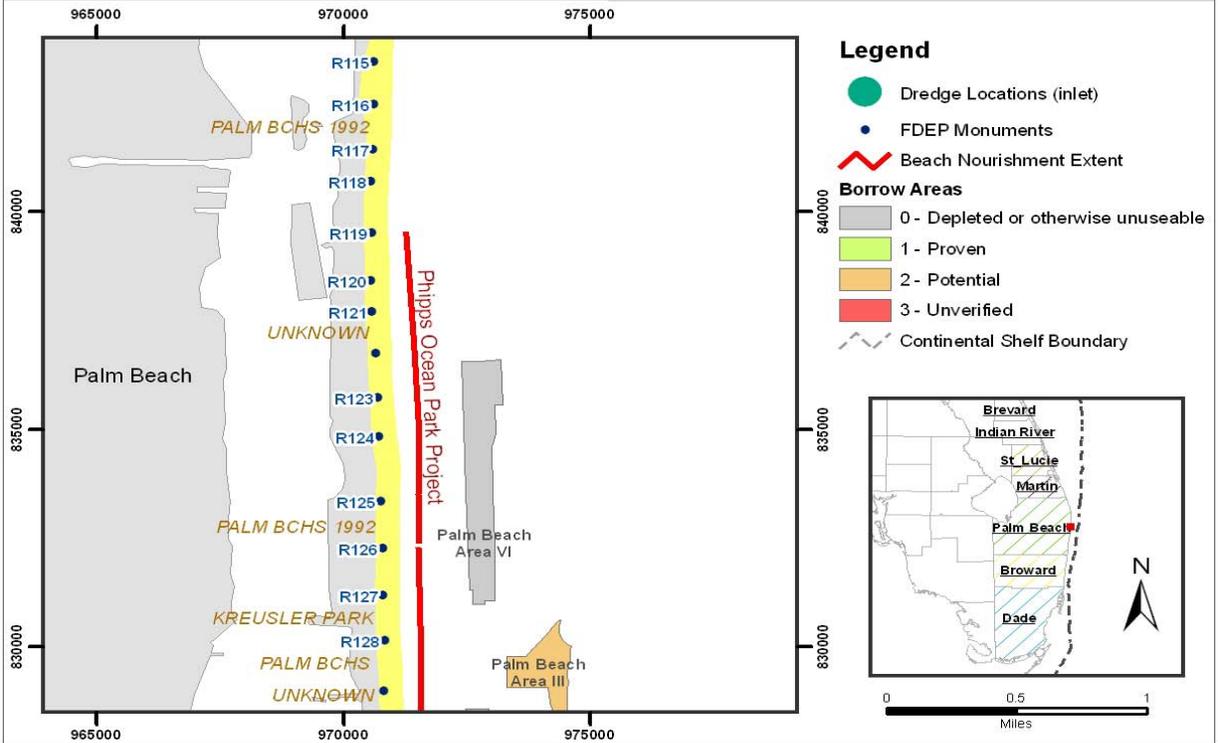


<u>Project Name:</u>	Juno Beach
<u>Started in:</u>	2000
<u>Owner:</u>	Local
<u>Volume Required:</u>	700,000 cy
<u>Nourishment Interval:</u>	7 yrs
<u>50 year Volume:</u>	4,900,000 cy
<u>History:</u>	1,000,000 cy in 2000
<u>Narrative:</u>	PBC - nourishment interval is 7 years, most recent in 2006, unknown volume. http://www.pbcgov.com/erm/coastal/shoreline/juno/ reports 700,000 cy renourishment volume, every 5 years.
<u>Historic Sandsource:</u>	2 miles NE(BA1) & 3 miles E (BA2) of Jupiter Inlet



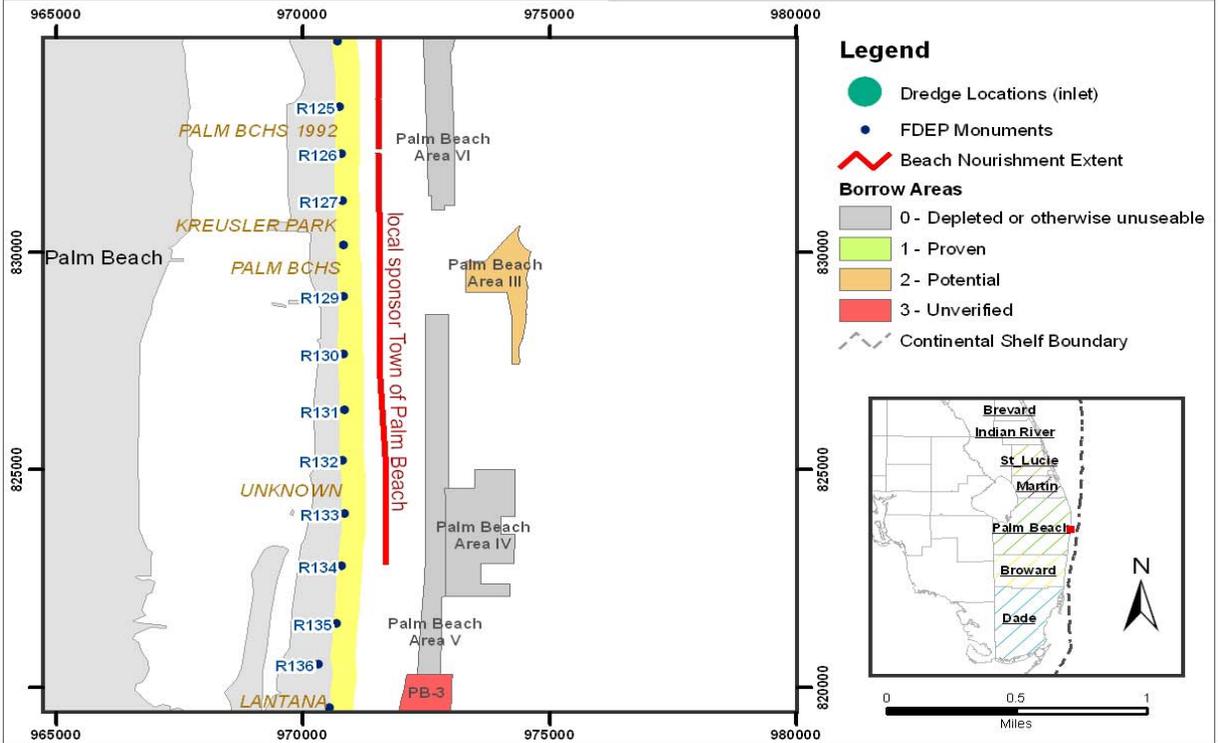
<u>Project Name:</u>	Midtown Beach
<u>Started in:</u>	1995
<u>Owner:</u>	Local
<u>Volume Required:</u>	1,000,000 cy
<u>Nourishment Interval:</u>	7 yrs
<u>50 year Volume:</u>	7,000,000 cy
<u>History:</u>	1,400,000 cy in 2003, same borrow area; 880,000 cy in 1995
<u>Narrative:</u>	http://bcs.dep.state.fl.us/env-prmt/palm_bch/issued/0164713%20_Mid-Town_Beach_Renourishment/Compliance/2002%20Compliance%20Tracking/01647tbl.doc ,
<u>Historic Sandsource:</u>	From a borrow area located south of the Lake Worth Inlet, from R78 to R81

Phipps Ocean Park Reach 7 Beach Nourishment



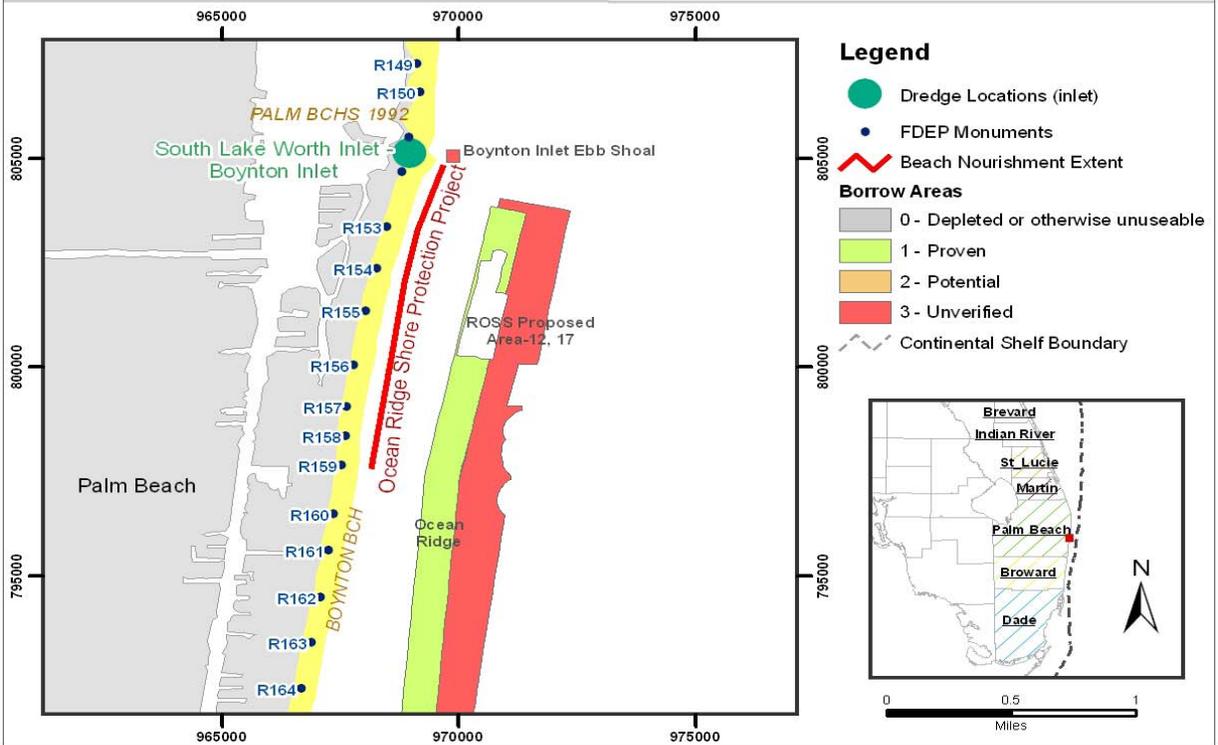
<u>Project Name:</u>	Phipps Ocean Park Beach Rch 7
<u>Started in:</u>	2006
<u>Owner:</u>	Local
<u>Volume Required:</u>	1,100,000 cy
<u>Nourishment Interval:</u>	6 yrs
<u>50 year Volume:</u>	8,800,000 cy
<u>History:</u>	1.2 mcy placed in Spring 2006
<u>Narrative:</u>	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf à PBC - no record shows of renourishment in 2006, planned renourishment is for 2009
<u>Historic Sandsource:</u>	Sand from two borrow sites located approximately 3,500 feet offshore and approximately 1.5 and 2.6 miles south of the fill area

Palm Beach Reach 8 Beach Nourishment



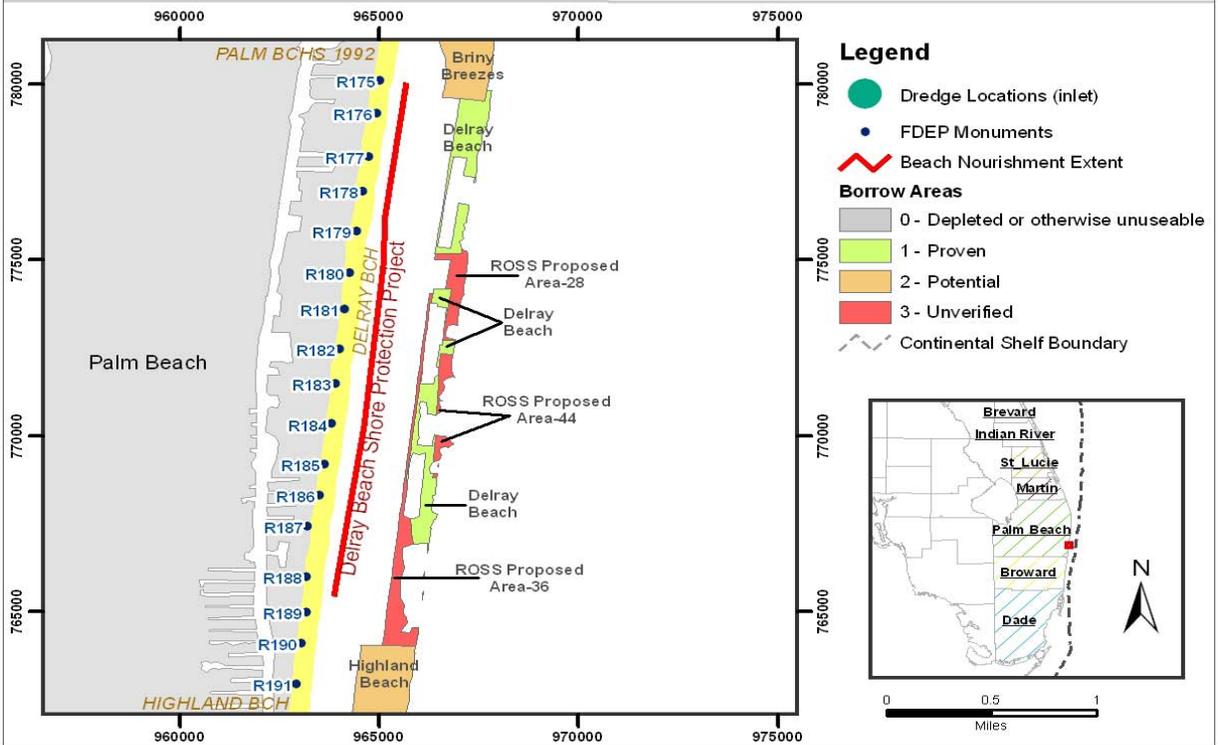
<u>Project Name:</u>	Palm Beach - Reach 8
<u>Started in:</u>	2009
<u>Owner:</u>	Local
<u>Volume Required:</u>	500,000 cy
<u>Nourishment Interval:</u>	5 yrs
<u>50 year Volume:</u>	5,000,000 cy
<u>History:</u>	Dune construction in 2006
<u>Narrative:</u>	Awaiting permit (January 2008). PBC - shows record of renourishment in 2006 and 2007 and planned for 2009, no details about volumes placed.
<u>Historic Sandsource:</u>	Offshore sources (unspecified)

Ocean Ridge Beach Nourishment



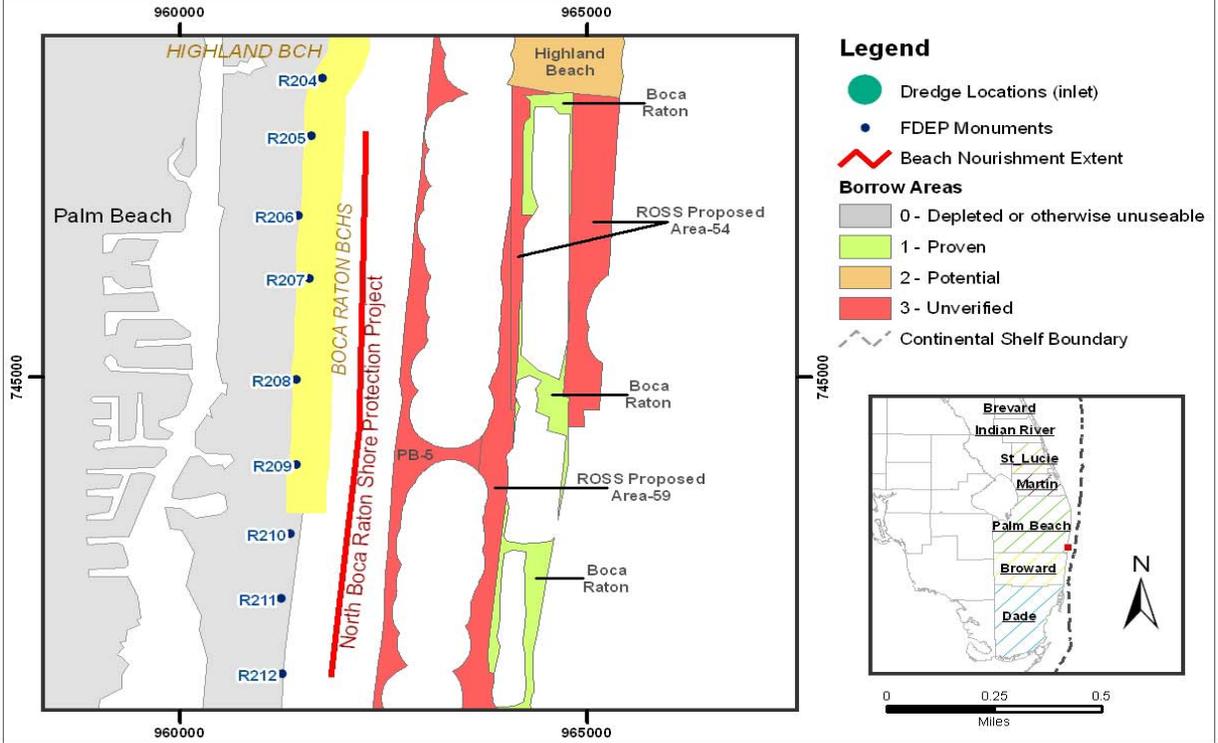
<u>Project Name:</u>	Ocean Ridge Beach
<u>Started in:</u>	1998
<u>Owner:</u>	Federal
<u>Volume Required:</u>	558,000 cy
<u>Nourishment Interval:</u>	7 yrs
<u>50 year Volume:</u>	3,906,000 cy
<u>History:</u>	784,300 cy in 1998 - 1,700 ft. offshore of the project area; 558,000 cy in 2005
<u>Narrative:</u>	REF 21 - renourishment volume of 433,800 cy every 6 years
<u>Historic Sandsource:</u>	1,700 ft. offshore of the project area

Delray Beach Nourishment



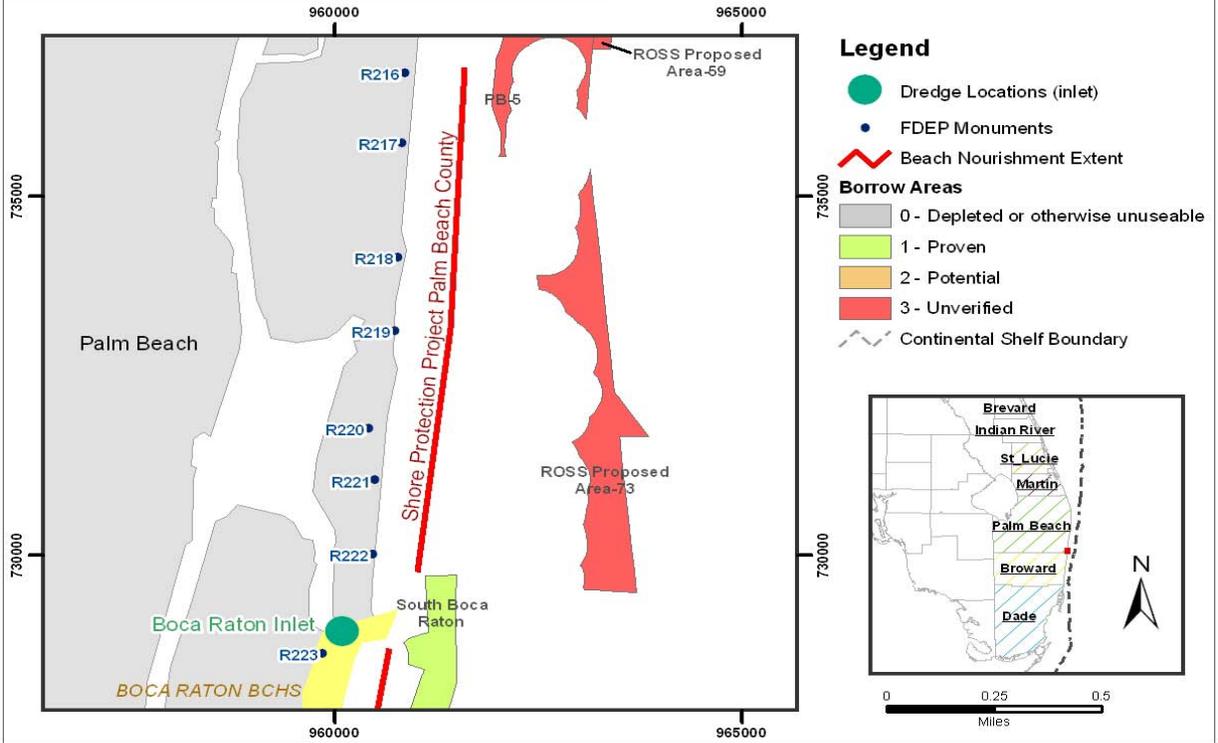
<u>Project Name:</u>	Delray Beach
<u>Started in:</u>	1973
<u>Owner:</u>	Federal
<u>Volume Required:</u>	1,140,000 cy
<u>Nourishment Interval:</u>	10 yrs
<u>50 year Volume:</u>	5,700,000 cy
<u>History:</u>	412,000 cy in 2005; 1,150,000 cy in 2002; 1,196,500 cy in 1992; 1,300,000 cy in 1984; 701,000 cy in 1978; 1,635,000 cy in 1973
<u>Narrative:</u>	http://www.mydelraybeach.com/Delray/Departments/Planning+and+Zoning/For+Visitors/Beach+Nourishment+Project.htm http://beach15.beaches.fsu.edu/Delray/design2.asp?RowNum=2
<u>Historic Sandsource:</u>	Borrow Area I & II, 1,900 to 2,700 ft. from shore

Boca Raton North Beach Nourishment



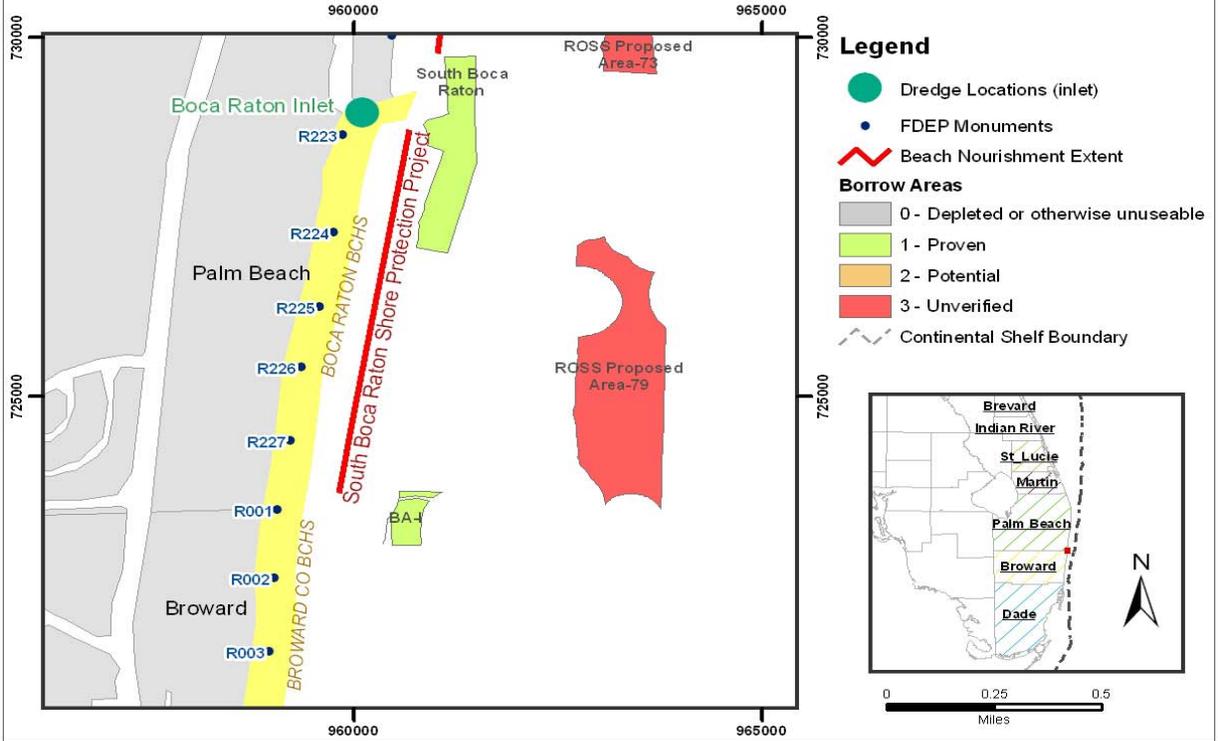
<u>Project Name:</u>	Boca Raton - North Beach
<u>Started in:</u>	1988
<u>Owner:</u>	Federal
<u>Volume Required:</u>	680,000 cy
<u>Nourishment Interval:</u>	8 yrs
<u>50 year Volume:</u>	4,080,000 cy
<u>History:</u>	680,000 cy in 1998; 1,102,000 cy in 1988
<u>Narrative:</u>	Ref 26. PBC - shows renourishment in 2007 and next in 2015
<u>Historic Sandsource:</u>	2,500 ft. offshore of project area (R205 - R213)

Boca Raton Central Beach Nourishment



<u>Project Name:</u>	Boca Raton - Central Beach
<u>Started in:</u>	2004
<u>Owner:</u>	Federal
<u>Volume Required:</u>	340,000 cy
<u>Nourishment Interval:</u>	8 yrs
<u>50 year Volume:</u>	2,380,000 cy
<u>History:</u>	747,000 cy in 2004
<u>Narrative:</u>	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf . PBC - shows renourish interval of 8 years
<u>Historic Sandsource:</u>	2,500 ft. offshore of R-214 and R-218 - Area 1A

Boca Raton South Beach Nourishment



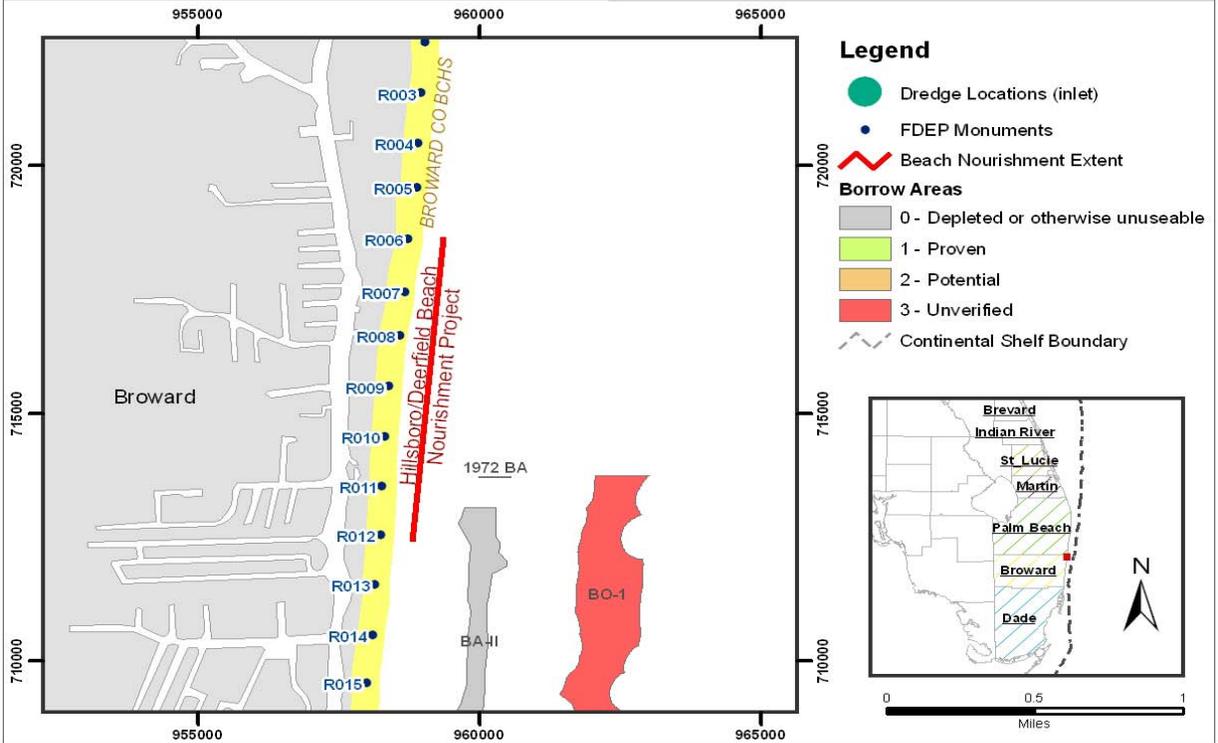
<u>Project Name:</u>	Boca Raton - South Beach
<u>Started in:</u>	1985
<u>Owner:</u>	Local
<u>Volume Required:</u>	300,000 cy
<u>Nourishment Interval:</u>	6 yrs
<u>50 year Volume:</u>	2,400,000 cy
<u>History:</u>	220,000 cy in 1996, sourced from same location as 2002; 220,000 cy in 1985
<u>Narrative:</u>	http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Southeast%20Atlantic%20Coast%20Region.pdf
<u>Historic Sandsource:</u>	Ebb tidal shoal E and S of the Boca Raton Inlet

Broward County

Broward County Beach Nourishment Inventory

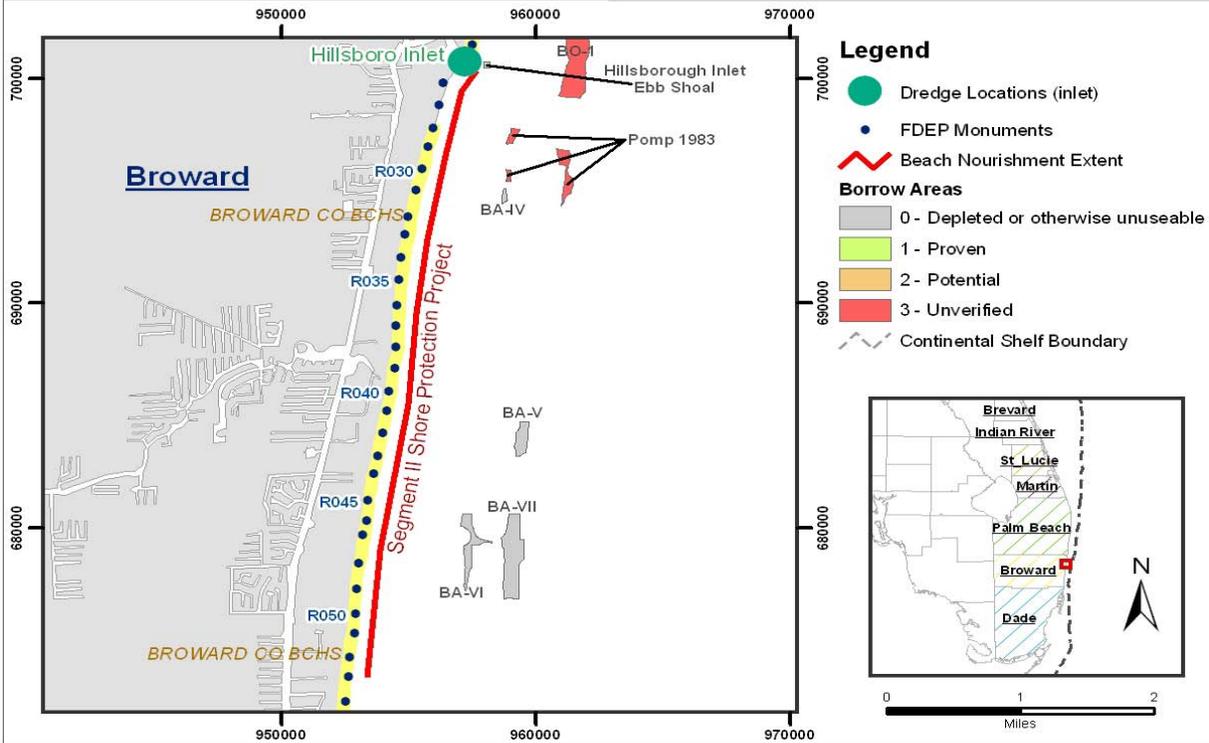
Project Name	Project Type	Year Started	Monument Range	Renour. Volume (cy)	Renour. Interval (yr)	Year of Last Renour.	Year of Next Renour.	No. Events before End of 2059	50-yr Volume Req. (cy)	Historic Sand Source	Narrative	Ref. ID
Hillsboro/Deerfield Beach Nourishment Project	Local	1998	R006 - R012	555,000	10	1998	2009	6	3,330,000	Offshore Sources (unspecified)	Next project anticipated to probably go to construction in 2009.	Ref 8
Pompano Beach to Ft Lauderdale	Federal	1970	R025 - R053	935,000	6	1983	2010	9	8,415,000	Offshore Sources (unspecified)	Entire project runs from R025 to R085, only section up to R053 was constructed and renourished. Ref 28. Next project anticipated to go to construction in 2009, with nourishment of R52-72 & R37-43.	Ref 5
John U. Lloyd Park Project	Federal	1976	R086 - R094	780,000	6	2006	2012	8	6,240,000	Offshore Sources (unspecified)	Port Everglades by-passing being permitted at present; plans for installation in 2009. Would allow the introduction of a further 40-60,000 cy/yr, with a corresponding reduction in nourishment needs.	Ref 29, Ref 5
Hollywood/Hallandale	Federal	1981	R101 - R128	780,000	6	2006	2012	8	6,240,000	Offshore Sources (unspecified)	Volumes are shared with John U. Lloyd Park (Segment III North)	Ref 8

Hillsborough/Deerfield Beach Nourishment



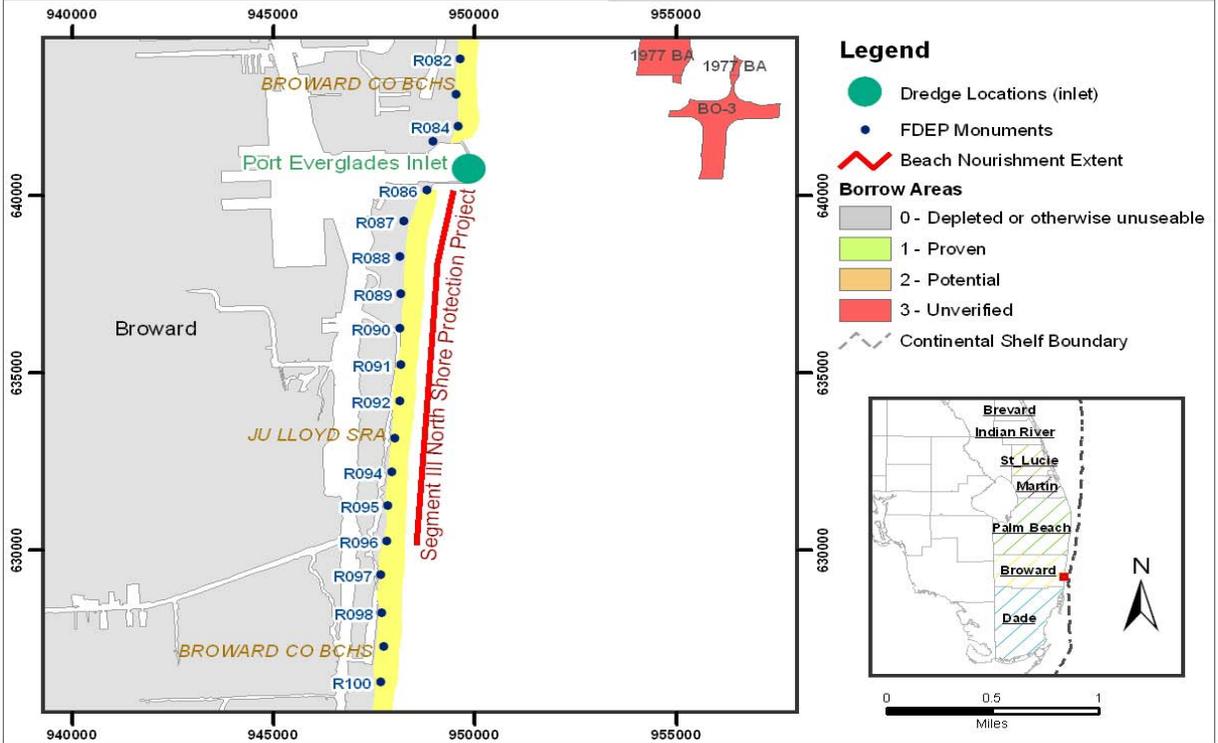
<u>Project Name:</u>	Hillsboro/Deerfield Beach
<u>Started in:</u>	1998
<u>Owner:</u>	Local
<u>Volume Required:</u>	555,000 cy
<u>Nourishment Interval:</u>	10 yrs
<u>50 year Volume:</u>	3,330,000 cy
<u>History:</u>	360,000 cy in 1972
<u>Narrative:</u>	Next project anticipated to go to construction in 2009.
<u>Historic Sandsource:</u>	0.25 miles offshore between R-1 & R-5

Pompano to Fort Lauderdale (Segment II) Beach Nourishment



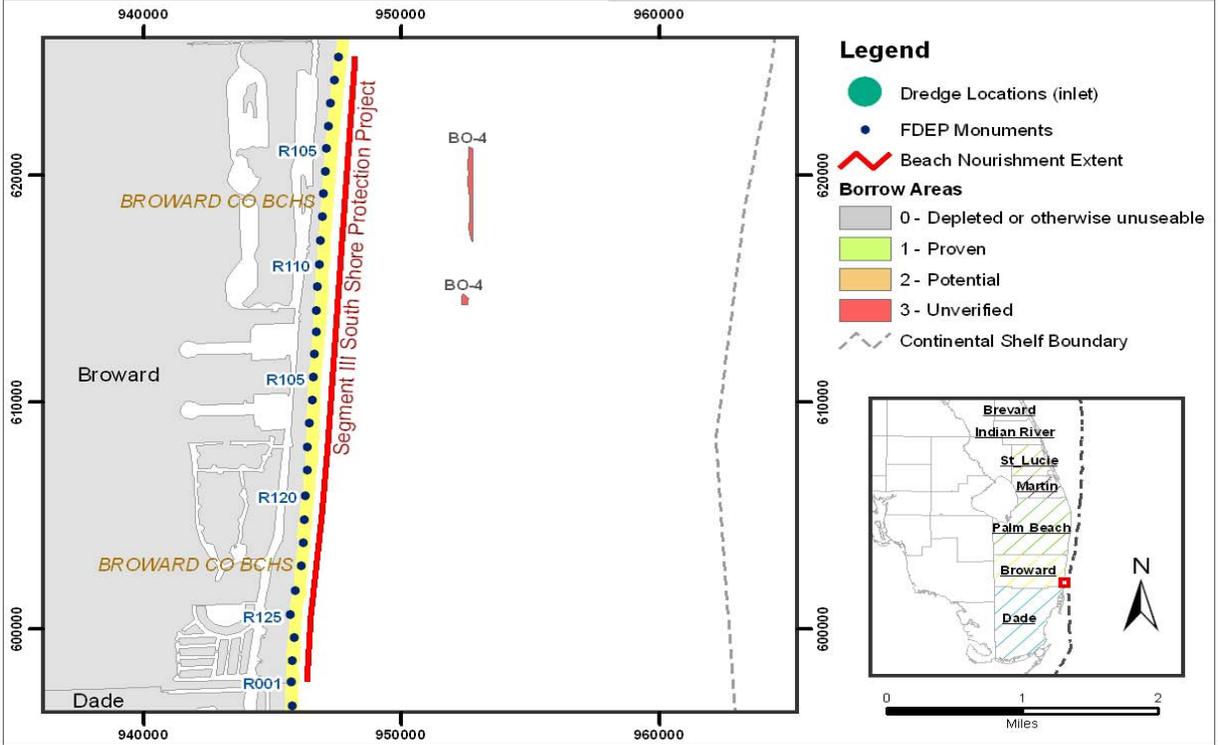
<u>Project Name:</u>	Pompano Beach to Ft Lauderdale
<u>Started in:</u>	1970
<u>Owner:</u>	Federal
<u>Volume Required:</u>	935,000 cy
<u>Nourishment Interval:</u>	6 yrs
<u>50 year Volume:</u>	8,415,000 cy
<u>History:</u>	1,076,000 cy in 1970, 1,890,000 cy (R25-53) in 1983
<u>Narrative:</u>	Entire project runs from R025 to R085, only section up to R053 was constructed and renourished. Ref 28. Next project anticipated to go to construction in 2009, with nourishment of R52-72 & R37-43.
<u>Historic Sandsource:</u>	5 offshore borrow areas (BA_ID's 14,25,26,37,41)

John U. Lloyd Park Segment III Beach Nourishment



<u>Project Name:</u>	John U. Lloyd Park Project
<u>Started in:</u>	1976
<u>Owner:</u>	Federal
<u>Volume Required:</u>	780,000 cy
<u>Nourishment Interval:</u>	6 yrs
<u>50 year Volume:</u>	6,240,000 cy
<u>History:</u>	1,540,000 cy in 2006 (Combined total includes Hollywood/Hallandale portion); 603,400 cy in 1989; 1,090,000 cy in 1976
<u>Narrative:</u>	Port Everglades by-passing is being permitted at present with a view to installation in 2009. This would allow the introduction of a further 40-60,000 cy per year onto this frontage, with a corresponding reduction in nourishment needs.
<u>Historic Sandsource:</u>	Offshore borrow areas 1, 2, 3, 4 and 6, 0.25 to 1 mile offshore (ref 29)

Hollywood/Hallandale Segment III Beach Nourishment

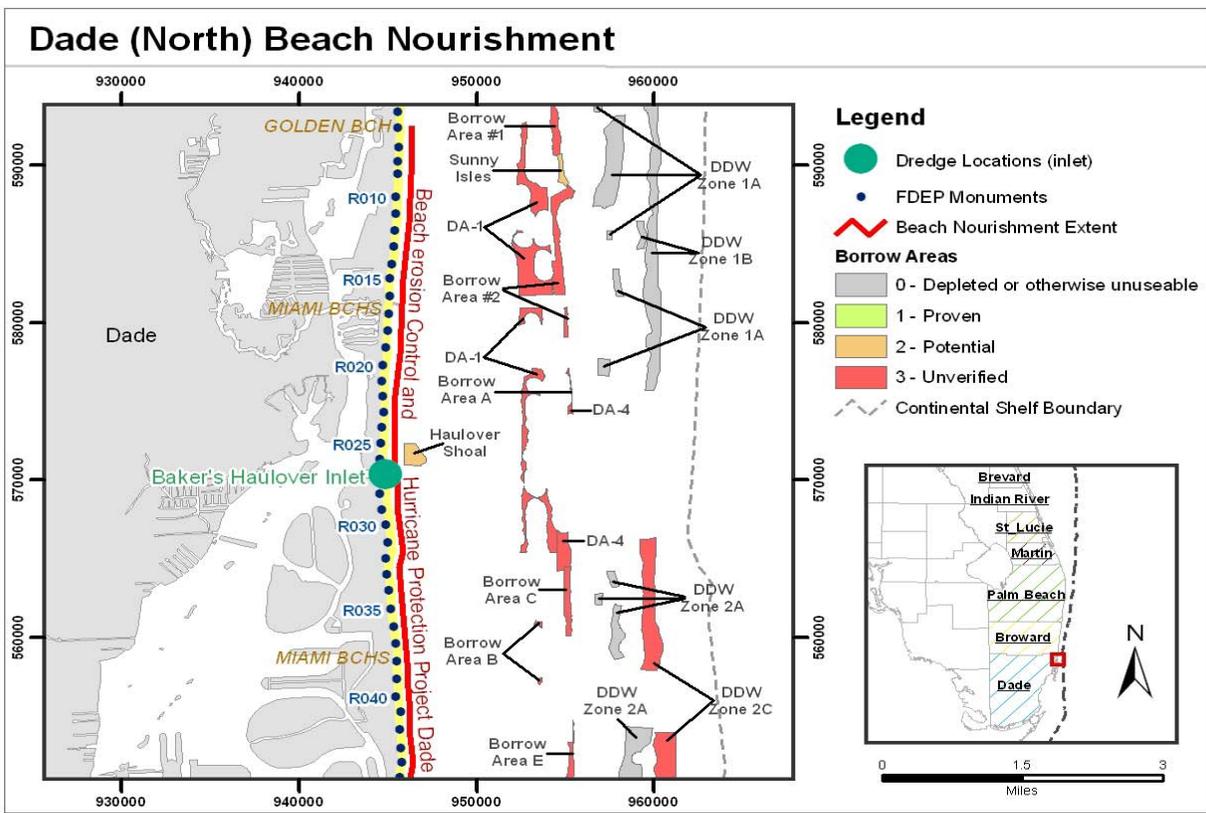


<u>Project Name:</u>	Hollywood/Hallandale
<u>Started in:</u>	1981
<u>Owner:</u>	Federal
<u>Volume Required:</u>	780,000 cy
<u>Nourishment Interval:</u>	6 yrs
<u>50 year Volume:</u>	6,240,000 cy
<u>History:</u>	1,540,000 cy in 2006 (Combined total includes John U. Lloyd portion); 1,113,000 cy in 1991; 1,980,000 cy in 1979
<u>Narrative:</u>	Volumes are shared with John U. Lloyd Park (Segment III North)
<u>Historic Sandsource:</u>	7,500 ft. offshore of Hallandale in 1991

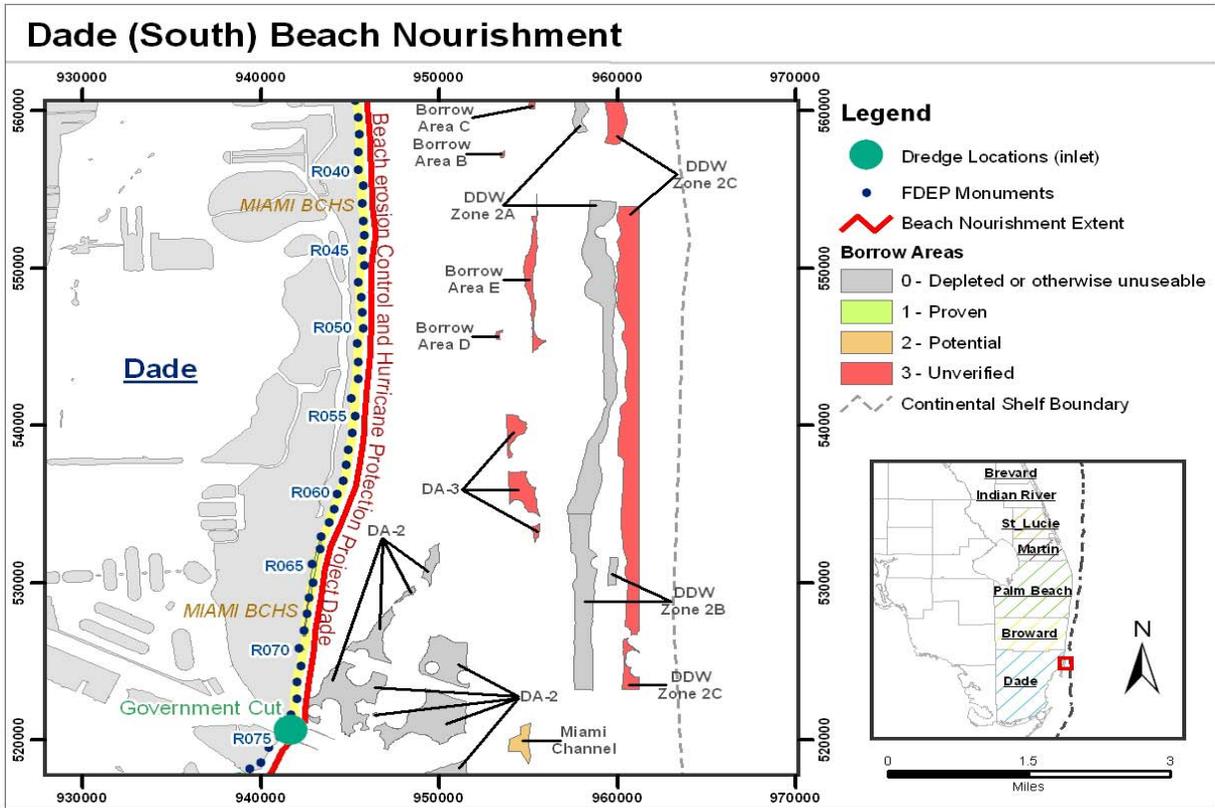
Miami-Dade County

Miami-Dade County Beach Nourishment Inventory

Project Name	Project Type	Year Started	Monument Range	Renour. Volume (cy)	Renour. Interval (yr)	Year of Last Renour.	Year of Next Renour.	No. Events before End of 2059	50-yr Volume Req. (cy)	Historic Sand Source	Narrative	Ref. ID
Miami-Dade Beach Erosion Control and Hurricane Protection Project	Federal	1975	R007 - R074	686,000	2	2006	2009	26	17,836,000	Offshore Sources (unspecified)	Renourishment requirement is considered equal to current annual erosion rate = 343,000 cy per year (Ref 20)	Ref 5, Ref 20
Fisher Island Beach Restoration	Private	1990	R075 - R078	25,000	21	1991	2012	3	75,000	Bahamian Aragonite	Initially nourished using imported oolitic aragonite sand. Beach is stable 3 yrs after construction, no significant erosion. Possible renourishment in next 5 years. Treat as 21 year renourishment interval.	Ref 8
Virginia Key	Local	1969	R079 - R088	110,000	-	1974	-	-	-	Offshore Sources (unspecified)	This project has included the phased construction of groins to aid retention of nourishment material. No future nourishments are planned. Project started as federal in 1969, was deauthorized in 1990	Ref 5
Key Biscayne Shore Protection Project	Local	1987	R101 - R113.7	121,000	15	2002	2017	3	363,000	Offshore Sources (unspecified)	Nourishment interval estimated as 15 years (2002 followed 1987 project). Project started as federal in 1987, continued as local in 2002	Ref 5

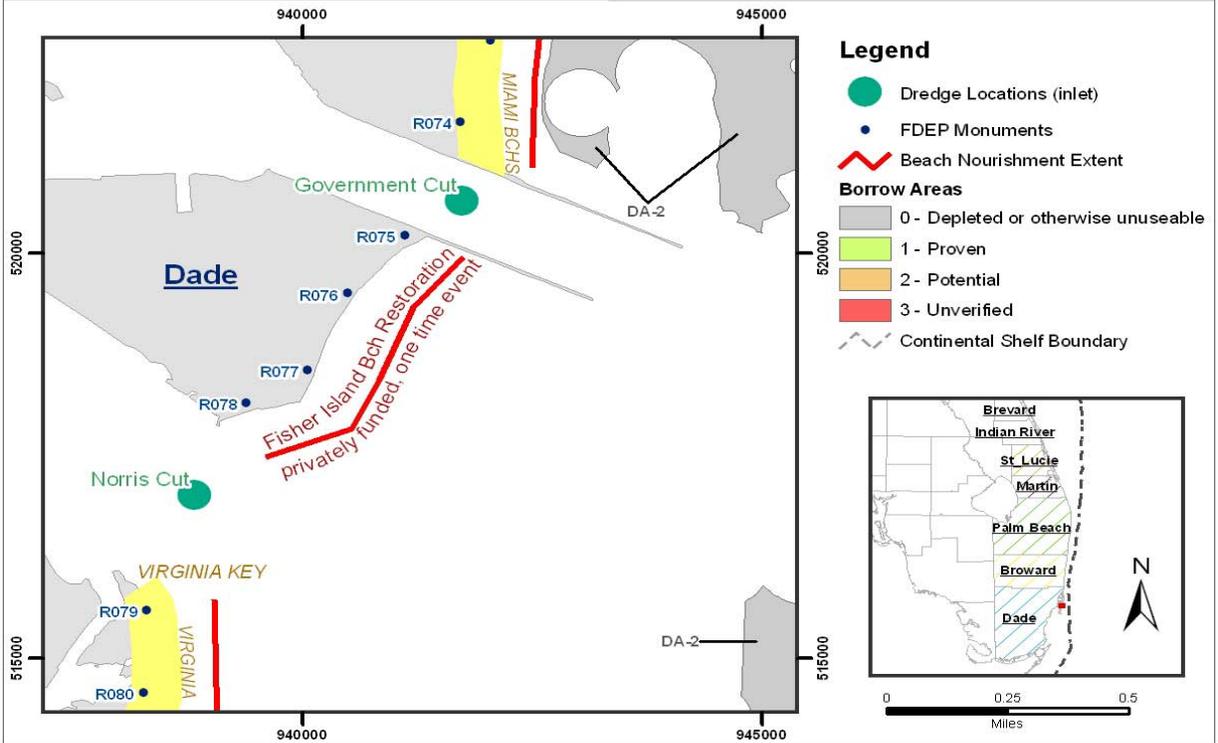


<u>Project Name:</u>	Miami Dade
<u>Started in:</u>	1975
<u>Owner:</u>	Federal
<u>Volume Required:</u>	686,000 cy
<u>Nourishment Interval:</u>	2 yrs
<u>50 year Volume:</u>	17,836,000 cy
<u>History:</u>	Over 30 projects in the past 35 years placed approximately 20 mcy
<u>Narrative:</u>	Renourishment requirement is considered equal to current annual erosion rate = 343,000 cy per year (Ref 20)
<u>Historic Sandsource:</u>	Multiple sources for historic projects



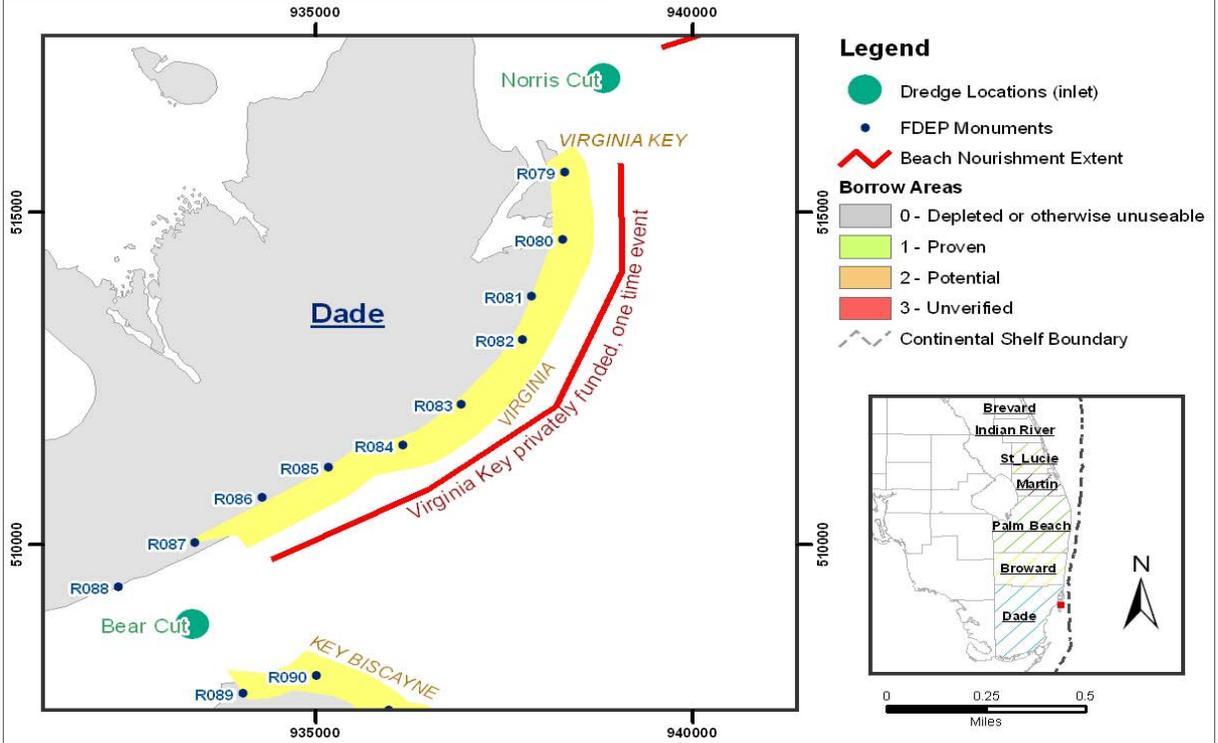
Description as per Miami Dade (North) Beach Nourishment

Fisher Island Beach Nourishment

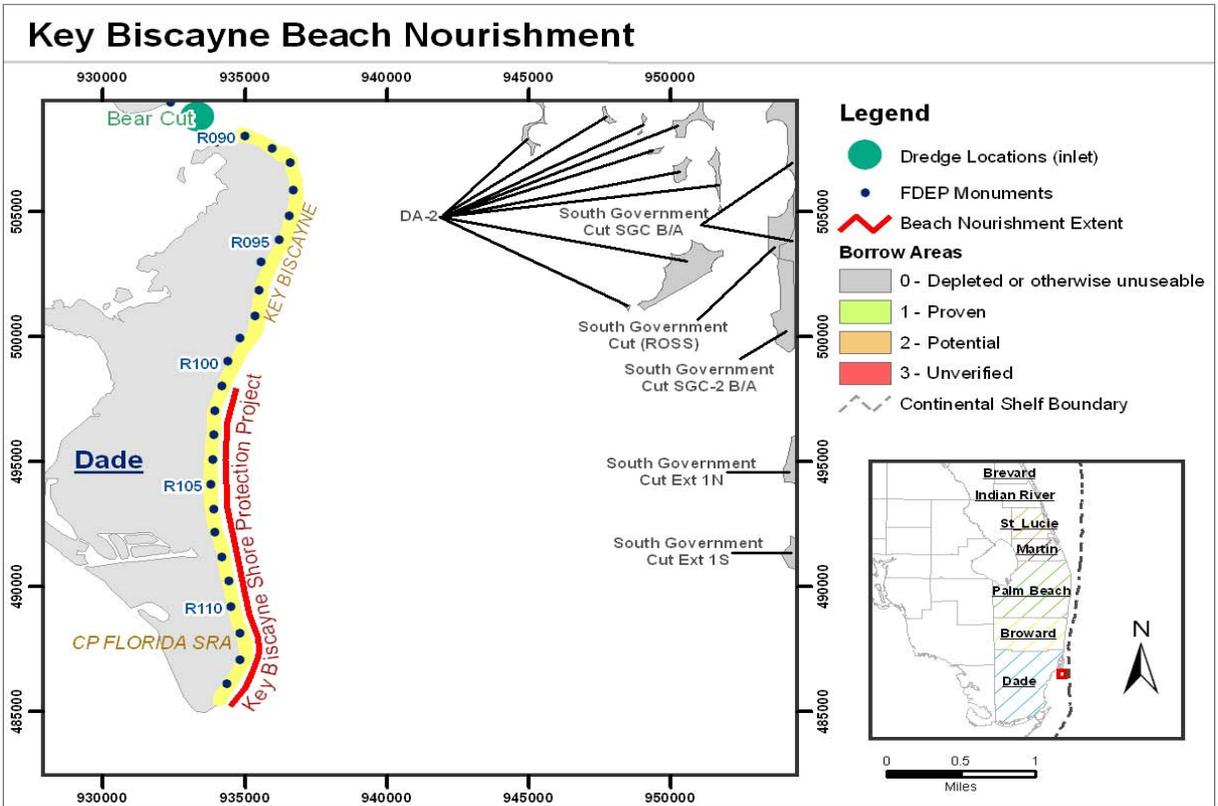


<u>Project Name:</u>	Fisher Island Bch Restoration
<u>Started in:</u>	1990
<u>Owner:</u>	Private
<u>Volume Required:</u>	25,000 cy
<u>Nourishment Interval:</u>	21 yrs
<u>50 year Volume:</u>	75,000 cy
<u>History:</u>	25,000 cy in 1991
<u>Narrative:</u>	Initially nourished using imported oolitic aragonite sand. Beach is stable 3 yrs after construction, no significant erosion. Possible renourishment in next 5 years. Treat as 21 year renourishment interval.
<u>Historic Sandsource:</u>	Oolitic aragonite (0.27mm) mined in the Bahamas

Virginia Key Beach Nourishment



<u>Project Name:</u>	Virginia Key
<u>Started in:</u>	1969
<u>Owner:</u>	Local
<u>Volume Required:</u>	0 cy
<u>Nourishment Interval:</u>	0 yrs
<u>50 year Volume:</u>	0 cy
<u>History:</u>	110,000 cy in 1974 (from Government Cut); 177,000 cy in 1969
<u>Narrative:</u>	This project has included the phased construction of groins to aid retention of nourishment material. No future nourishments are planned. Project started as federal in 1969, was deauthorized in 1990
<u>Historic Sandsource:</u>	Nearshore borrow area



<u>Project Name:</u>	Key Biscayne
<u>Started in:</u>	1987
<u>Owner:</u>	Local
<u>Volume Required:</u>	121,000 cy
<u>Nourishment Interval:</u>	15 yrs
<u>50 year Volume:</u>	363,000 cy
<u>History:</u>	121,000 y in 2002 (privately funded); 420,000 cy in 1987 over R101 - R113.7
<u>Narrative:</u>	Nourishment interval estimated as 15 years (2002 followed 1987 project). Project started as federal in 1987, continued as local in 2002
<u>Historic Sandsource:</u>	Borrow area 1mile shoutheast of Cape Florida

APPENDIX B

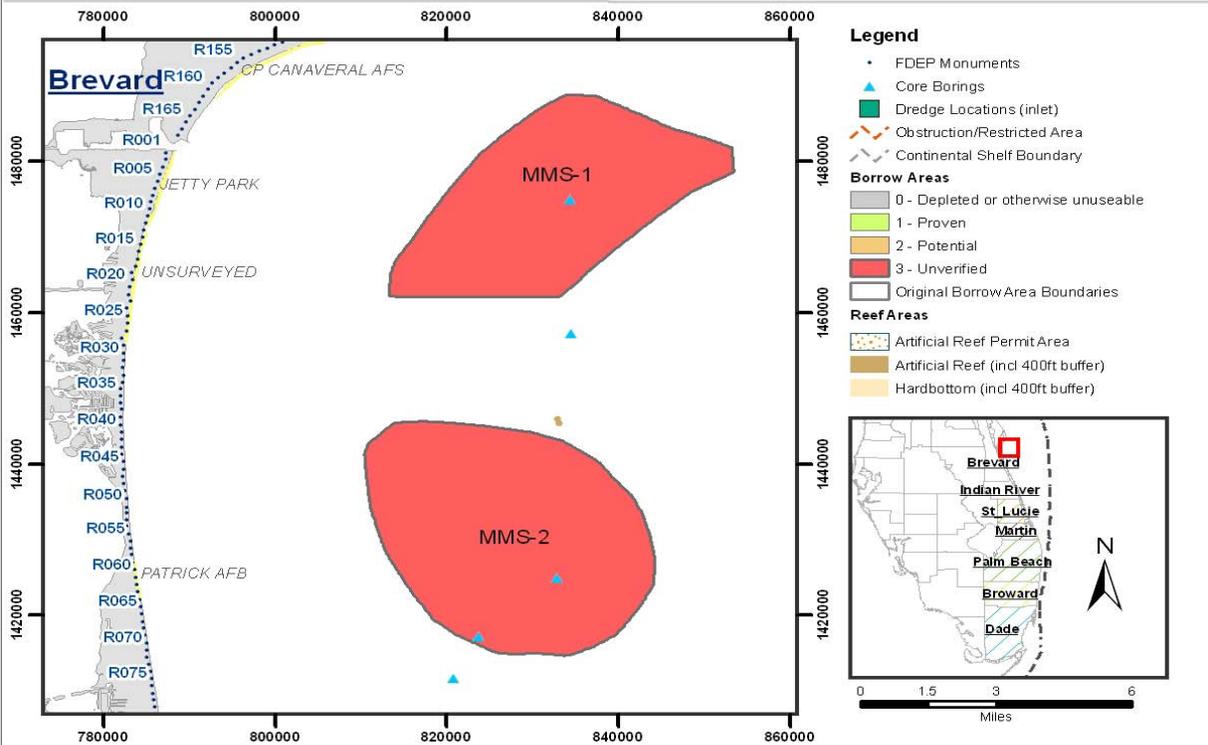
Borrow Area Information

Brevard and Indian River Counties

Brevard and Indian River Counties Borrow Area Inventory

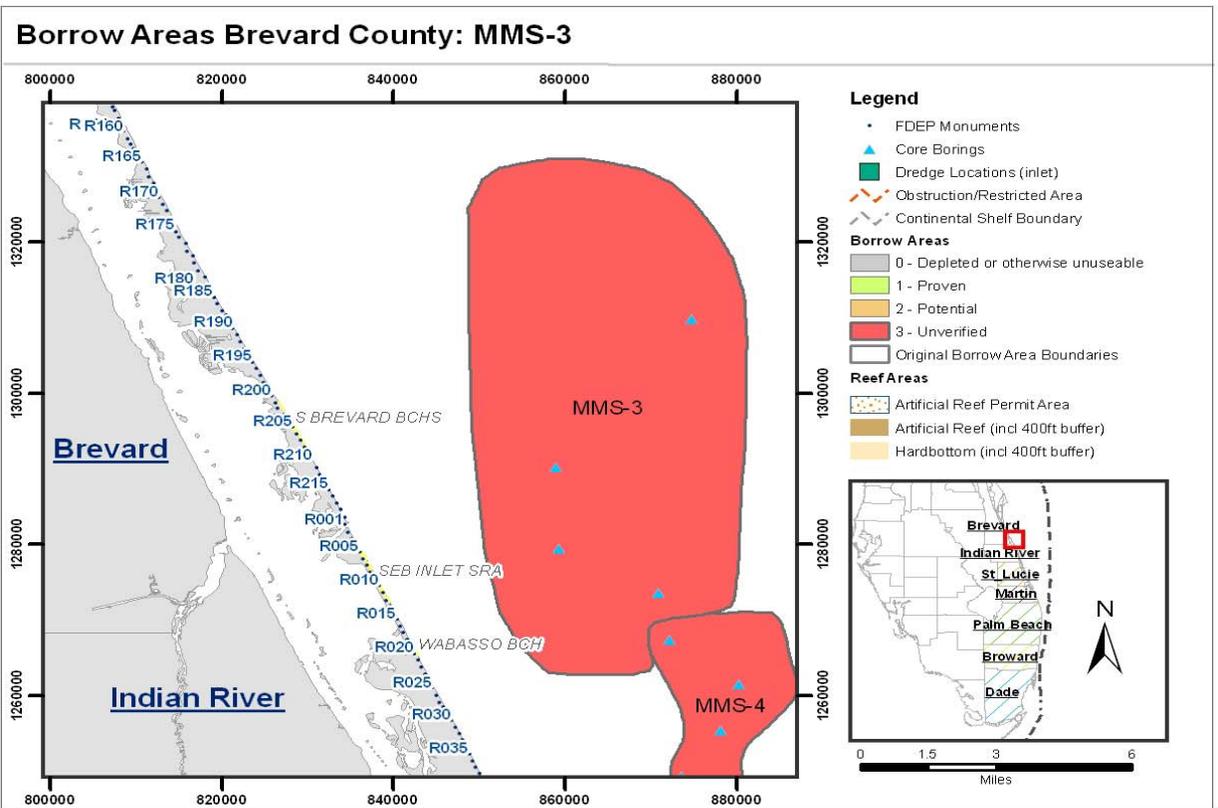
Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
MMS-1	V162 - R022	628,739,430	115,000,000	115,000,000	0	1	3: Unverified	Area delineated by MMS (2008 report)	67.9	9.5	9.22	5.6	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
MMS-2	R038 - R071	797,377,313	49,500,000	49,500,000	0	2	3: Unverified	Area delineated by MMS (2008 report)	66.2	50.7	11.35	5.29	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
MMS-3	R165 - R023	1,901,003,171	260,000,000	260,000,000	0	4	3: Unverified	Delineated by MMS	70.1	35.3	10.52	2.01	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
MMS-4	R014 - R041	282,005,233	100,000,000	100,000,000	0	4	3: Unverified	Area delineated by MMS (2008 report)	58.2	36.1	7.67	3.7	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
MMS-5	R030 - R066	244,327,667	10,200,000	0	0	1	3: Unverified	Delineated by MMS	63.6	42.4	9.5	6.02	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

Borrow Areas Brevard County: MMS-1; MMS-2

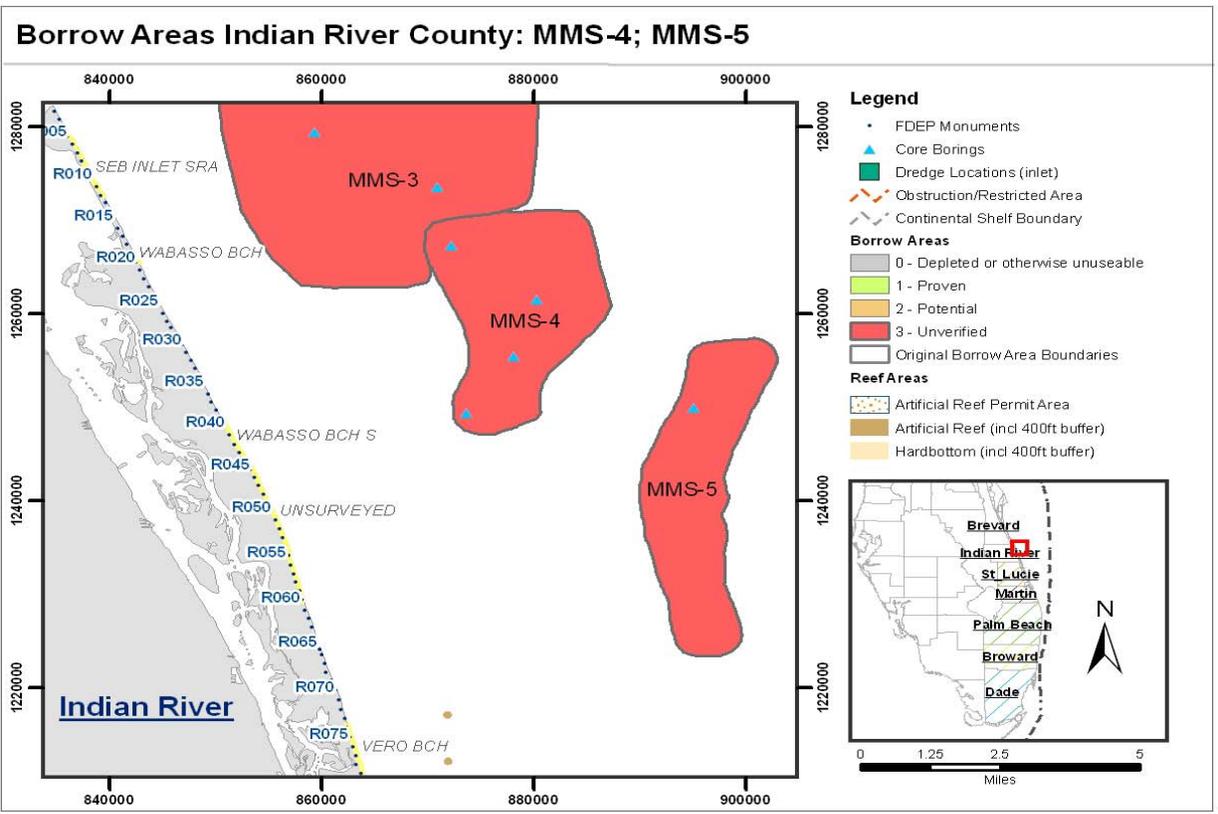


Name:	MMS-1
Location:	V162 - R022
Volume Present:	115,000,000 cy
Volume Beach Quality:	115,000,000 cy
Category:	3 (Unverified)
Cores:	1
Depth (Min/Max):	-9.5 / -67.9 ft
Distance from Shore:	5.60 miles
Narrative:	Area delineated by MMS (2008 report)
Source:	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

<u>Name:</u>	MMS-2
<u>Location:</u>	R038 - R071
<u>Volume Present:</u>	49,500,000 cy
<u>Volume Beach Quality:</u>	49,500,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-50.7 / -66.2 ft
<u>Distance from Shore:</u>	5.29 miles
<u>Narrative:</u>	Area delineated by MMS (2008 report)
<u>Source:</u>	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast



Name:	MMS-3
Location:	R165 - R023
Volume Present:	260,000,000 cy
Volume Beach Quality:	260,000,000 cy
Category:	3 (Unverified)
Cores:	4
Depth (Min/Max):	-35.3 / -70.1 ft
Distance from Shore:	2.01 miles
Narrative:	Delineated by MMS
Source:	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast



Name:	MMS-4
Location:	R014 - R041
Volume Present:	100,000,000 cy
Volume Beach Quality:	100,000,000 cy
Category:	3 (Unverified)
Cores:	4
Depth (Min/Max):	-36.1 / -58.2 ft
Distance from Shore:	3.70 miles
Narrative:	Area delineated by MMS (2008 report)
Source:	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

<u>Name:</u>	MMS-5
<u>Location:</u>	R030 - R066
<u>Volume Present:</u>	10,200,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-42.4 / -63.6 ft
<u>Distance from Shore:</u>	6.02 miles
<u>Narrative:</u>	Delineated by MMS
<u>Source:</u>	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

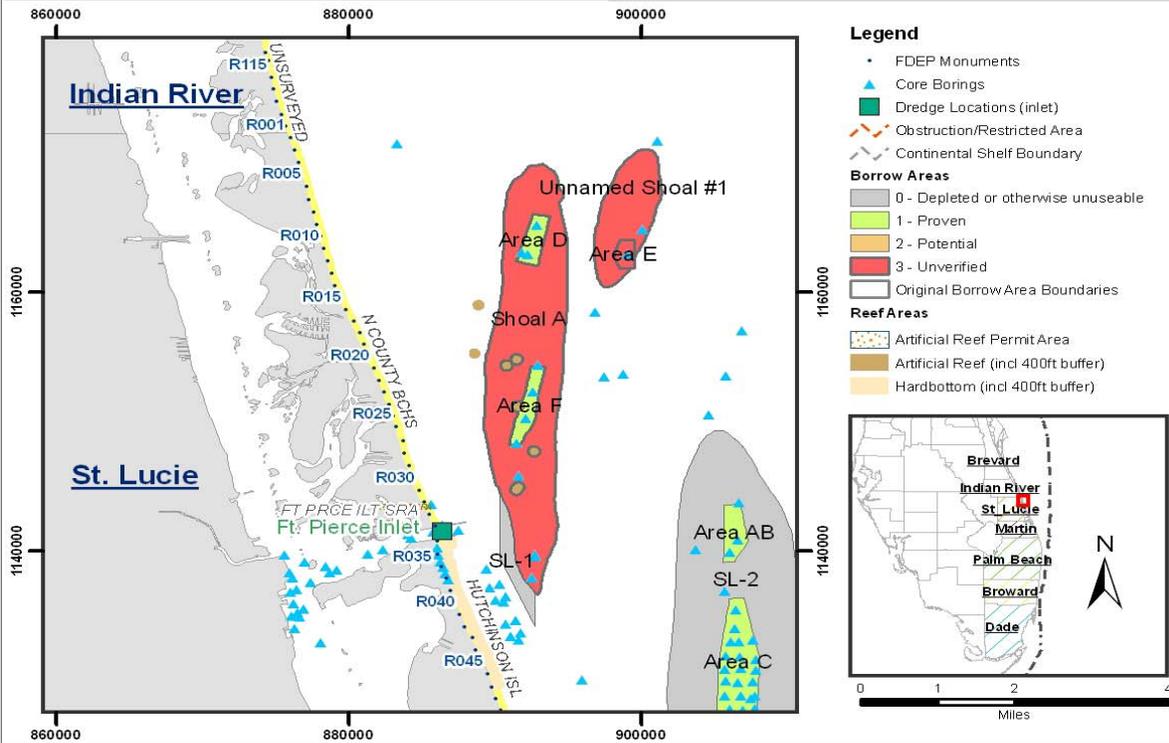
St. Lucie County
St. Lucie County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
Unnamed Shoal #1	R003 - R014	28,570,846	6,349,077	6,349,077	0	1	3: Unverified	Area delineated by COE Ft. Pierce Shore Protection Project GRR Revised March 2008	51.4	29.8	4.5	3.22	ROSS Database and Fort Pierce Shoreline Protection Project, USACE March 2008
Area D	R008 - R013	5,171,014	1,540,000	1,540,000	0	3	1: Proven	Data from Ft. Pierce Shore Protection Project Revised March 2008	39.3	28.8	2.91	2.25	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
Area E	R010 - R013	2,651,235	640,000	640,000	0	1	3: Unverified	Area delineated by COE Ft. Pierce Shore Protection Project GRR Revised March 2008	41.0	29.8	3.8	3.5	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
Shoal A	R004 - R040	118,070,334	26,237,852	26,237,852	0	1	3: Unverified	Shoal Outlined by USACE as part of sand search investigations for Ft. Pierce	44.2	21.9	5.65	4.76	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
Area F	R020 - R027	6,250,314	1,230,000	1,230,000	0	4	1: Proven	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008	37.6	29.6	2.05	1.3	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
Area AB	R032 - R037	5,885,564	1,570,000	1,570,000	0	3	1: Proven	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008	45.6	34.9	3.9	3.4	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
SL-1	R006 - R047	7,535,964	0	0	0	1	0: Depleted	Partially overlapped by Shoal A. Southern Portion already dredged by USACE	42.9	6.8	4.96	4.42	Taylor Engineering, 2008. Ft Pierce General Reevaluation Report
SL-2	R025 - R065	205,151,540	45,589,231	0	0	7	0: Unusable	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008, considered unusable by Jacksonville COE	51.3	30.5	4.45	1.5	ROSS Database and Fort Pierce Shoreline Protection Project, USACE March 2008
Area C	R039 - R057	37,469,887	7,760,000	7,760,000	0	38	1: Proven	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008	40.1	30.5	3.48	2.02	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR
MMS-6	R033 - R093	414,959,953	92,213,323	92,213,323	0	3	3: Unverified	Unverified volume because all beach quality sand assumed to exist in MMS Area A	71.5	39.4	8.22	4.3	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
SL-5	R045 - R075	147,199,678	32,711,040	32,711,040	0	2	3: Unverified	Bathymetry reveals a shoal at this location (Delineated by Taylor Engineering)	44.2	36.2	6.15	3.12	Taylor Engineering, 2009.
St. Lucie #4	R065 - R076	40,984,912	9,107,758	9,107,758	0	1	3: Unverified	Data from 2007 St. Lucie County Geotechnical Investigation	47.0	36.2	6.39	4.66	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level
St. Lucie #3	R068 - R080	63,219,771	14,048,838	14,048,838	0	1	3: Unverified	Data from 2007 St. Lucie County Geotechnical Investigation; area partially overlapped by MMS Area A	56.6	28.5	7.26	5.05	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level
SL-4	R068 - R086	79,133,410	0	0	0	0	Overlapped	All beach quality sand in this area assumed to lie within CPE BA-1	49.2	34.2	3.08	1.06	ROSS South St Lucie Sand Search Investigation
MMS Area A	R074 - R089	58,809,352	23,000,000	23,000,000	0	19	2: Potential	Area delineated by MMS (2008 report)	56.6	28.5	6.54	4.38	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
CPE BA-1	R084 - R086	1,708,281	919,940	919,940	0	2	3: Unverified	Delineated by CPE- all sand Munsell value 4 or darker	35.9	29.1	1.91	1.54	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations
Borrow Area "A" (Martin County)	R076 - R090	52,817,196	0	0	0	0	Overlapped	Overlapped by MMS Area A	54.8	26.4	6.43	4.48	USACE, 2008. Martin County BEC Sand Search Investigations Offshore Drilling Report

St. Lucie County Borrow Area Inventory Continued

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
St. Lucie #2	R081 - R090	13,793,918	3,065,315	3,065,315	0	0	3: Unverified	Partial overlap by Borrow Area A in Martin County	58.0	36.3	5.56	3.9	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level
CPE BA-2	R088 - R091	4,050,692	915,550	915,550	0	5	3: Unverified	Delineated by CPE, Jacksonville COE questions the volume of beach quality material	42.3	33.0	1.51	0.92	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations
CPE BA-3	R093 - R096	3,802,197	1,752,750	1,752,750	0	6	3: Unverified	Delineated by CPE, Jacksonville COE questions the volume of beach quality material	44.9	33.5	1.44	1.01	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations
SL-3	R075 - R102	55,658,294	0	0	0	0	Overlapped	Area not used since it is overlapped by CPE Borrow Areas 2-4	45.7	9.8	1.8	0.08	ROSS South St Lucie Sand Search Investigation
St. Lucie #1	R092 - R106	11,248,129	0	0	0	0	Overlapped	Overlapped by Borrow Area C in Martin County	58.4	30.9	4.82	3.82	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level
CPE BA-4	R097 - R104	11,082,058	620,970	620,970	0	19	3: Unverified	Delineated by CPE, Jacksonville COE questions the volume of beach quality material	41.5	25.2	1.21	0.35	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations
Borrow Area "C" (Martin County)	R094 - R108	53,849,268	18,600,000	18,600,000	0	7	2: Potential	Data from Martin County SPP	60.2	30.9	4.56	2.92	USACE, 2008. Martin County BEC Sand Search Investigations Offshore Drilling Report
Borrow Area "B" (Martin County)	R099 - R112	44,374,657	17,000,000	17,000,000	0	49	1: Proven	Data from Martin County SPP	64.7	52.4	7.65	5.5	USACE, 2008. Martin County BEC Sand Search Investigations Offshore Drilling Report

Borrow Areas St. Lucie County: Shoal A; SL-1; Unnamed Shoal #1; Areas D - F



Name:	Shoal A
Location:	R004 - R040
Volume Present:	26,237,852 cy
Volume Beach Quality:	26,237,852 cy
Category:	3 (Unverified)
Cores:	1
Depth (Min/Max):	-21.9 / -44.2 ft
Distance from Shore:	4.76 miles
Narrative:	Shoal Outlined by USACE as part of sand search investigations for Ft. Pierce
Source:	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

<u>Name:</u>	SL-1
<u>Location:</u>	R006 - R047
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-6.8 / -42.9 ft
<u>Distance from Shore:</u>	4.42 miles
<u>Narrative:</u>	Partially overlapped by Shoal A. Southern Portion already dredged by USACE
<u>Source:</u>	Taylor Engineering, 2008. Ft Pierce General Reevaluation Report

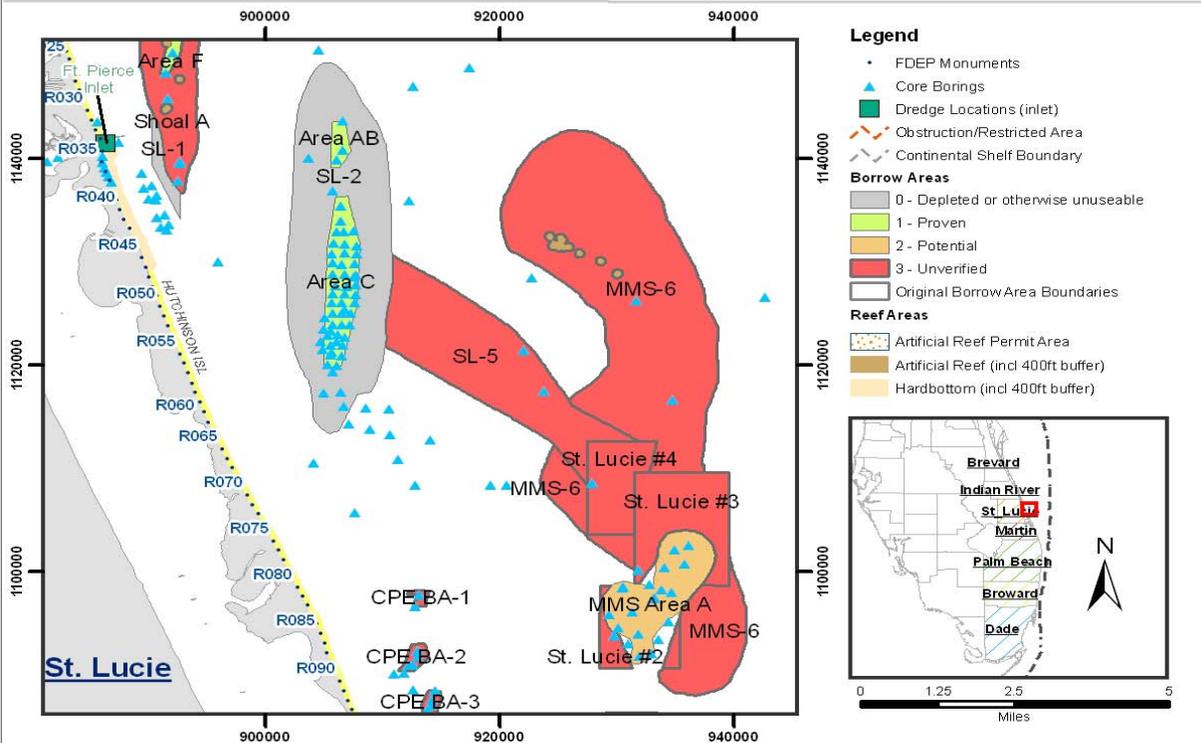
<u>Name:</u>	Area D
<u>Location:</u>	R008 - R013
<u>Volume Present:</u>	1,540,000 cy
<u>Volume Beach Quality:</u>	1,540,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-28.8 / -39.3 ft
<u>Distance from Shore:</u>	2.25 miles
<u>Narrative:</u>	Data from Ft. Pierce Shore Protection Project Revised March 2008
<u>Source:</u>	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

<u>Name:</u>	Area E
<u>Location:</u>	R010 - R013
<u>Volume Present:</u>	640,000 cy
<u>Volume Beach Quality:</u>	640,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-29.8 / -41.0 ft
<u>Distance from Shore:</u>	3.50 miles
<u>Narrative:</u>	Area delineated by COE Ft. Pierce Shore Protection Project GRR Revised March 2008
<u>Source:</u>	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

<u>Name:</u>	Unnamed Shoal #1
<u>Location:</u>	R003 - R014
<u>Volume Present:</u>	6,349,077 cy
<u>Volume Beach Quality:</u>	6,349,077 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-29.8 / -51.4 ft
<u>Distance from Shore:</u>	3.22 miles
<u>Narrative:</u>	Area delineated by COE Ft. Pierce Shore Protection Project GRR Revised March 2008
<u>Source:</u>	ROSS Database and Fort Pierce Shoreline Protection Project, USACE March 2008

<u>Name:</u>	Area F
<u>Location:</u>	R020 - R027
<u>Volume Present:</u>	1,230,000 cy
<u>Volume Beach Quality:</u>	1,230,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	4
<u>Depth (Min/Max):</u>	-29.6 / -37.6 ft
<u>Distance from Shore:</u>	1.30 miles
<u>Narrative:</u>	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008
<u>Source:</u>	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

Borrow Areas St. Lucie County: Area AB, C; SL-2, 5; MMS-6



Name:	Area AB
Location:	R032 - R037
Volume Present:	1,570,000 cy
Volume Beach Quality:	1,570,000 cy
Category:	1 (Proven)
Cores:	3
Depth (Min/Max):	-34.9 / -45.6 ft
Distance from Shore:	3.40 miles
Narrative:	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008
Source:	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

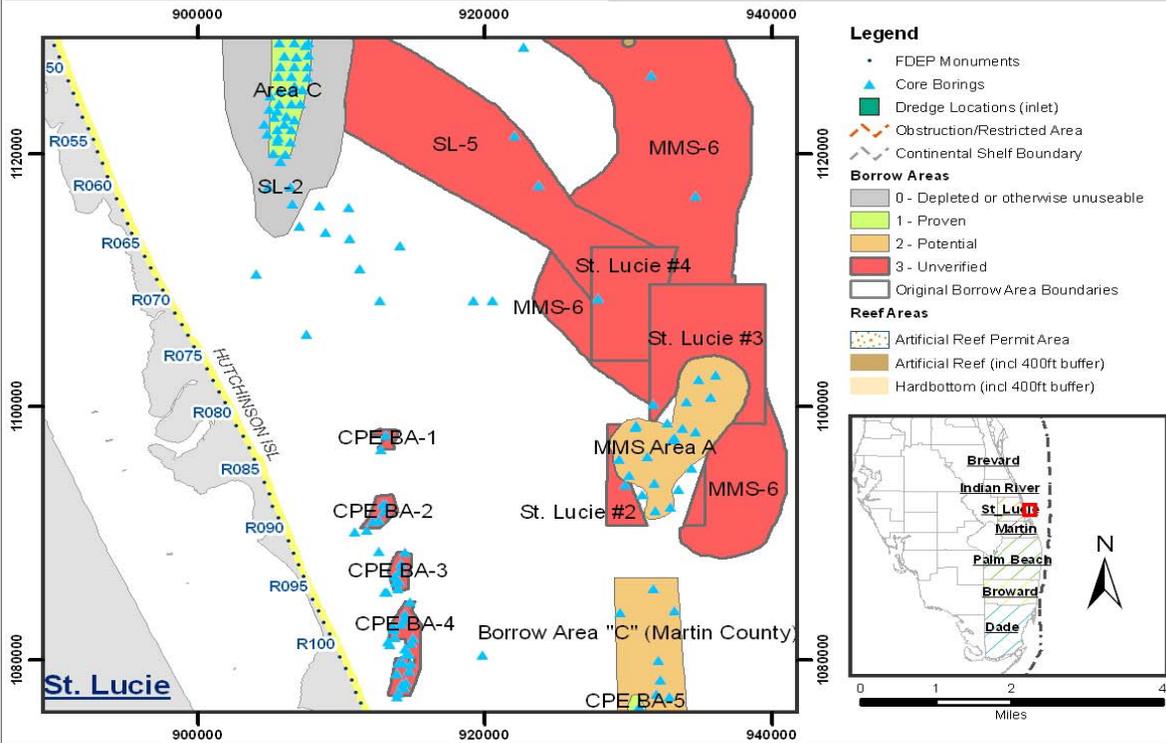
<u>Name:</u>	SL-2
<u>Location:</u>	R025 - R065
<u>Volume Present:</u>	45,589,231 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	7
<u>Depth (Min/Max):</u>	-30.5 / -51.3 ft
<u>Distance from Shore:</u>	1.50 miles
<u>Narrative:</u>	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008, considered unusable by Jacksonville COE
<u>Source:</u>	ROSS Database and Fort Pierce Shoreline Protection Project, USACE March 2008

<u>Name:</u>	Area C
<u>Location:</u>	R039 - R057
<u>Volume Present:</u>	7,760,000 cy
<u>Volume Beach Quality:</u>	7,760,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	38
<u>Depth (Min/Max):</u>	-30.5 / -40.1 ft
<u>Distance from Shore:</u>	2.02 miles
<u>Narrative:</u>	Data from Ft. Pierce Shore Protection Project GRR Revised March 2008
<u>Source:</u>	USACE 1997 Geotechnical Investigation Phase I. USACE 2008 Ft. Pierce GRR

<u>Name:</u>	SL-5
<u>Location:</u>	R045 - R075
<u>Volume Present:</u>	32,711,040 cy
<u>Volume Beach Quality:</u>	32,711,040 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-36.2 / -44.2 ft
<u>Distance from Shore:</u>	3.12 miles
<u>Narrative:</u>	Bathymetry reveals a shoal at this location (Delineated by Taylor Engineering)
<u>Source:</u>	Taylor Engineering, 2009.

<u>Name:</u>	MMS-6
<u>Location:</u>	R033 - R093
<u>Volume Present:</u>	92,213,323 cy
<u>Volume Beach Quality:</u>	92,213,323 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-39.4 / -71.5 ft
<u>Distance from Shore:</u>	4.30 miles
<u>Narrative:</u>	Unverified volume because all beach quality sand assumed to exist in MMS Area A
<u>Source:</u>	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

Borrow Areas St. Lucie County: St. Lucie #2 - 4; CPE BA-1; MMS-Area A



Name:	St. Lucie #2
Location:	R081 - R090
Volume Present:	3,065,315 cy
Volume Beach Quality:	3,065,315 cy
Category:	3 (Unverified)
Cores:	0
Depth (Min/Max):	-36.3 / -58.0 ft
Distance from Shore:	3.90 miles
Narrative:	Partial overlap by Borrow Area A in Martin County
Source:	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level

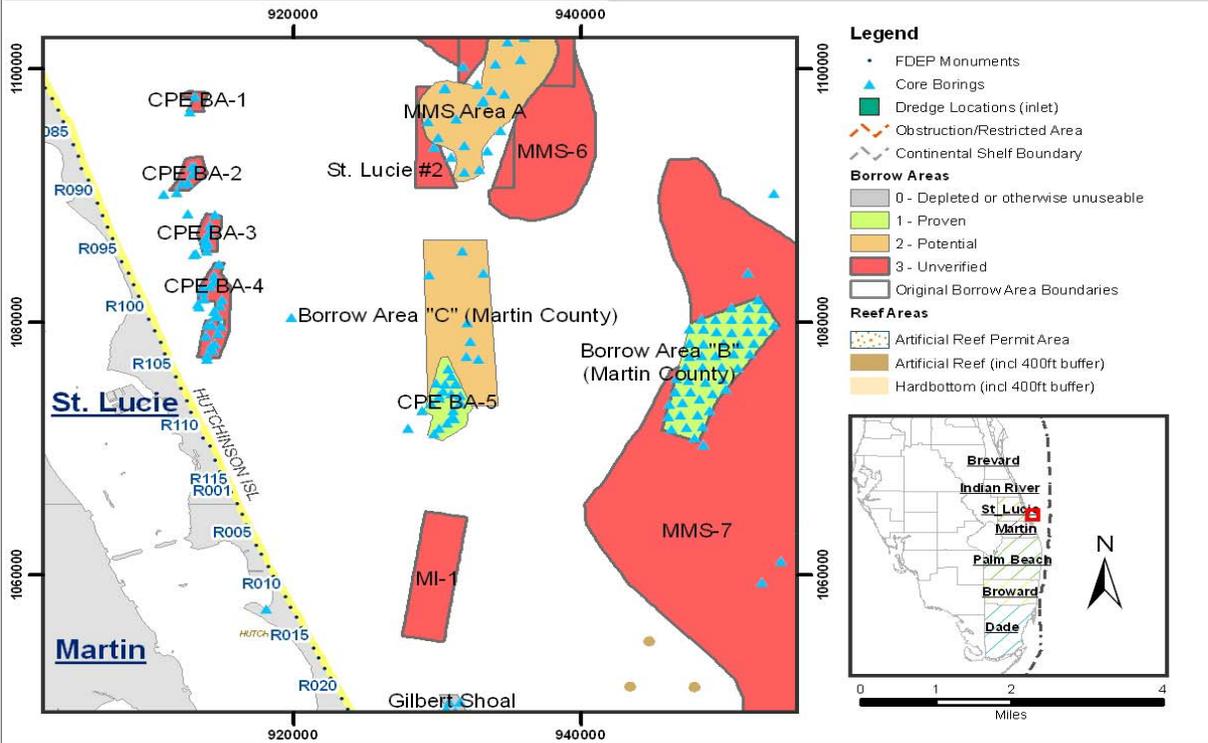
<u>Name:</u>	St. Lucie #4
<u>Location:</u>	R065 - R076
<u>Volume Present:</u>	9,107,758 cy
<u>Volume Beach Quality:</u>	9,107,758 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-36.2 / -47.0 ft
<u>Distance from Shore:</u>	4.66 miles
<u>Narrative:</u>	Data from 2007 St. Lucie County Geotechnical Investigation
<u>Source:</u>	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level

<u>Name:</u>	St. Lucie #3
<u>Location:</u>	R068 - R080
<u>Volume Present:</u>	14,048,838 cy
<u>Volume Beach Quality:</u>	14,048,838 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-28.5 / -56.6 ft
<u>Distance from Shore:</u>	5.05 miles
<u>Narrative:</u>	Data from 2007 St. Lucie County Geotechnical Investigation; area partially overlapped by MMS Area A
<u>Source:</u>	Coastal Tech 2007. St. Lucie County Geotechnical Investigation, Reconnaissance Level

<u>Name:</u>	CPE BA-1
<u>Location:</u>	R084 - R086
<u>Volume Present:</u>	919,940 cy
<u>Volume Beach Quality:</u>	919,940 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-29.1 / -35.9 ft
<u>Distance from Shore:</u>	1.54 miles
<u>Narrative:</u>	Delineated by CPE- all sand Munsell value 4 or darker
<u>Source:</u>	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations

<u>Name:</u>	MMS Area A
<u>Location:</u>	R074 - R089
<u>Volume Present:</u>	23,000,000 cy
<u>Volume Beach Quality:</u>	23,000,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	19
<u>Depth (Min/Max):</u>	-28.5 / -56.6 ft
<u>Distance from Shore:</u>	4.38 miles
<u>Narrative:</u>	Area delineated by MMS (2008 report)
<u>Source:</u>	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

Borrow Areas St. Lucie County: CPE BA-2 - 5; Borrow Area "B", "C" (Martin County)



Name:	CPE BA-2
Location:	R088 - R091
Volume Present:	915,550 cy
Volume Beach Quality:	915,550 cy
Category:	3 (Unverified)
Cores:	5
Depth (Min/Max):	-33.0 / -42.3 ft
Distance from Shore:	0.92 miles
Narrative:	Delineated by CPE, Jacksonville COE questions the volume of beach quality material
Source:	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations

<u>Name:</u>	CPE BA-3
<u>Location:</u>	R093 - R096
<u>Volume Present:</u>	1,752,750 cy
<u>Volume Beach Quality:</u>	1,752,750 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	6
<u>Depth (Min/Max):</u>	-33.5 / -44.9 ft
<u>Distance from Shore:</u>	1.01 miles
<u>Narrative:</u>	Delineated by CPE, Jacksonville COE questions the volume of beach quality material
<u>Source:</u>	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations

<u>Name:</u>	CPE BA-4
<u>Location:</u>	R097 - R104
<u>Volume Present:</u>	620,970 cy
<u>Volume Beach Quality:</u>	620,970 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	19
<u>Depth (Min/Max):</u>	-25.2 / -41.5 ft
<u>Distance from Shore:</u>	0.35 miles
<u>Narrative:</u>	Delineated by CPE, Jacksonville COE questions the volume of beach quality material
<u>Source:</u>	CPE, 2006. S St Lucie County Hurricane and Storm Damage Reduction Project, Geotech Investigations

<u>Name:</u>	CPE BA-5
<u>Location:</u>	R103 - R111
<u>Volume Present:</u>	5,118,750 cy
<u>Volume Beach Quality:</u>	5,118,750 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	14
<u>Depth (Min/Max):</u>	-36.0 / -53.1 ft
<u>Distance from Shore:</u>	2.70 miles
<u>Narrative:</u>	Delineated by CPE (2006 report)
<u>Source:</u>	CPE, 2006. South St. Lucie County Hurricane and Storm Damage Reduction Project

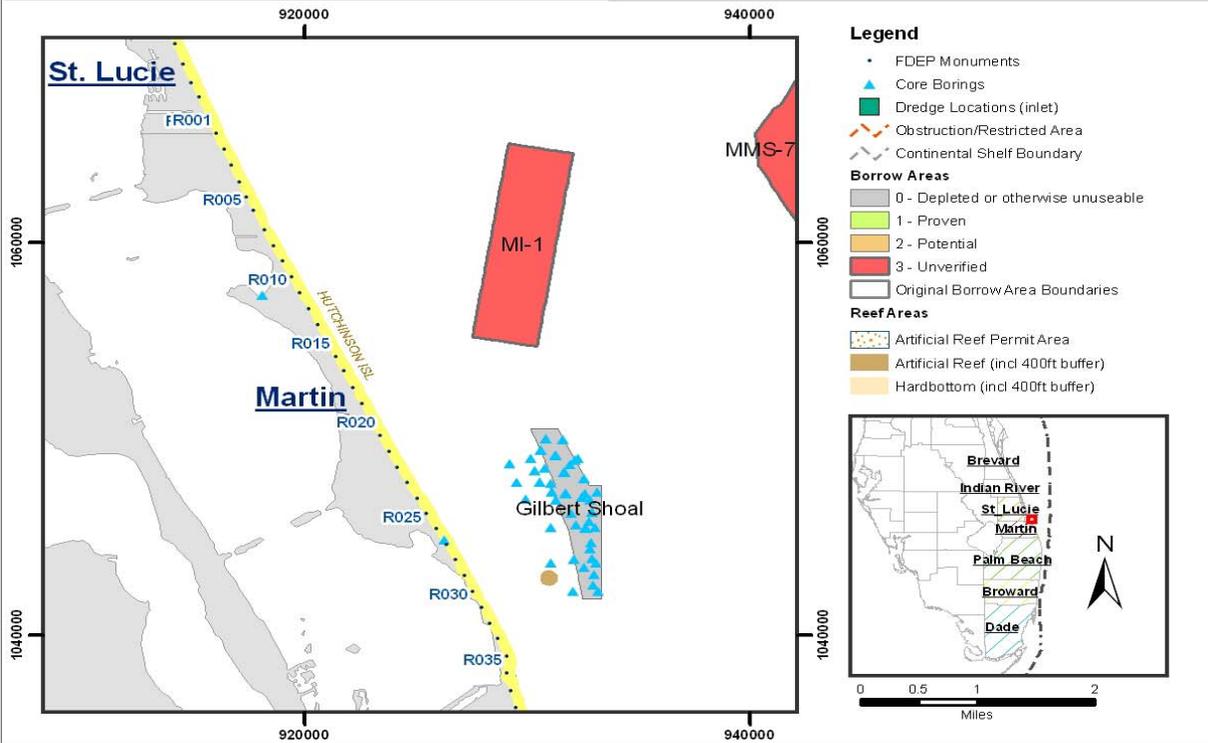
<u>Name:</u>	Borrow Area "C" (Martin County)
<u>Location:</u>	R094 - R108
<u>Volume Present:</u>	18,600,000 cy
<u>Volume Beach Quality:</u>	18,600,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	7
<u>Depth (Min/Max):</u>	-30.9 / -60.2 ft
<u>Distance from Shore:</u>	2.92 miles
<u>Narrative:</u>	Data from Martin County SPP
<u>Source:</u>	USACE, 2008. Martin County BEC Sand Search Investigations Offshore Drilling Report

<u>Name:</u>	Borrow Area "B" (Martin County)
<u>Location:</u>	R099 - R112 (St. Lucie County)
<u>Volume Present:</u>	17,000,000 cy
<u>Volume Beach Quality:</u>	17,000,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	49
<u>Depth (Min/Max):</u>	-52.4 / -64.7 ft
<u>Distance from Shore:</u>	5.50 miles
<u>Narrative:</u>	Data from Martin County SPP
<u>Source:</u>	USACE, 2008. Martin County BEC Sand Search Investigations Offshore Drilling Report

Martin County
Martin County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibracores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
MI-1	R002 - R015	29,427,979	6,539,551	6,539,551	0	0	3: Unverified	No vibracores, unknown basis for delineation	56.1	37.4	2.68	1.09	ROSS Phase II Central Sand Search
MI-2	R016 - R031	32,575,261	0	0	0	12	Overlapped	Overlapped by Gilbert Shoal, which is depleted based on correspondence with Jacksonville COE	43.7	28.7	1.48	0.71	ROSS Phase II Central Sand Search
Gilbert Shoal	R020 - R031	12,495,862	688,428	0	0	25	0: Depleted	Jacksonville COE indicates that this borrow area cannot be dredged again	42.6	25.2	1.4	0.77	Martin County Shore Protection Project, 2006 Gilbert Shoal Analysis
MMS-7	R086 (SLU) - R002 (PAL)	1,080,571,042	252,900,000	252,900,000	0	7	3: Unverified	Volume comes from sum of last 3 numbers from Table 1 of report (MMS, 2008)	114.9	42.8	8.52	3.45	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast
St. Lucie Inlet Ebb Shoal	R042 - R043	81,720	0	0	6,000	0	0: Unusable	Ebb Shoal accretes at 6,000 cy/yr, insufficient accumulation for dredging	15.1	11.0	0.41	0.34	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts
MI-6	R040 - R060	25,854,104	5,745,356	5,745,356	0	3	3: Unverified	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program	44.7	39.5	4.01	2.9	ROSS Phase II Central Sand Search
MI-3	R054 - R070	51,624,128	11,472,029	11,472,029	0	1	3: Unverified	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program	47.2	38.1	3.51	1.43	ROSS Phase II Central Sand Search
Site A	R079 - R087	12,600,528	367,000	367,000	0	2	1: Proven	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program	47.5	37.7	2.6	1.9	ROSS Sand Search 1989 Jupiter Island Beach Renourishment Program
MI-4	R078 - R090	27,344,911	6,076,647	6,076,647	0	4	3: Unverified	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program	60.9	36.0	2.7	1.7	ROSS Phase II Central Sand Search
MI-5	R105 - R114	14,151,477	0	0	0	0	Overlapped	Overlapped by Site B	56.4	42.6	3.44	2.59	ROSS Phase II Central Sand Search
Site B	R107 - R116	24,500,219	7,414,000	7,414,000	0	6	1: Proven	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program	60.4	42.6	2.6	1.8	ROSS Sand Search 1989 Jupiter Island Beach Renourishment Program

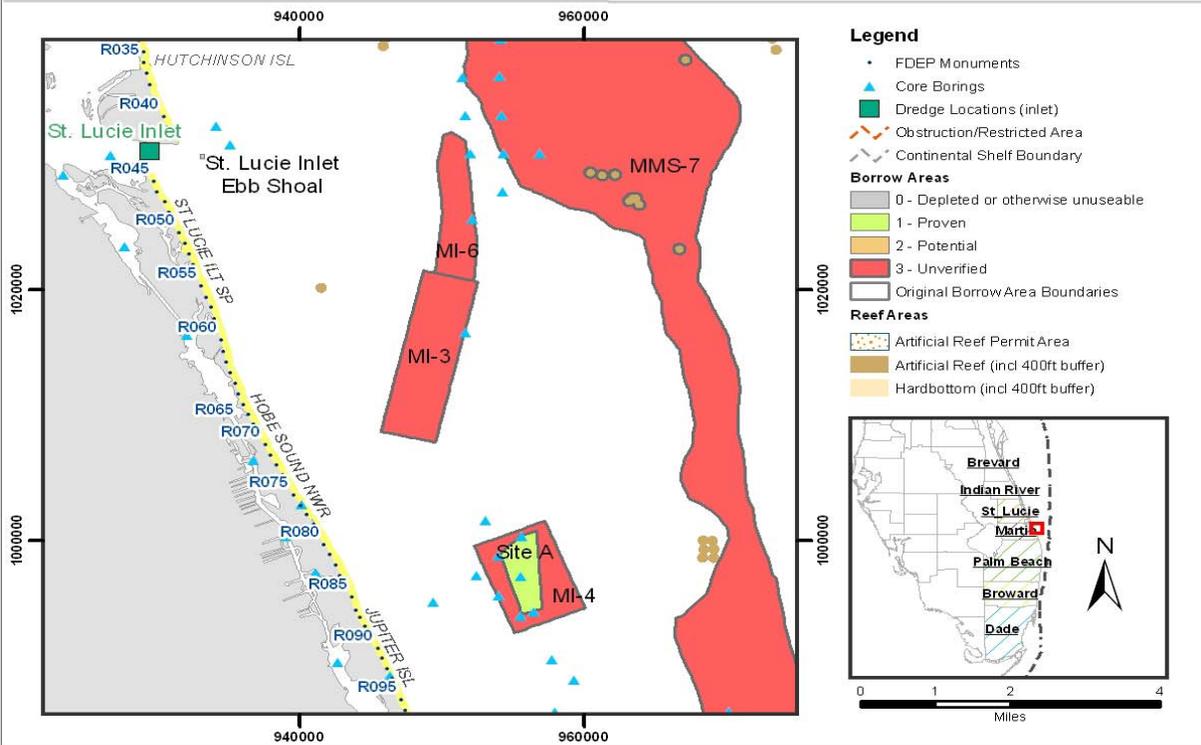
Borrow Areas Martin County: MI-1; Gilbert Shoal



Name:	MI-1
Location:	R002 - R015
Volume Present:	6,539,551 cy
Volume Beach Quality:	6,539,551 cy
Category:	3 (Unverified)
Cores:	0
Depth (Min/Max):	-37.4 / -56.1 ft
Distance from Shore:	1.09 miles
Narrative:	No vibracores, unknown basis for delineation
Source:	ROSS Phase II Central Sand Search

<u>Name:</u>	Gilbert Shoal
<u>Location:</u>	R020 - R031
<u>Volume Present:</u>	688,428 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	25
<u>Depth (Min/Max):</u>	-25.2 / -42.6 ft
<u>Distance from Shore:</u>	0.77 miles
<u>Narrative:</u>	Jacksonville COE indicates that this borrow area cannot be dredged again
<u>Source:</u>	Martin County Shore Protection Project, 2006 Gilbert Shoal Analysis

Borrow Areas Martin County: MI-3, 4, 6; Site A; St. Lucie Inlet Ebb Shoal



Name:	MI-3
Location:	R054 - R070
Volume Present:	11,472,029 cy
Volume Beach Quality:	11,472,029 cy
Category:	3 (Unverified)
Cores:	1
Depth (Min/Max):	-38.1 / -47.2 ft
Distance from Shore:	1.43 miles
Narrative:	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program
Source:	ROSS Phase II Central Sand Search

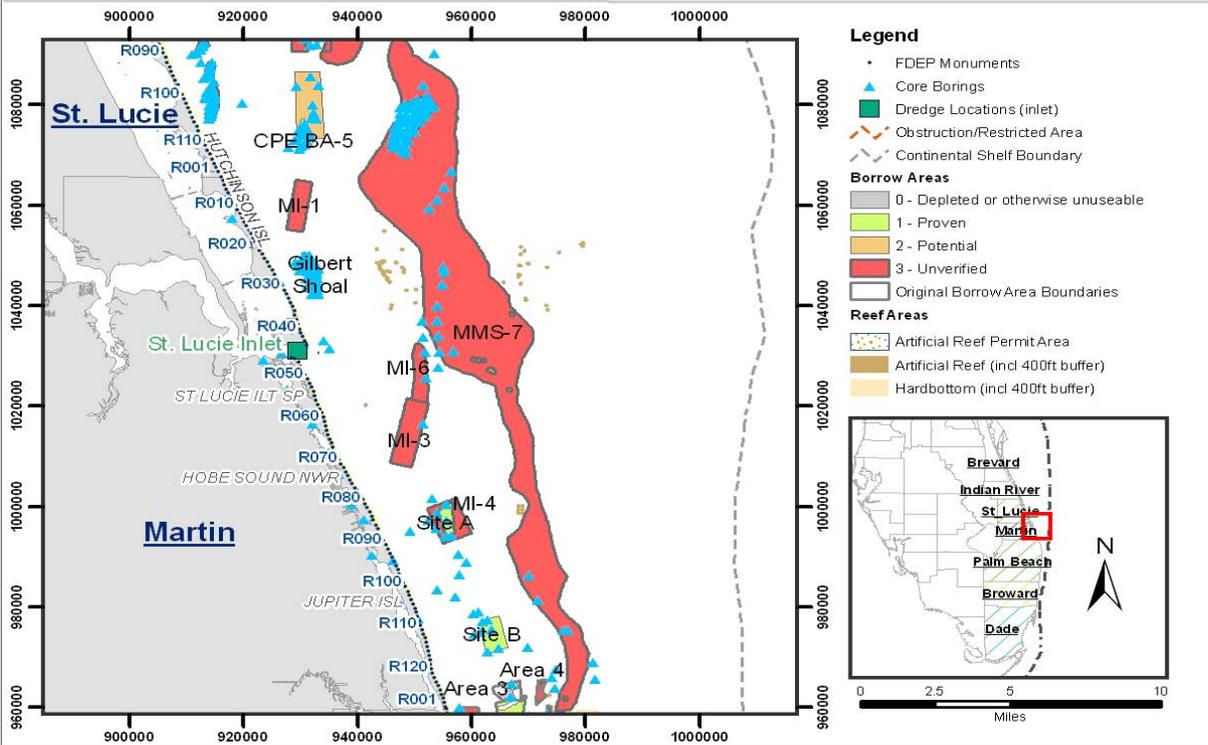
<u>Name:</u>	MI-6
<u>Location:</u>	R040 - R060
<u>Volume Present:</u>	5,745,356 cy
<u>Volume Beach Quality:</u>	5,745,356 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-39.5 / -44.7 ft
<u>Distance from Shore:</u>	2.90 miles
<u>Narrative:</u>	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program
<u>Source:</u>	ROSS Phase II Central Sand Search

<u>Name:</u>	Site A
<u>Location:</u>	R079 - R087
<u>Volume Present:</u>	367,000 cy
<u>Volume Beach Quality:</u>	367,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-37.7 / -47.5 ft
<u>Distance from Shore:</u>	1.90 miles
<u>Narrative:</u>	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program
<u>Source:</u>	ROSS Sand Search 1989 Jupiter Island Beach Renourishment Program

<u>Name:</u>	MI-4
<u>Location:</u>	R078 - R090
<u>Volume Present:</u>	6,076,647 cy
<u>Volume Beach Quality:</u>	6,076,647 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	4
<u>Depth (Min/Max):</u>	-36.0 / -60.9 ft
<u>Distance from Shore:</u>	1.70 miles
<u>Narrative:</u>	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program
<u>Source:</u>	ROSS Phase II Central Sand Search

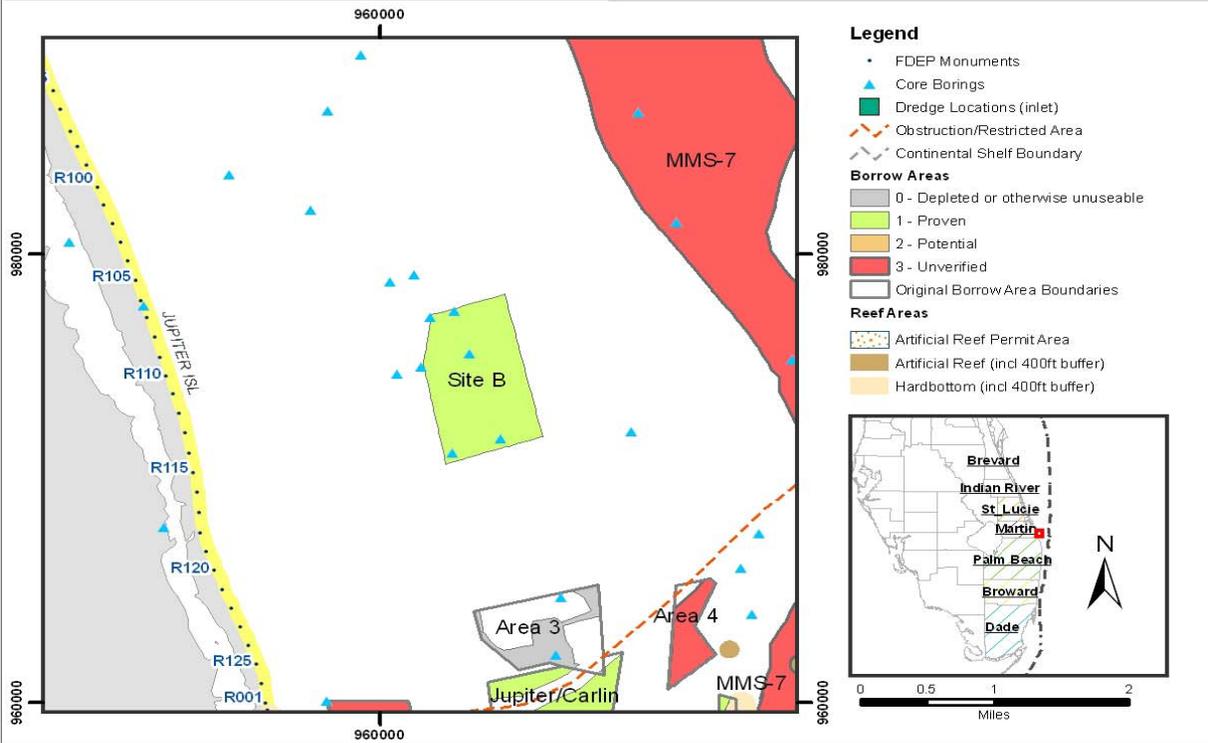
<u>Name:</u>	St. Lucie Inlet Ebb Shoal
<u>Location:</u>	R042 - R043
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-11.0 / -15.1 ft
<u>Distance from Shore:</u>	0.34 miles
<u>Narrative:</u>	Ebb Shoal accretes at 6,000 cy/yr, insufficient accumulation for dredging
<u>Source:</u>	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts

Borrow Areas Martin County: MMS-7



Name:	MMS-7
Location:	R086 (St. Lucie County) - R002 (Palm Beach County)
Volume Present:	252,900,000 cy
Volume Beach Quality:	252,900,000 cy
Category:	3 (Unverified)
Cores:	7
Depth (Min/Max):	-42.8 / -114.9 ft
Distance from Shore:	3.45 miles
Narrative:	Volume comes from sum of last 3 numbers from Table 1 of report (MMS, 2008)
Source:	MMS, 2008. A Geological Investigation of Sand Resources along Florida's CE Coast

Borrow Areas Martin County: Site B



Name:	Site B
Location:	R107 - R116
Volume Present:	7,414,000 cy
Volume Beach Quality:	7,414,000 cy
Category:	1 (Proven)
Cores:	6
Depth (Min/Max):	-42.6 / -60.4 ft
Distance from Shore:	1.80 miles
Narrative:	Vibracores from G and B Sand Search 1989 Jupiter Island Beach Renourishment Program
Source:	ROSS Sand Search 1989 Jupiter Island Beach Renourishment Program

Palm Beach County
Palm Beach County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
Area 4	R121 - R126	4,812,187	14,100,000	2,400,000	0	32	3: Unverified	32 cores, 85 miles seismic survey taken 1999. Borrow area outline from Palm Beach County GIS. Volume from Palm Beach County meeting (January 2008)	72.8	66.8	3.49	2.87	Palm Beach County ERM Department GIS
Area 3	R121 - R126	5,352,886	0	0	0	18	0: Depleted	Borrow area outline from Palm Beach County GIS	65.6	51.0	2.7	1.7	Palm Beach County ERM Department GIS
Jupiter/Carlin	R125	24,577,734	1,250,000	1,250,000	0	46	1: Proven	Used for beach nourishment at R013 to R019 in 1995. Borrow area outline from Palm Beach County GIS. Volume from PBC meeting in January 2008	72.7	46.0	3.3	1.54	Palm Beach County ERM Department GIS, Ref 8
Jupiter Shoal	R012 - R013	2,060,009	500,000	0	10,000	15	0: Unusable	Yearly accretion of 10000 cy takes place (Ref 2), but sand is too fine for beach nourishment, communication with Palm Beach County, April 2009	20.0	3.0	0.49	0.07	Ref 2
Palm Beach (Juno to Jupiter)	R013 - R052	96,014,652	20,000,000	20,000,000	0	23	3: Unverified	Borings taken in August 2006 (unavailable for this study) - Extensive rock present, with very fine sands close to shore. Volume and location based on Ref 16	61.5	31.9	1.48	0.57	Ref 16
ROSS Proposed Area-1	R001 - R072	122,615,685	28,487,854	28,487,854	0	20	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	41.8	18.0	1.02	0.22	Ref 6 (ROSS database)
Singer Island	R055 - R070	34,224,716	12,500,000	2,000,000	0	38	2: Potential	Estimate of the total volume from Ref 31, estimate of beach quality volume from PBC communication after plans and specs phase	52.3	26.3	1.05	0.37	Ref 31, Palm Beach County ERM Department GIS
Lake Worth Inlet	R072 - R075	1,872,913	80,000	80,000	0	1	2: Potential	Category assigned by Palm Beach County GIS, volume based on Ref 2. Borrow area outline from Palm Beach County GIS	30.2	8.8	0.42	0.08	Ref 2, Palm Beach County ERM Department GIS
Lake Worth Inlet North	R072 - R076	5,565,908	3,500,000	3,500,000	0	8	2: Potential	Total volume is based on the volume beach quality sand recorded. Borrow area outline from Palm Beach County GIS. Volume derived from Ref 32	43.6	18.0	0.67	0.24	Ref 32, Palm Beach County ERM Department GIS
Lake Worth Inlet South	R076 - R083	12,656,859	5,270,000	5,270,000	0	38	2: Potential	Primary 3.9M cy, Secondary 1.37M cy. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow area outline from Palm Beach County GIS.	34.9	15.1	0.6	0.15	Ref 32, Palm Beach County ERM Department GIS
ROSS Proposed Area-10	R085 - R091	3,676,242	824,051	824,051	0	8	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	39.9	31.9	0.67	0.47	Ref 6 (ROSS database)
Palm Beach North	R091 - R094	3,761,082	2,700,000	2,700,000	0	11	2: Potential	Borrow Area I. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow area outline from Palm Beach County GIS.	41.5	29.0	0.7	0.42	Ref 32, Palm Beach County ERM Department GIS

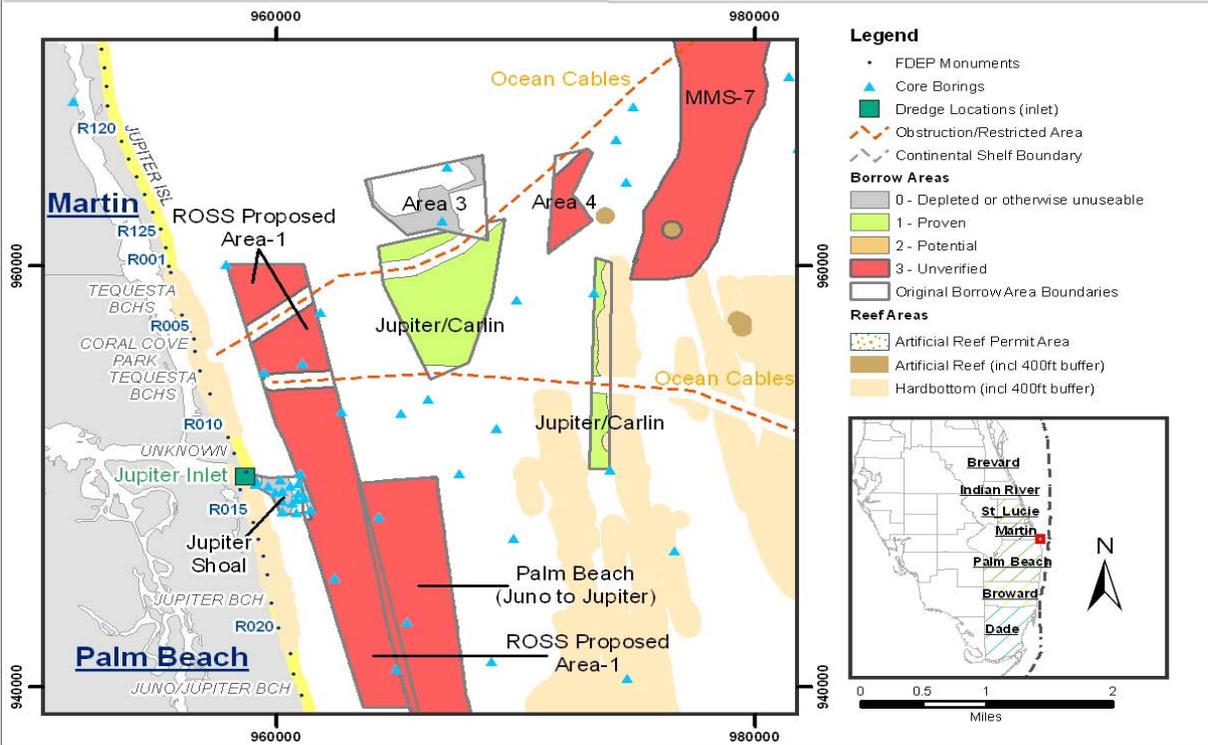
Palm Beach County Borrow Area Inventory Continued

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
PB-2	R094 - R105	4,648,952	1,033,101	1,033,101	0	1	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	39.0	20.0	0.5	0.3	Ref 6 (ROSS database)
Palm Beach South	R098 - R105	7,536,525	15,212,000	15,212,000	0	30	2: Potential	Borrow Area II. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow Area outline based on Palm Beach County GIS	56.9	36.4	0.68	0.48	Ref 32, Palm Beach County ERM Department GIS
Palm Beach Area VI	R122 - R127	3,350,416	0	0	0	0	0: Unusable	Following Reach 8 Section 120 Hearing, these areas cannot be used for beach nourishment due to small grain size	40.5	27.0	0.47	0.32	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix
Palm Beach Area III	R128 - R130	1,675,297	545,000	545,000	0	5	2: Potential	Borrow area outline from Palm Beach County GIS. Total Volume taken from Ref 4 (545k cy) and Beach Quality Sand volume supplied at meeting with Palm Beach county, January 2008	72.2	32.6	0.71	0.45	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix.
Palm Beach Area V	R129 - R136	3,627,033	0	0	0	0	0: Unusable	Following Reach 8 Section 120 Hearing, these areas cannot be used for beach nourishment due to small grain size	40.3	29.6	0.4	0.3	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix
Palm Beach Area IV	R132 - R135	3,372,630	2,000,000	2,000,000	0	8	0: Unusable	Similar grain size to areas V and VI, too small for beach nourishment	74.0	22.7	0.63	0.42	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix
PB-3	R136 - R145	15,304,625	3,401,028	3,401,028	0	2	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	46.6	18.0	0.52	0.15	Ref 6 (ROSS database)
Boynton Inlet Ebb Shoal	R151 - R152	81,720	0	0	13,000	0	3: Unverified	Ebb Shoal accretes at 13,000 cy/yr, unknown quality	15.4	9.9	0.14	0.09	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts
ROSS Proposed Area-12, 17	R152 - R167	12,323,604	2,738,578	2,738,578	0	15	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	77.4	28.9	0.68	0.38	Ref 6 (ROSS database)
Ocean Ridge	R152 - R165	7,721,415	3,670,000	3,670,000	0	10	1: Proven	Total volume was 5.2M, 1.53 used 97/98 & 2005, hence 3.67M remaining. Borrow area outline from Palm Beach County GIS. Palm Beach County meeting, January 2008	47.1	22.9	0.54	0.31	Palm Beach County ERM Department GIS
Briny Breezes	R165 - R175	16,423,262	23,000,000	7,666,667	0	10	2: Potential	Ref 33 Geotechnical report shows total volume available. Beach Quality volume (19m cy) from PBC, January 2008 meeting. Assumed beach quality = 1/3 of total, based on Ref 33. Areas with obstructions subtracted	35.8	18.0	0.48	0.18	Ref 33
ROSS Proposed Area-28	R179 - R182	882,157	198,422	198,422	0	0	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	39.3	30.5	0.53	0.37	Ref 6 (ROSS database)
Delray Beach	R175 - R190	3,923,532	3,800,000	3,800,000	0	24	1: Proven	Volume derived from Ref 1 (Appendix A, p 14). Additional 20 M cy may be available around this area. Borrow area outline from Palm Beach County GIS	48.4	28.8	0.54	0.36	Ref 1 (Appendix A, p14), Palm Beach County ERM Department GIS

Palm Beach County Borrow Area Inventory Continued

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
ROSS Proposed Area-44	R182 - R185	507,154	112,701	112,701	0	1	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	39.4	34.7	0.56	0.45	Ref 6 (ROSS database)
ROSS Proposed Area-36	R181 - R190	1,840,315	408,959	408,959	0	2	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	36.0	28.8	0.51	0.35	Ref 6 (ROSS database)
Highland Beach	R194 - R217	23,220,192	16,000,000	5,333,333	0	20	2: Potential	Total volume derived from Ref 33 (16m cy), with Beach Quality Volume (24m cy) provided at meeting with PBC Jan 2008. Assumed beach quality = 1/3 of total, based on Ref 33. Outline of area derived from PBC GIS	63.9	18.0	0.68	0.2	Ref 33, Palm Beach County ERM Department GIS
PB-5	R194 - R217	8,880,419	1,973,890	1,973,890	0	0	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	34.3	18.0	0.4	0.17	Ref 6 (ROSS database)
ROSS Proposed Area-54	R204 - R208	2,613,152	580,700	580,700	0	0	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	58.6	34.7	0.69	0.38	Ref 6 (ROSS database)
Boca Raton	R204 - R214	2,227,104	3,300,000	3,300,000	0	39	1: Proven	Borrow area outline from Palm Beach County GIS. Volume from Ref 1 (Appendix A, page 14)	50.6	39.0	0.6	0.47	Ref 1, Palm Beach County ERM Department GIS
ROSS Proposed Area-59	R206 - R216	2,747,709	610,792	610,792	0	7	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	41.1	34.8	0.49	0.4	Ref 6 (ROSS database)
ROSS Proposed Area-73	R217 - R222	2,336,815	520,316	520,316	0	5	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	46.8	28.1	0.61	0.32	Ref 6 (ROSS database)
South Boca Raton	R222 - R224	1,189,817	43,000	19,000	19,000	21	1: Proven	Area outline from Palm Beach County GIS. Yearly accretion of 19000 cy takes place (Ref 2), not currently used	19.1	3.0	0.26	0.07	Ref 2, Palm Beach County ERM Department GIS
ROSS Proposed Area-79	R224 - R228	2,976,450	661,434	661,434	0	3	3: Unverified	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth	67.8	36.0	0.83	0.58	Ref 6 (ROSS database)

Borrow Areas Palm Beach County: Jupiter/Carlin; Area 3, 4

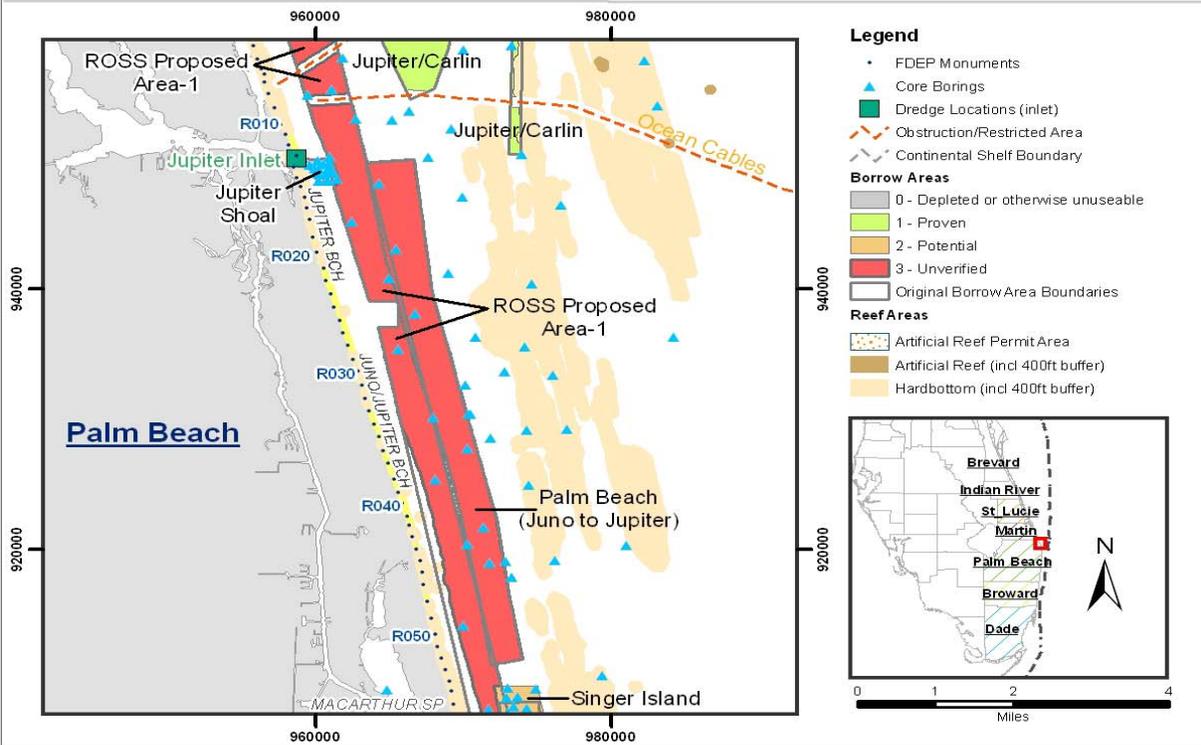


Name:	Jupiter/Carlin
Location:	2 miles northeast of Jupiter Inlet; R125 (Martin County) - *
Volume Present:	1,250,000 cy
Volume Beach Quality:	1,250,000 cy
Category:	1 (Proven)
Cores:	46
Depth (Min/Max):	-46.0 / -72.7 ft
Distance from Shore:	1.54 miles
Narrative:	Used for beach nourishment at R013 to R019 in 1995. Borrow area outline from Palm Beach County GIS. Volume from PBC meeting in January 2008
Source:	Palm Beach County ERM Department GIS, Ref 8

<u>Name:</u>	Area 3
<u>Location:</u>	Martin County R121 - R126
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	18
<u>Depth (Min/Max):</u>	-51.0 / -65.6 ft
<u>Distance from Shore:</u>	1.70 miles
<u>Narrative:</u>	Borrow area outline from Palm Beach County GIS
<u>Source:</u>	Palm Beach County ERM Department GIS

<u>Name:</u>	Area 4
<u>Location:</u>	Martin County R121 - R126
<u>Volume Present:</u>	14,100,000 cy
<u>Volume Beach Quality:</u>	2,400,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	32
<u>Depth (Min/Max):</u>	-66.8 / -72.8 ft
<u>Distance from Shore:</u>	2.87 miles
<u>Narrative:</u>	32 cores, 85 miles seismic survey taken 1999. Borrow area outline from Palm Beach County GIS. Volume from Palm Beach County meeting (January 2008)
<u>Source:</u>	Palm Beach County ERM Department GIS

Borrow Areas Palm Beach County: Jupiter Shoal; Palm Beach; Ross Proposed Area-1

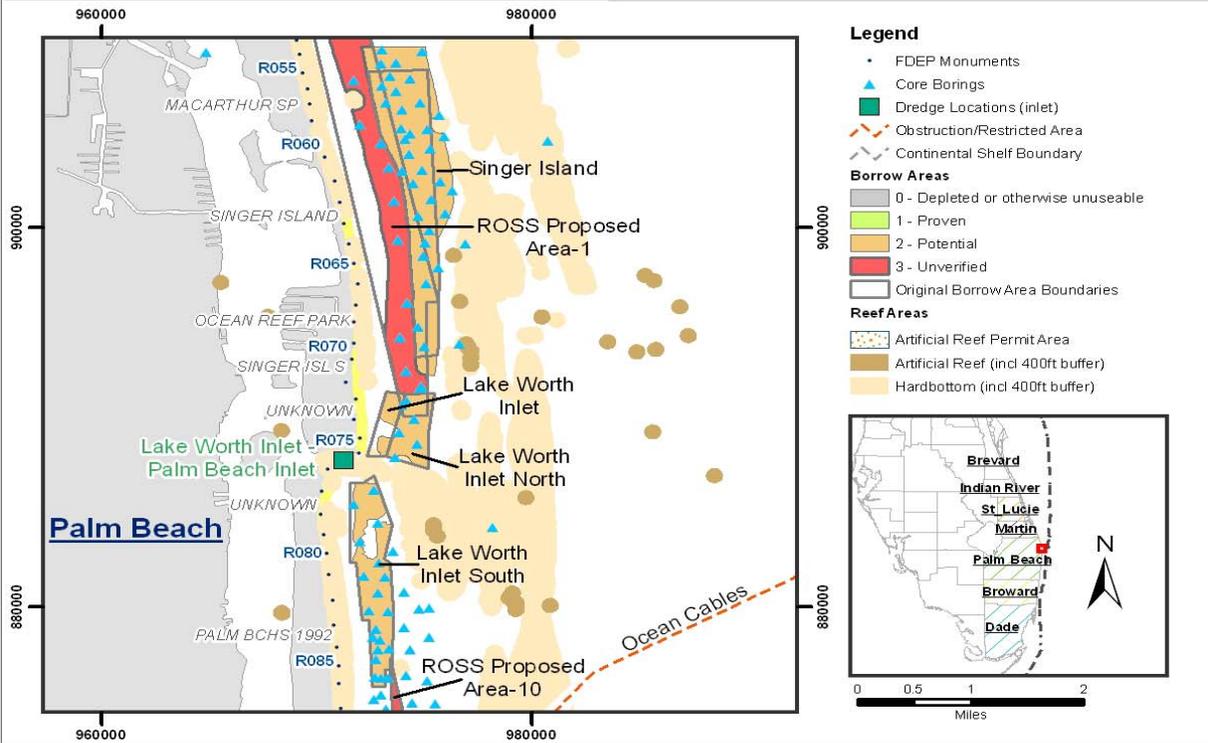


Name:	Jupiter Shoal
Location:	R012 - R013
Volume Present:	500,000 cy
Volume Beach Quality:	0 cy
Category:	0 (Unusable)
Cores:	15
Depth (Min/Max):	-3.0 / -20.0 ft
Distance from Shore:	0.07 miles
Narrative:	Yearly accretion of 10000 cy takes place (Ref 2), but sand is too fine for beach nourishment, communication with Palm Beach County, April 2009
Source:	Ref 2

<u>Name:</u>	Palm Beach (Juno to Jupiter)
<u>Location:</u>	R013 - R052
<u>Volume Present:</u>	20,000,000 cy
<u>Volume Beach Quality:</u>	20,000,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	23
<u>Depth (Min/Max):</u>	-31.9 / -61.5 ft
<u>Distance from Shore:</u>	0.57 miles
<u>Narrative:</u>	Borings taken in August 2006 (unavailable for this study) - Extensive rock present, with very fine sands close to shore. Volume and location based on Ref 16
<u>Source:</u>	Ref 16

<u>Name:</u>	ROSS Proposed Area-1
<u>Location:</u>	R001 - R072
<u>Volume Present:</u>	28,487,854 cy
<u>Volume Beach Quality:</u>	28,487,854 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	20
<u>Depth (Min/Max):</u>	-18.0 / -41.8 ft
<u>Distance from Shore:</u>	0.22 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

Borrow Areas Palm Beach County: Singer Island; Lake Worth Inlet, North, South



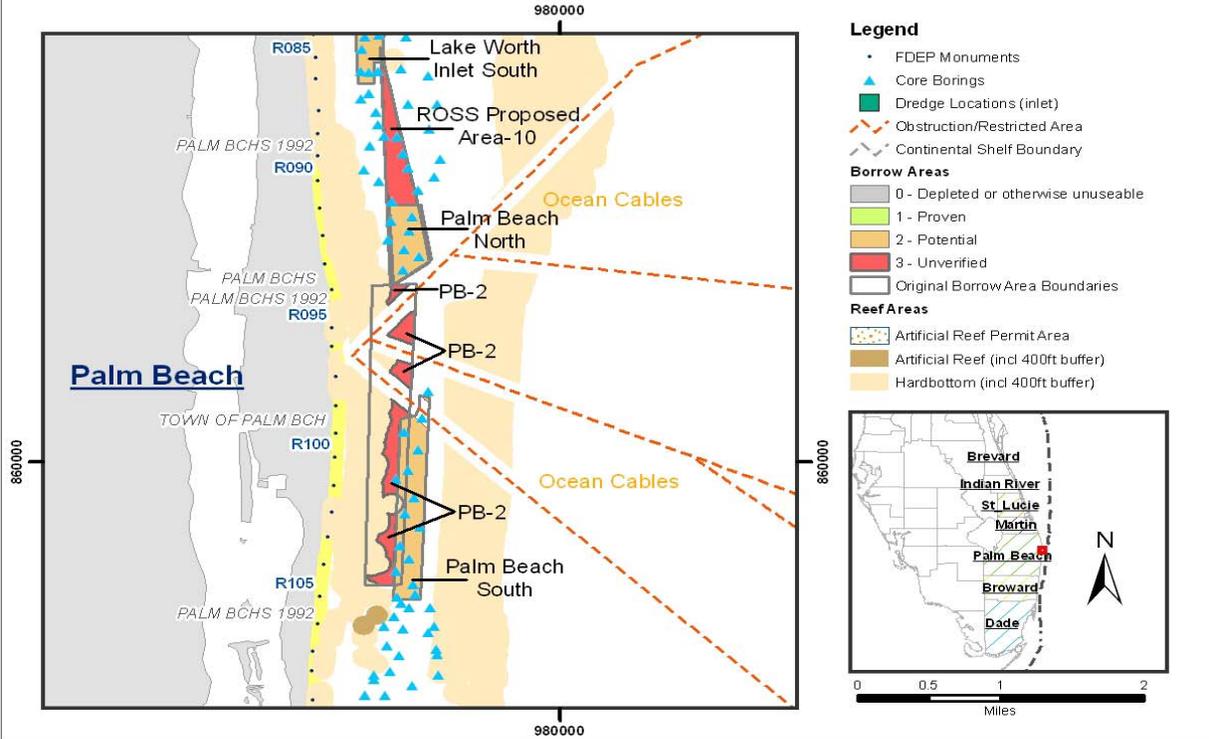
Name:	Singer Island
Location:	R055 - R070
Volume Present:	12,500,000 cy
Volume Beach Quality:	2,000,000 cy
Category:	2 (Potential)
Cores:	38
Depth (Min/Max):	-26.3 / -52.3 ft
Distance from Shore:	0.37 miles
Narrative:	Estimate of the total volume from Ref 31, estimate of beach quality volume from PBC communication after plans and specs phase
Source:	Ref 31, Palm Beach County ERM Department GIS

<u>Name:</u>	Lake Worth Inlet
<u>Location:</u>	R072 - R075
<u>Volume Present:</u>	80,000 cy
<u>Volume Beach Quality:</u>	80,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-8.8 / -30.2 ft
<u>Distance from Shore:</u>	0.08 miles
<u>Narrative:</u>	Category assigned by Palm Beach County GIS, volume based on Ref 2. Borrow area outline from Palm Beach County GIS
<u>Source:</u>	Ref 2, Palm Beach County ERM Department GIS

<u>Name:</u>	Lake Worth Inlet North
<u>Location:</u>	R072 - R076
<u>Volume Present:</u>	3,500,000 cy
<u>Volume Beach Quality:</u>	3,500,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	8
<u>Depth (Min/Max):</u>	-18.0 / -43.6 ft
<u>Distance from Shore:</u>	0.24 miles
<u>Narrative:</u>	Total volume is based on the volume beach quality sand recorded. Borrow area outline from Palm Beach County GIS. Volume derived from Ref 32
<u>Source:</u>	Ref 32, Palm Beach County ERM Department GIS

<u>Name:</u>	Lake Worth Inlet South
<u>Location:</u>	R076 - R083
<u>Volume Present:</u>	5,270,000 cy
<u>Volume Beach Quality:</u>	5,270,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	38
<u>Depth (Min/Max):</u>	-15.1 / -34.9 ft
<u>Distance from Shore:</u>	0.15 miles
<u>Narrative:</u>	Primary 3.9M cy, Secondary 1.37M cy. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow area outline from Palm Beach County GIS.
<u>Source:</u>	Ref 32, Palm Beach County ERM Department GIS

Borrow Areas Palm Beach County: Palm Beach North, South; PB-2; ROSS Proposed Area-10



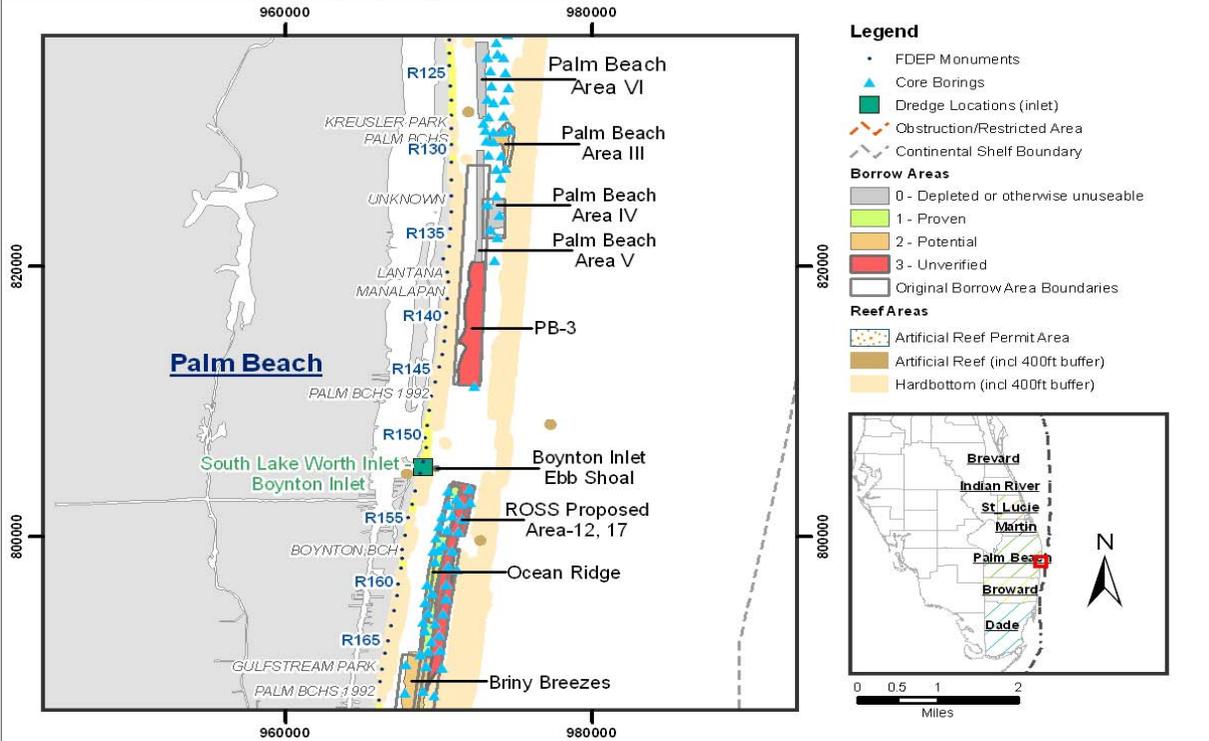
Name:	Palm Beach North
Location:	R091 - R094
Volume Present:	2,700,000 cy
Volume Beach Quality:	2,700,000 cy
Category:	2 (Potential)
Cores:	11
Depth (Min/Max):	-29.0 / -41.5 ft
Distance from Shore:	0.42 miles
Narrative:	Borrow Area I. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow area outline from Palm Beach County GIS.
Source:	Ref 32, Palm Beach County ERM Department GIS

<u>Name:</u>	Palm Beach South
<u>Location:</u>	R098 - R105
<u>Volume Present:</u>	15,212,000 cy
<u>Volume Beach Quality:</u>	15,212,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	30
<u>Depth (Min/Max):</u>	-36.4 / -56.9 ft
<u>Distance from Shore:</u>	0.48 miles
<u>Narrative:</u>	Borrow Area II. Total volume is based on the volume beach quality sand recorded (Ref 32). Borrow Area outline based on Palm Beach County GIS
<u>Source:</u>	Ref 32, Palm Beach County ERM Department GIS

<u>Name:</u>	PB-2
<u>Location:</u>	R094 - R105
<u>Volume Present:</u>	1,033,101 cy
<u>Volume Beach Quality:</u>	1,033,101 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-20.0 / -39.0 ft
<u>Distance from Shore:</u>	0.30 miles
<u>Narrative:</u>	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-10
<u>Location:</u>	R085 - R091
<u>Volume Present:</u>	824,051 cy
<u>Volume Beach Quality:</u>	824,051 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	8
<u>Depth (Min/Max):</u>	-31.9 / -39.9 ft
<u>Distance from Shore:</u>	0.47 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

Borrow Areas Palm Beach County: Ocean Ridge; Palm Beach Area III - VI; PB-3; ROSS Proposed Area-12,17; Boynton Inlet Ebb Shoal



Name:	Ocean Ridge
Location:	R152 - R165
Volume Present:	3,670,000 cy
Volume Beach Quality:	3,670,000 cy
Category:	1 (Proven)
Cores:	10
Depth (Min/Max):	-22.9 / -47.1 ft
Distance from Shore:	0.31 miles
Narrative:	Total volume was 5.2M, 1.53 used 97/98 & 2005, hence 3.67M remaining. Borrow area outline from Palm Beach County GIS. Palm Beach County meeting, January 2008
Source:	Palm Beach County ERM Department GIS

<u>Name:</u>	Palm Beach Area III
<u>Location:</u>	R128 - R130
<u>Volume Present:</u>	545,000 cy
<u>Volume Beach Quality:</u>	545,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	5
<u>Depth (Min/Max):</u>	-32.6 / -72.2 ft
<u>Distance from Shore:</u>	0.45 miles
<u>Narrative:</u>	Borrow area outline from Palm Beach County GIS. Total Volume taken from Ref 4 (545k cy) and Beach Quality Sand volume supplied at meeting with Palm Beach county, January 2008
<u>Source:</u>	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix.

<u>Name:</u>	Palm Beach Area IV
<u>Location:</u>	R132 - R135
<u>Volume Present:</u>	2,000,000 cy
<u>Volume Beach Quality:</u>	2,000,000 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	8
<u>Depth (Min/Max):</u>	-22.7 / -74.0 ft
<u>Distance from Shore:</u>	0.42 miles
<u>Narrative:</u>	Similar grain size to areas V and VI, too small for beach nourishment
<u>Source:</u>	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix

<u>Name:</u>	Palm Beach Area V
<u>Location:</u>	R129 - R136
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-29.6 / -40.3 ft
<u>Distance from Shore:</u>	0.30 miles
<u>Narrative:</u>	Following Reach 8 Section 120 Hearing, these areas cannot be used for beach nourishment due to small grain size
<u>Source:</u>	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix

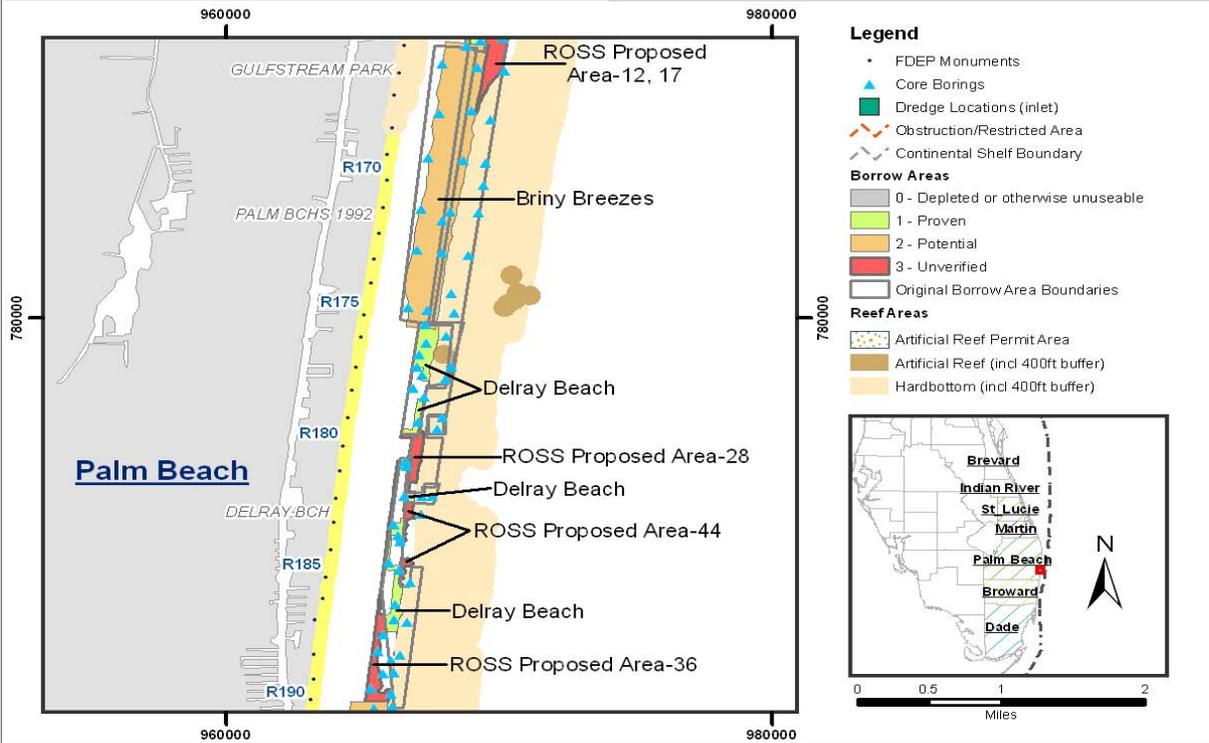
<u>Name:</u>	Palm Beach Area VI
<u>Location:</u>	R122 - R127
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-27.0 / -40.5 ft
<u>Distance from Shore:</u>	0.32 miles
<u>Narrative:</u>	Following Reach 8 Section 120 Hearing, these areas cannot be used for beach nourishment due to small grain size
<u>Source:</u>	CPE, 2007. Reach 8 Project FDEP Permit Application, Geotechnical Appendix

<u>Name:</u>	PB-3
<u>Location:</u>	R136 - R145
<u>Volume Present:</u>	3,401,028 cy
<u>Volume Beach Quality:</u>	3,401,028 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-18.0 / -46.6 ft
<u>Distance from Shore:</u>	0.15 miles
<u>Narrative:</u>	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-12, 17
<u>Location:</u>	R152 - R167
<u>Volume Present:</u>	2,738,578 cy
<u>Volume Beach Quality:</u>	2,738,578 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	15
<u>Depth (Min/Max):</u>	-28.9 / -77.4 ft
<u>Distance from Shore:</u>	0.38 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	Boynton Inlet Ebb Shoal
<u>Location:</u>	R151 - R152
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-9.9 / -15.4 ft
<u>Distance from Shore:</u>	0.09 miles
<u>Narrative:</u>	Ebb Shoal accretes at 13,000 cy/yr, unknown quality
<u>Source:</u>	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts

Borrow Areas Palm Beach County: Briny Breezes; Delray; ROSS Proposed Area-28, 36, 44



Name:	Briny Breezes
Location:	R165 - R175
Volume Present:	23,000,000 cy
Volume Beach Quality:	7,666,667 cy
Category:	2 (Potential)
Cores:	10
Depth (Min/Max):	-18.0 / -35.8 ft
Distance from Shore:	0.18 miles
Narrative:	Ref 33 Geotechnical report shows total volume available. Beach Quality volume (19m cy) from PBC, January 2008 meeting. Assumed beach quality = 1/3 of total, based on Ref 33. Areas with obstructions subtracted
Source:	Ref 33

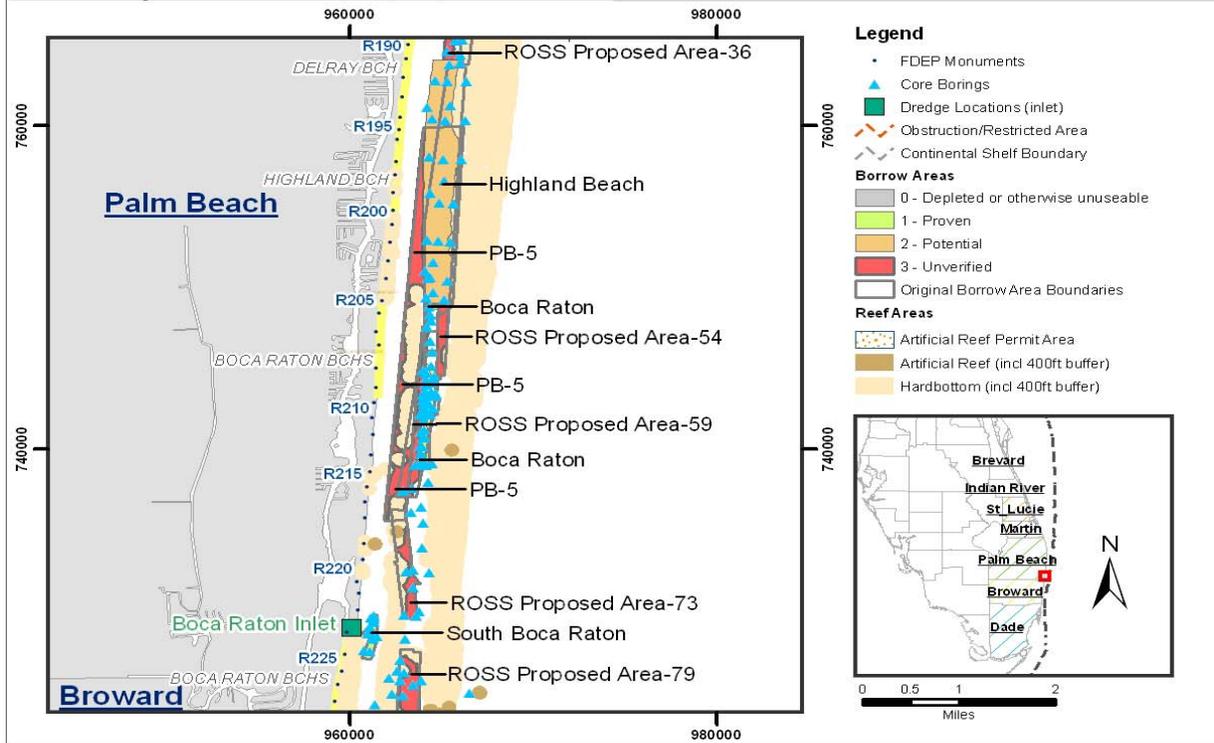
<u>Name:</u>	Delray Beach
<u>Location:</u>	R175 - R190
<u>Volume Present:</u>	3,800,000 cy
<u>Volume Beach Quality:</u>	3,800,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	24
<u>Depth (Min/Max):</u>	-28.8 / -48.4 ft
<u>Distance from Shore:</u>	0.36 miles
<u>Narrative:</u>	Volume derived from Ref 1 (Appendix A, p 14). Additional 20 M cy may be available around this area. Borrow area outline from Palm Beach County GIS
<u>Source:</u>	Ref 1 (Appendix A, p14), Palm Beach County ERM Department GIS

<u>Name:</u>	ROSS Proposed Area-28
<u>Location:</u>	R179 - R182
<u>Volume Present:</u>	198,422 cy
<u>Volume Beach Quality:</u>	198,422 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-30.5 / -39.3 ft
<u>Distance from Shore:</u>	0.37 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-44
<u>Location:</u>	R182 - R185
<u>Volume Present:</u>	112,701 cy
<u>Volume Beach Quality:</u>	112,701 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-34.7 / -39.4 ft
<u>Distance from Shore:</u>	0.45 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-36
<u>Location:</u>	R181 - R190
<u>Volume Present:</u>	408,959 cy
<u>Volume Beach Quality:</u>	408,959 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-28.8 / -36.0 ft
<u>Distance from Shore:</u>	0.35 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

Borrow Areas Palm Beach County: Highland Beach; PB-5; Boca Raton; South Boca Raton; ROSS Proposed Area- 54, 59, 73, 79



Name:	Highland Beach
Location:	R194 - R217
Volume Present:	16,000,000 cy
Volume Beach Quality:	5,333,333 cy
Category:	2 (Potential)
Cores:	20
Depth (Min/Max):	-18.0 / -63.9 ft
Distance from Shore:	0.20 miles
Narrative:	Total volume derived from Ref 33 (16m cy), with Beach Quality Volume (24m cy) provided at meeting with PBC Jan 2008. Assumed beach quality = 1/3 of total, based on Ref 33. Outline of area derived from PBC GIS
Source:	Ref 33, Palm Beach County ERM Department GIS

<u>Name:</u>	PB-5
<u>Location:</u>	R194 - R217
<u>Volume Present:</u>	1,973,890 cy
<u>Volume Beach Quality:</u>	1,973,890 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-18.0 / -34.3 ft
<u>Distance from Shore:</u>	0.17 miles
<u>Narrative:</u>	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	Boca Raton
<u>Location:</u>	R204 - R206 and R207 - R214
<u>Volume Present:</u>	3,300,000 cy
<u>Volume Beach Quality:</u>	3,300,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	39
<u>Depth (Min/Max):</u>	-39.0 / -50.6 ft
<u>Distance from Shore:</u>	0.47 miles
<u>Narrative:</u>	Borrow area outline from Palm Beach County GIS. Volume from Ref 1 (Appendix A, page 14)
<u>Source:</u>	Ref 1, Palm Beach County ERM Department GIS

<u>Name:</u>	South Boca Raton
<u>Location:</u>	R222 - R224
<u>Volume Present:</u>	43,000 cy
<u>Volume Beach Quality:</u>	19,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	21
<u>Depth (Min/Max):</u>	-3.0 / -19.1 ft
<u>Distance from Shore:</u>	0.07 miles
<u>Narrative:</u>	Area outline from Palm Beach County GIS. Yearly accretion of 19000 cy takes place (Ref 2), not currently used
<u>Source:</u>	Ref 2, Palm Beach County ERM Department GIS

<u>Name:</u>	ROSS Proposed Area-54
<u>Location:</u>	R204 - R208
<u>Volume Present:</u>	580,700 cy
<u>Volume Beach Quality:</u>	580,700 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-34.7 / -58.6 ft
<u>Distance from Shore:</u>	0.38 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-59
<u>Location:</u>	R206 - R216
<u>Volume Present:</u>	610,792 cy
<u>Volume Beach Quality:</u>	610,792 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	7
<u>Depth (Min/Max):</u>	-34.8 / -41.1 ft
<u>Distance from Shore:</u>	0.40 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-73
<u>Location:</u>	R217 - R222
<u>Volume Present:</u>	520,316 cy
<u>Volume Beach Quality:</u>	520,316 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	5
<u>Depth (Min/Max):</u>	-28.1 / -46.8 ft
<u>Distance from Shore:</u>	0.32 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	ROSS Proposed Area-79
<u>Location:</u>	R224 - R228
<u>Volume Present:</u>	661,434 cy
<u>Volume Beach Quality:</u>	661,434 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-36.0 / -67.8 ft
<u>Distance from Shore:</u>	0.58 miles
<u>Narrative:</u>	Area delineated by ROSS (Proposed Areas), excluding restricted areas and areas delineated by the counties. Volume calculated as area*6ft depth
<u>Source:</u>	Ref 6 (ROSS database)

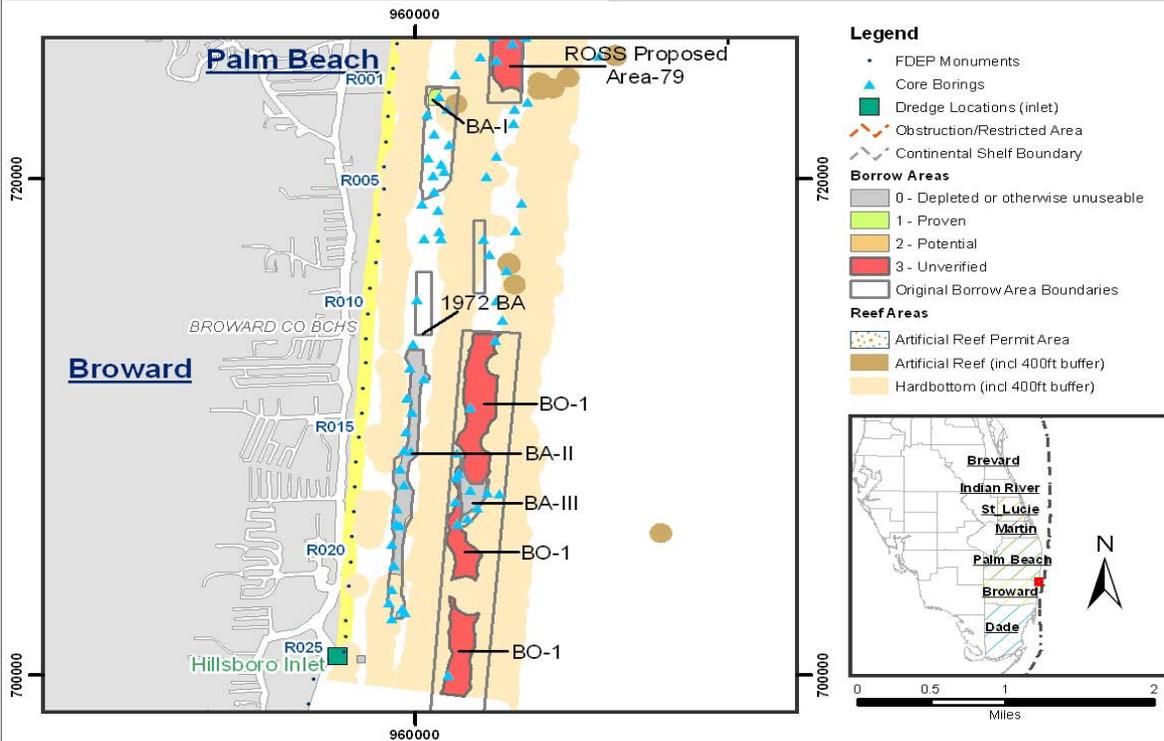
Broward County
Broward County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
BA-I	R001	263,437	988,400	988,400	0	9	1: Proven	Borrow area outline from Broward County. Volume from Ref 1 (App A, p16). Partly overlaps artificial reef permit area	38.4	19.6	0.44	0.23	Ref 1 (App A, p16)
1972 BA	R006 - R011	11,437	508,000	0	0	1	0: Unusable	Volume from Broward County, 1972 - David Stout. Completely overlaps artificial reef permit area. Outline borrow area from Broward County Shapefile Hillsboro1972BA_8390	82.0	29.1	0.75	0.29	Broward County
BA-II	R011 - R021	4,138,707	0	0	0	12	0: Depleted	Volume from Ref 1(App A, p16). Volume Beach quality from Broward County meeting Jan. 2008. Outline from BC shapefile. Depleted based on meeting with Jacksonville COE, April 2009	44.0	24.1	0.42	0.24	Ref 1 (App A, p16)
BA-III	R016 - R019	1,106,470	0	0	0	7	0: Depleted	Volume from Ref 1 (App A, p16), Outline borrow area from Broward County shapefile Borrows12346.shp. All sand used in 2005/06 - Steve Higgins (Broward)	96.0	76.0	0.87	0.69	Ref 1 (App A, p16)
BO-1	R011 - R027	10,532,169	2,340,482	2,340,482	0	8	3: Unverified	Volume calculated based on area x assumed 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6) Overlaps proven area BA-III	116.9	58.9	0.87	0.61	Ref 6 (ROSS database)
Hillsboro Inlet Ebb Shoal	R024 - R025	81,720	0	0	4,000	0	0: Unusable	Ebb Shoal accretes at 4,000 cy/yr, insufficient quantity for dredging	13.3	7.3	0.13	0.06	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts
Pomp 1983	R028 - R032	954,836	1,909,000	212,186	0	1	3: Unverified	Volume data from Broward county David Stout, outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans	92.3	32.0	1.1	0.53	Broward County
BA-IV	R031 - R032	100,000	0	0	0	1	0: Depleted	Volume from Ref 1 (App A, p16); outline borrow area from Broward County shapefile Borrows12346.shp. All sand used in 2005/06 - Steve Higgins (Broward)	37.9	35.0	0.66	0.61	Ref 1, Broward County
BA-V	R041 - R044	627,908	344,000	0	0	0	0: Unusable	Volume from Ref 1 (App A, p16), outline estimated from maps in Ref 1. Unusable because of environmental restrictions (Steve Higgins, Broward County)	77.5	58.0	1.06	0.97	Ref 1, Broward County
BA-VI	R046 - R049	934,046	0	0	0	3	0: Depleted	Volume from Ref 1 (App A, p16), outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans. All sand used in 2005/06 - Steve Higgins (Broward)	63.9	37.8	0.92	0.71	Ref 1, Broward County
BA-VII	R046 - R049	2,415,326	361,480	0	0	1	0: Unusable	Volume from Ref 1 (App A, p16), outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans. Unusable because of environmental restrictions (Steve Higgins, Broward County)	88.1	70.2	1.19	1.02	Ref 1, Broward County

Broward County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
BO-3	R071 - R086	5,345,048	1,238,917	1,238,917	0	0	3: Unverified	Ref 6 Volume calculated based on assumed 6ft depth over full area. ROSS database - Phase I SE Sand Search. Partly overlaps artificial reef permit area. Overlaps Navy Restricted area, therefore partly unusable	128.1	63.5	1.46	0.98	Ref 6 (ROSS database)
1977 BA	R077 - R082	8,573,590	1,090,000	1,090,000	0	3	3: Unverified	Volume from Broward county, 1983 - David Stout. Outline and volume from Broward County Shapefile JUL1977BA_8390. Identical to ROSS Proposed Area-85 (Ref 6)	113.9	37.8	1.37	0.77	Ref 6 (ROSS database)
1979 BA	R103 - R125	240,232	1,980,000	0	0	0	0: Unusable	Volume from Broward county, 1979 - David Stout. Completely overlaps artificial reef permit area	116.0	41.0	1.7	1.03	Broward County
BO-4	R105 - R112	680,645	235,106	235,106	0	0	3: Unverified	Volume calculated based on assumed 6ft sand depth over the viable borrow area. ROSS database - Phase I SE Sand Search. Areas with obstructions subtracted (Ref 6)	51.0	40.0	1.05	1.03	Ref 6 (ROSS database)

Borrow Areas Broward County: BA-I, II, III; BO-1; 1972 BA



Name:	BA-I
Location:	R001
Volume Present:	988,400 cy
Volume Beach Quality:	988,400 cy
Category:	1 (Proven)
Cores:	9
Depth (Min/Max):	-19.6 / -38.4 ft
Distance from Shore:	0.23 miles
Narrative:	Borrow area outline from Broward County. Volume from Ref 1 (App A, p16). Partly overlaps artificial reef permit area
Source:	Ref 1 (App A, p16)

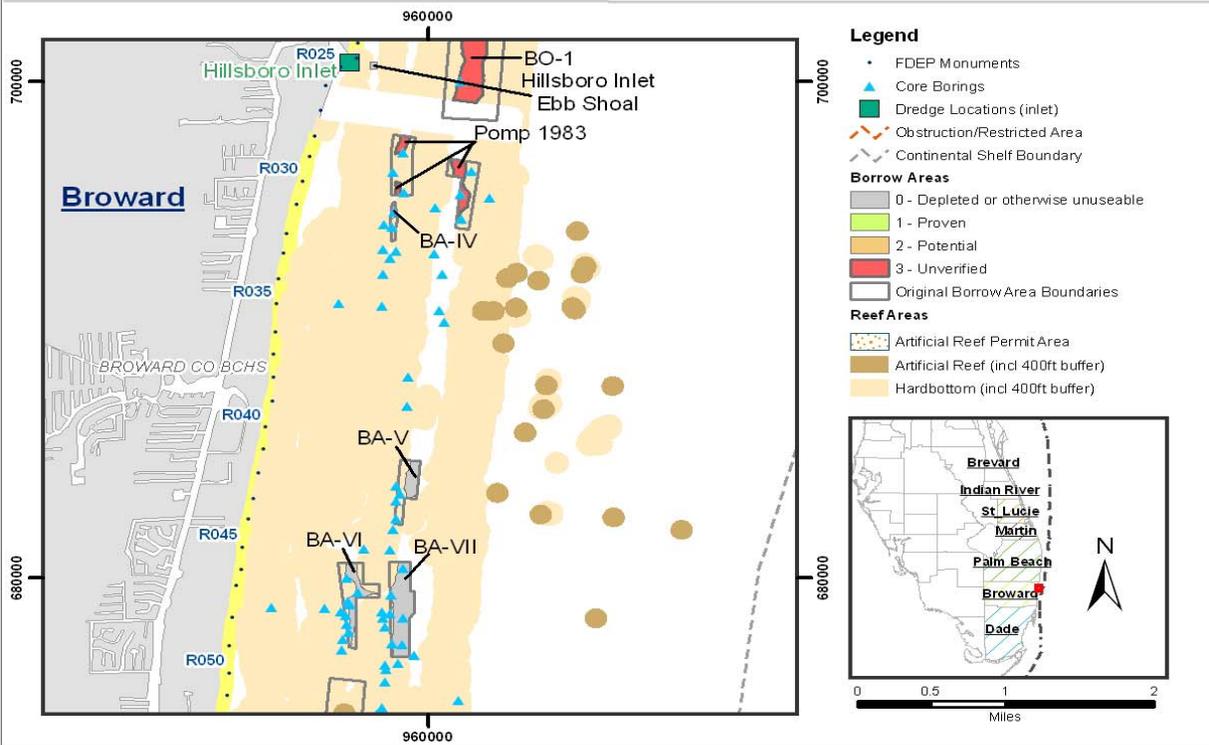
<u>Name:</u>	BA-II
<u>Location:</u>	R011 - R021
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	12
<u>Depth (Min/Max):</u>	-24.1 / -44.0 ft
<u>Distance from Shore:</u>	0.24 miles
<u>Narrative:</u>	Volume from Ref 1(App A, p16). Volume Beach quality from Broward County meeting Jan. 2008. Outline from BC shapefile. Depleted based on meeting with Jacksonville COE, April 2009
<u>Source:</u>	Ref 1 (App A, p16)

<u>Name:</u>	BA-III
<u>Location:</u>	R016 - R019
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	7
<u>Depth (Min/Max):</u>	-76.0 / -96.0 ft
<u>Distance from Shore:</u>	0.69 miles
<u>Narrative:</u>	Volume from Ref 1 (App A, p16), Outline borrow area from Broward County shapefile Borrows12346.shp. All sand used in 2005/06 - Steve Higgins (Broward)
<u>Source:</u>	Ref 1 (App A, p16)

<u>Name:</u>	BO-1
<u>Location:</u>	R011 - R027
<u>Volume Present:</u>	2,340,482 cy
<u>Volume Beach Quality:</u>	2,340,482 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	8
<u>Depth (Min/Max):</u>	-58.9 / -116.9 ft
<u>Distance from Shore:</u>	0.61 miles
<u>Narrative:</u>	Volume calculated based on area x assumed 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6) Overlaps proven area BA-III
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	1972 BA
<u>Location:</u>	R006 - R011
<u>Volume Present:</u>	508,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-29.1 / -82.0 ft
<u>Distance from Shore:</u>	0.29 miles
<u>Narrative:</u>	Volume from Broward County, 1972 - David Stout. Completely overlaps artificial reef permit area. Outline borrow area from Broward County Shapefile Hillsboro1972BA_8390
<u>Source:</u>	Broward County

Borrow Areas Broward County: BA-IV - VII; Pomp 1983; Hillsboro Inlet Ebb Shoal



Name:	BA-IV
Location:	R031 - R032
Volume Present:	0 cy
Volume Beach Quality:	0 cy
Category:	0 (Depleted)
Cores:	1
Depth (Min/Max):	-35.0 / -37.9 ft
Distance from Shore:	0.61 miles
Narrative:	Volume from Ref 1 (App A, p16); outline borrow area from Broward County shapefile Borrows12346.shp. All sand used in 2005/06 - Steve Higgins (Broward)
Source:	Ref 1, Broward County

<u>Name:</u>	BA-V
<u>Location:</u>	R041 - R044
<u>Volume Present:</u>	344,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-58.0 / -77.5 ft
<u>Distance from Shore:</u>	0.97 miles
<u>Narrative:</u>	Volume from Ref 1 (App A, p16), outline estimated from maps in Ref 1. Unusable because of environmental restrictions (Steve Higgins, Broward County)
<u>Source:</u>	Ref 1, Broward County

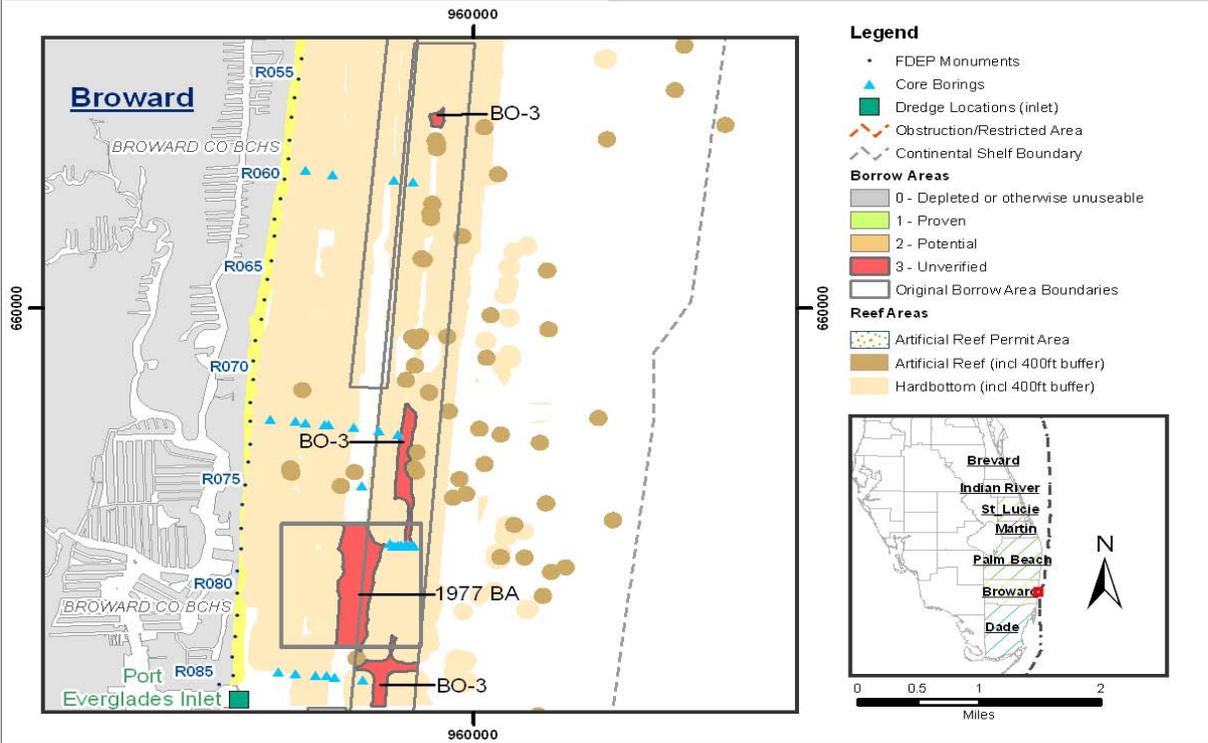
<u>Name:</u>	BA-VI
<u>Location:</u>	R046 - R049
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-37.8 / -63.9 ft
<u>Distance from Shore:</u>	0.71 miles
<u>Narrative:</u>	Volume from Ref 1 (App A, p16), outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans. All sand used in 2005/06 - Steve Higgins (Broward)
<u>Source:</u>	Ref 1, Broward County

<u>Name:</u>	BA-VII
<u>Location:</u>	R046 - R049
<u>Volume Present:</u>	361,480 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-70.2 / -88.1 ft
<u>Distance from Shore:</u>	1.02 miles
<u>Narrative:</u>	Volume from Ref 1 (App A, p16), outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans. Unusable because of environmental restrictions (Steve Higgins, Broward County)
<u>Source:</u>	Ref 1, Broward County

<u>Name:</u>	Pomp 1983
<u>Location:</u>	R028 - R032
<u>Volume Present:</u>	1,909,000 cy
<u>Volume Beach Quality:</u>	212,186 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-32.0 / -92.3 ft
<u>Distance from Shore:</u>	0.53 miles
<u>Narrative:</u>	Volume data from Broward county David Stout, outline of the borrow area from Broward County Shapefile Pomp1983_8390_ASPlans
<u>Source:</u>	Broward County

<u>Name:</u>	Hillsboro Inlet Ebb Shoal
<u>Location:</u>	R024 - R025
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-7.3 / -13.3 ft
<u>Distance from Shore:</u>	0.06 miles
<u>Narrative:</u>	Ebb Shoal accretes at 4,000 cy/yr, insufficient quantity for dredging
<u>Source:</u>	USACE 2006 Regional Sediment Budgets for FL's Central Atlantic and SE Atlantic Coasts

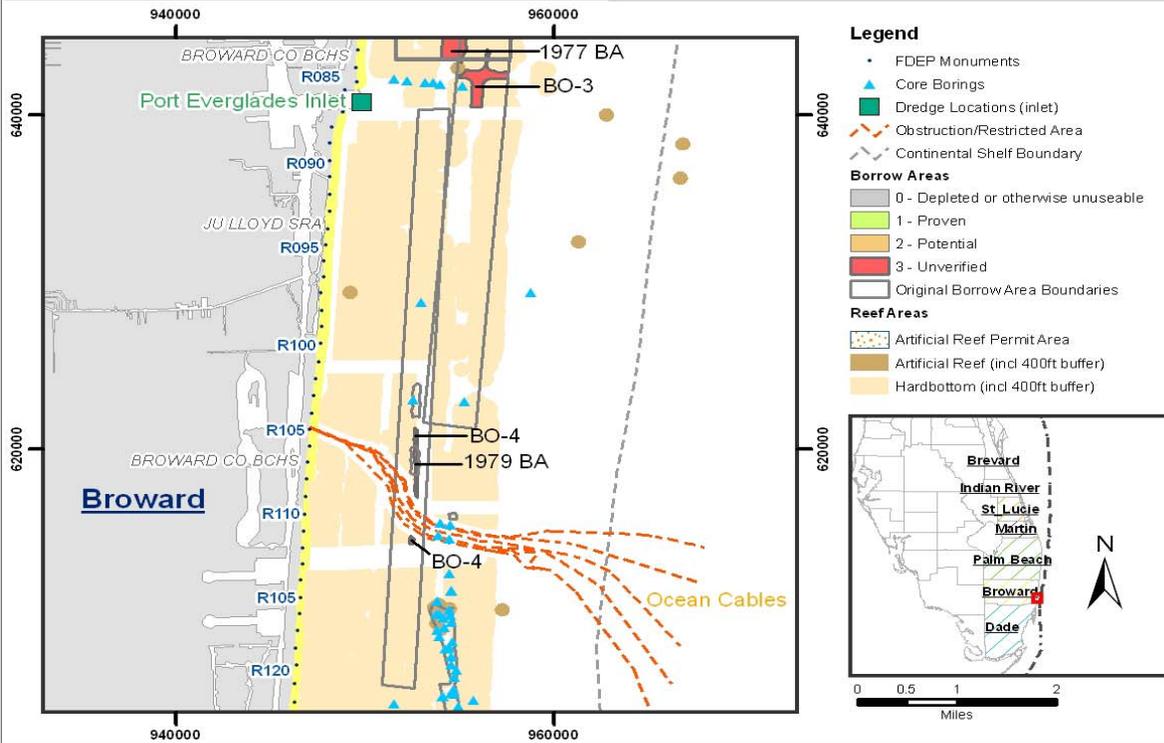
Borrow Areas Broward County: BO-3; 1977 BA



Name:	BO-3
Location:	R057 and R071 - R086
Volume Present:	1,238,917 cy
Volume Beach Quality:	1,238,917 cy
Category:	3 (Unverified)
Cores:	0
Depth (Min/Max):	-63.5 / -128.1 ft
Distance from Shore:	0.98 miles
Narrative:	Ref 6 Volume calculated based on assumed 6ft depth over full area. ROSS database - Phase I SE Sand Search. Partly overlaps artificial reef permit area. Overlaps Navy Restricted area, therefore partly unusable
Source:	Ref 6 (ROSS database)

<u>Name:</u>	1977 BA
<u>Location:</u>	R077 - R082
<u>Volume Present:</u>	1,090,000 cy
<u>Volume Beach Quality:</u>	1,090,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-37.8 / -113.9 ft
<u>Distance from Shore:</u>	0.77 miles
<u>Narrative:</u>	Volume from Broward county, 1983 - David Stout. Outline and volume from Broward County Shapefile JUL1977BA_8390. Identical to ROSS Proposed Area-85 (Ref 6)
<u>Source:</u>	Ref 6 (ROSS database)

Borrow Areas Broward County: BO-4; 1979 BA



Name:	BO-4
Location:	R105 - R112
Volume Present:	235,106 cy
Volume Beach Quality:	235,106 cy
Category:	3 (Unverified)
Cores:	0
Depth (Min/Max):	-40.0 / -51.0 ft
Distance from Shore:	1.03 miles
Narrative:	Volume calculated based on assumed 6ft sand depth over the viable borrow area. ROSS database - Phase I SE Sand Search. Areas with obstructions subtracted (Ref 6)
Source:	Ref 6 (ROSS database)

<u>Name:</u>	1979 BA
<u>Location:</u>	R103 - R104, R107 - R108, R110, R123 - R125
<u>Volume Present:</u>	1,980,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-41.0 / -116.0 ft
<u>Distance from Shore:</u>	1.03 miles
<u>Narrative:</u>	Volume from Broward county, 1979 - David Stout. Completely overlaps artificial reef permit area
<u>Source:</u>	Broward County

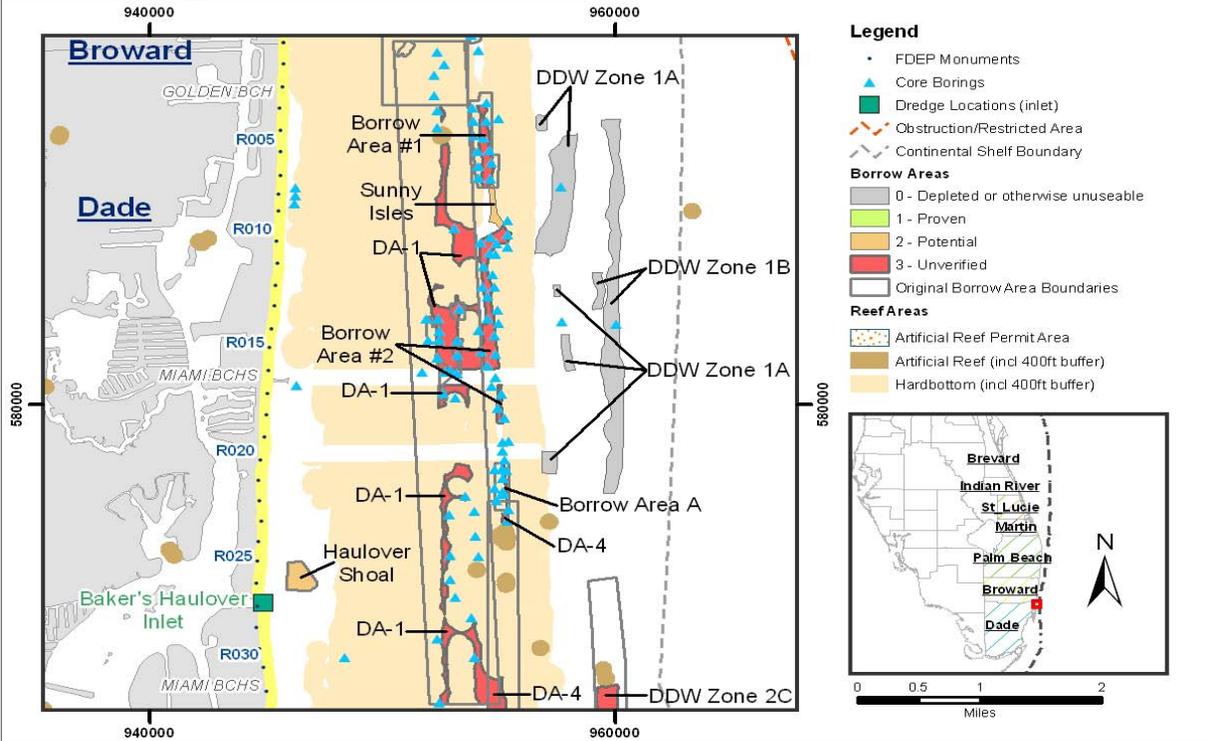
Miami-Dade County
Miami-Dade County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
Borrow Area #1	R004 - R007	1,456,017	150,000	150,000	0	3	3: Unverified	Outline from ROSS proposed borrow areas, less obstructions. Ref 20. Volume calculated as area * 6ft depth of sand	99.0	85.7	1.72	1.6	Ref 20
Sunny Isles	R007 - R010	605,410	94,753	94,753	0	0	2: Potential	Areas delineated by USACE. Currently in plans and specs phase and will be depleted by end of 2009	111.8	91.4	1.85	1.7	Personal Communication with USACE Jacksonville District, April 2009
DDW Zone 1A	R004 - R021	7,629,363	0	0	0	1	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	240.5	121.4	2.51	2.51	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
Borrow Area #2	R009 - R016	3,617,476	150,000	150,000	0	11	3: Unverified	Outline from ROSS proposed borrow areas, less obstructions. Ref 20. Volume calculated as area * 6ft depth of sand	120.7	88.1	1.87	1.7	Ref 20
DDW Zone 1B	R004 - R022	11,633,784	0	0	0	1	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	377.4	256.0	2.93	2.93	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
DA-1	R004 - R032	12,370,054	2,752,065	2,752,065	0	6	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	89.9	42.0	1.77	1.24	Ref 6 (ROSS database)
Borrow Area A	R020 - R022	108,120	24,027	24,027	0	0	3: Unverified	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)	120.8	107.9	0.61	0.57	Ref 20, Ref 6 (ROSS database)
Haulover Shoal	R025 - R026	1,412,619	630,000	0	32,000	0	2: Potential	Fine to med. sand. Accretes at rate of app. 32,000 cy per year, beach quality material available for nourishment. Existing shoal volume (630000cy) not usable, potential impacts on longshore transport (Ref 20)	12.4	12.1	0.47	0.25	Ref 20
DA-4	R030 - R033	1,843,096	410,694	410,694	0	0	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6). Partly overlaps permitted Borrow Area A (OBJECTID = 20)	90.0	79.3	1.75	0.54	Ref 6 (ROSS database)
Borrow Area C	R032 - R036	1,528,137	150,000	150,000	0	0	3: Unverified	Volume estimated from Ref 20, no data on beach quality material. Outline derived from Ref 6 (ROSS database)	102.1	86.4	1.91	1.83	Ref 20, Ref 6 (ROSS database)
Borrow Area B	R036 - R039	171,385	38,086	38,086	0	0	3: Unverified	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)	62.4	57.0	1.58	1.5	Ref 20, Ref 6 (ROSS database)
Borrow Area E	R042 - R051	2,739,701	150,000	150,000	0	9	3: Unverified	Volume estimated from Ref 20, no data on beach quality material. Outline derived from Ref 6 (ROSS database)	111.0	84.3	1.97	1.7	Ref 20, Ref 6 (ROSS database)
DDW Zone 2A	R033 - R061	21,169,653	0	0	0	3	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	296.3	101.9	2.78	2.78	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

Miami-Dade County Borrow Area Inventory

Borrow Area Name	Monument Range	Area (sq ft)	Total Volume (cy)	Beach-Quality Volume (cy)	Annual Accretion (cy)	# of Vibra-cores	Category Code	Narrative	Max/Min Water Depth (ft)		Max/Min Dist. from Shore (mi)		Source
Borrow Area D	R051	118,189	26,264	26,264	0	0	3: Unverified	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)	54.5	46.0	1.51	1.44	Ref 20, Ref 6 (ROSS database)
DDW Zone 2C	R031 - R073	33,802,955	9,900,000	9,900,000	0	2	3: Unverified	Area delineated by Dade County Deep Water Sand Investigation	375.7	251.6	2.94	2.94	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
DA-3	R055 - R063	4,593,814	1,020,848	1,020,848	0	1	3: Unverified	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	85.6	55.0	2.25	1.75	Ref 6 (ROSS database)
Miami South Beach	R063 - R070	806,158	400,000	400,000	50,000	0	1: Proven	Ref 20. 50,000 cy per year accumulates at South Beach (Jax COE June 2009), which can be removed to nourish other beaches. Currently trucked, could possibly use pipeline	0.0	0.0	0	0	Ref 20, Dade County; Personal Communication with USACE Jacksonville District, June 2009
DDW Zone 2B	R061 - R072	12,429,852	1,000,000	0	0	2	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	265.3	102.2	3.2	3.2	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
Miami Channel	R070 - R074	1,666,301	204,960	204,960	0	0	2: Potential	Areas delineated by USACE. Currently in plans and specs phase and will be depleted by end of 2009	86.5	74.2	2.59	2.34	Personal Communication with USACE Jacksonville District, April 2009
DA-2	R064 - R098	49,000,588	10,894,364	0	0	3	0: Unusable	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)	26.8	18.0	2.9	0.03	Ref 6 (ROSS database)
DDW Zone 3C	R082 - R096	18,626,883	6,000,000	0	0	1	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	344.6	249.4	4.96	4.96	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
South Government Cut SGC B/A	R085 - R105	9,101,148	378,000	0	0	1	0: Unusable	Area cannot be dredged due to presence of hardbottom; correspondence with Jacksonville COE, April 2009	67.5	37.8	3.3	3.08	Ref 1
South Government Cut (ROSS)	R093 - R095	1,278,740	284,164	284,164	0	0	0: Unusable	Area cannot be dredged due to presence of hardbottom	52.4	37.0	3.3	3.17	Ref 20
South Government Cut SGC-2 B/A	R096 - R099	2,066,912	0	0	0	6	0: Depleted	Volume from Ref 20. Area outline from USACE microstation design files	51.3	38.8	3.59	3.42	Ref 20
DDW Zone 3A	R091 - R113	7,639,017	1,400,000	0	0	2	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	142.2	87.2	4.64	4.64	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
South Government Cut Ext 1N	R103 - R106	1,901,991	0	0	0	6	0: Depleted	Volume from Ref 20. Area outline from USACE microstation design files	64.5	38.7	4.02	3.82	Ref 20
South Government Cut Ext 1S	R106 - R110	1,946,800	500,000	500,000	0	0	1: Proven	Areas delineated by USACE. Jacksonville COE indicates 500,000 cy remains; Will be used within next 5 years	79.5	36.1	4.1	3.74	Personal Communication with USACE Jacksonville District, April 2009; June 2009
DDW Zone 3B	R084 - R113	23,663,398	1,710,000	1,710,000	0	7	2: Potential	Volume contains carbonate rock fragments but these can be filtered out during the dredging process. Volume reduced by 10% due to overlap for environmental concerns	230.5	123.3	4.92	4.92	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL; Personal Communication with USACE Jacksonville District, June 2009
DDW Zone 3D	R105 - R113	33,411,021	0	0	0	1	0: Unusable	Area delineated by Dade County Deep Water Sand Investigation	340.3	225.5	5.65	5.65	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL
Deep Water	R114	499,872	151,418	151,418	0	0	0: Unusable	Volume now unavailable, due to location within Florida Keys National Marine Sanctuary	104.1	90.6	4.52	4.32	Personal Communication with USACE Jacksonville District, April 2009; June 2009

Borrow Areas Dade County: DA-1, Haulover Shoal; Borrow Area #1, #2, A; Sunny Isles; DDW Zone 1A, 1B



Name:	DA-1
Location:	R004 - R032
Volume Present:	2,752,065 cy
Volume Beach Quality:	2,752,065 cy
Category:	3 (Unverified)
Cores:	6
Depth (Min/Max):	-42.0 / -89.9 ft
Distance from Shore:	1.24 miles
Narrative:	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
Source:	Ref 6 (ROSS database)

<u>Name:</u>	Haulover Shoal
<u>Location:</u>	R025 - R026
<u>Volume Present:</u>	630,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-12.1 / -12.4 ft
<u>Distance from Shore:</u>	0.25 miles
<u>Narrative:</u>	Fine to med. sand. Accretes at rate of app. 32,000 cy per year, beach quality material available for nourishment. Existing shoal volume (630,000 cy) not usable, potential impacts on longshore transport (Ref 20)
<u>Source:</u>	Ref 20

<u>Name:</u>	Borrow Area #1
<u>Location:</u>	R004 - R007
<u>Volume Present:</u>	150,000 cy
<u>Volume Beach Quality:</u>	150,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-85.7 / -99.0 ft
<u>Distance from Shore:</u>	1.60 miles
<u>Narrative:</u>	Outline from ROSS proposed borrow areas, less obstructions. Ref 20. Volume calculated as area * 6ft depth of sand
<u>Source:</u>	Ref 20

<u>Name:</u>	Borrow Area #2
<u>Location:</u>	R009 - R016
<u>Volume Present:</u>	150,000 cy
<u>Volume Beach Quality:</u>	150,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	11
<u>Depth (Min/Max):</u>	-88.1 / -120.7 ft
<u>Distance from Shore:</u>	1.70 miles
<u>Narrative:</u>	Outline from ROSS proposed borrow areas, less obstructions. Ref 20. Volume calculated as area * 6ft depth of sand
<u>Source:</u>	Ref 20

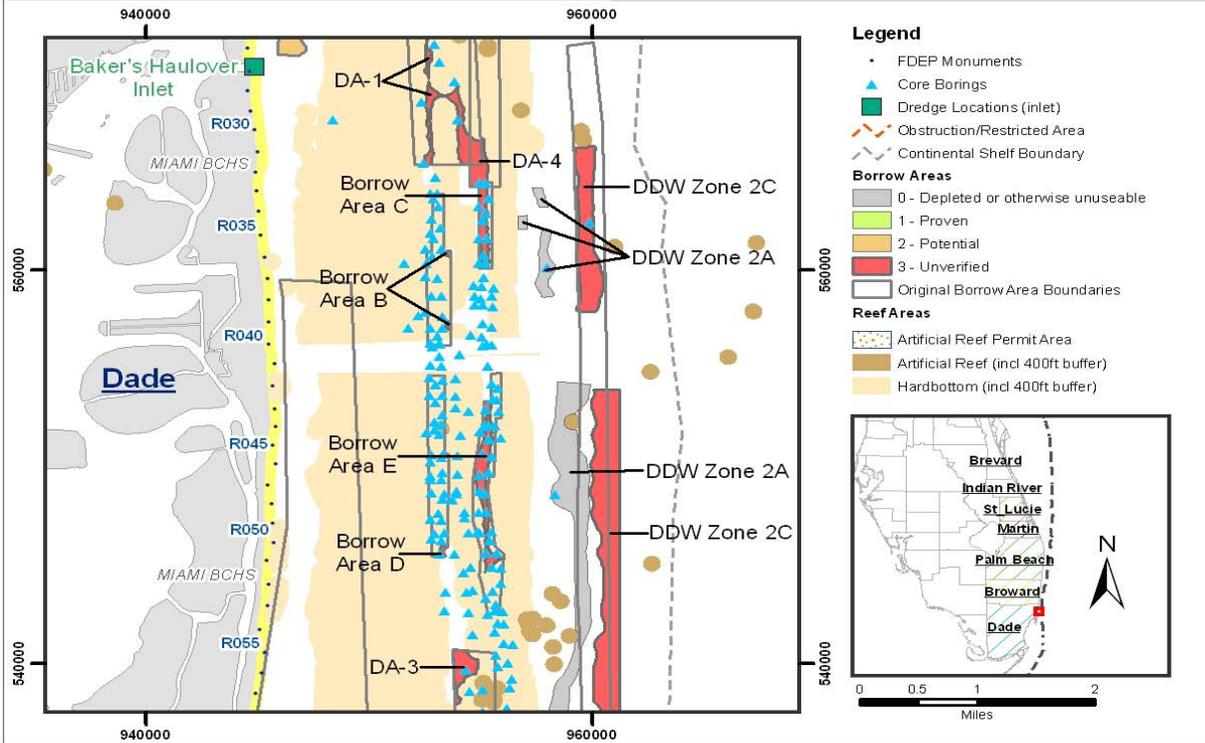
<u>Name:</u>	Borrow Area A
<u>Location:</u>	R020 - R022
<u>Volume Present:</u>	24,027 cy
<u>Volume Beach Quality:</u>	24,027 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-107.9 / -120.8 ft
<u>Distance from Shore:</u>	0.57 miles
<u>Narrative:</u>	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)
<u>Source:</u>	Ref 20, Ref 6 (ROSS database)

<u>Name:</u>	Sunny Isles
<u>Location:</u>	R007 - R010
<u>Volume Present:</u>	94,753 cy
<u>Volume Beach Quality:</u>	94,753 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-91.4 / -111.8 ft
<u>Distance from Shore:</u>	1.70 miles
<u>Narrative:</u>	Areas delineated by USACE. Currently in plans and specs phase and will be depleted by end of 2009
<u>Source:</u>	Personal Communication with USACE Jacksonville District, April 2009

<u>Name:</u>	DDW Zone 1A
<u>Location:</u>	R004 - R021
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-121.4 / -240.5 ft
<u>Distance from Shore:</u>	2.51 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	DDW Zone 1B
<u>Location:</u>	R004 - R022
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-256.0 / -377.4 ft
<u>Distance from Shore:</u>	2.93 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

Borrow Areas Dade County: DA-4; Borrow Area B, C, D, E; DDW Zone 2A, 2C



Name:	DA-4
Location:	R030 - R033
Volume Present:	410,694 cy
Volume Beach Quality:	410,694 cy
Category:	3 (Unverified)
Cores:	0
Depth (Min/Max):	-79.3 / -90.0 ft
Distance from Shore:	0.54 miles
Narrative:	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6). Partly overlaps permitted Borrow Area A (OBJECTID = 20)
Source:	Ref 6 (ROSS database)

<u>Name:</u>	Borrow Area B
<u>Location:</u>	R036 - R039
<u>Volume Present:</u>	38,086 cy
<u>Volume Beach Quality:</u>	38,086 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-57.0 / -62.4 ft
<u>Distance from Shore:</u>	1.50 miles
<u>Narrative:</u>	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)
<u>Source:</u>	Ref 20, Ref 6 (ROSS database)

<u>Name:</u>	Borrow Area C
<u>Location:</u>	R032 - R036
<u>Volume Present:</u>	150,000 cy
<u>Volume Beach Quality:</u>	150,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-86.4 / -102.1 ft
<u>Distance from Shore:</u>	1.83 miles
<u>Narrative:</u>	Volume estimated from Ref 20, no data on beach quality material. Outline derived from Ref 6 (ROSS database)
<u>Source:</u>	Ref 20, Ref 6 (ROSS database)

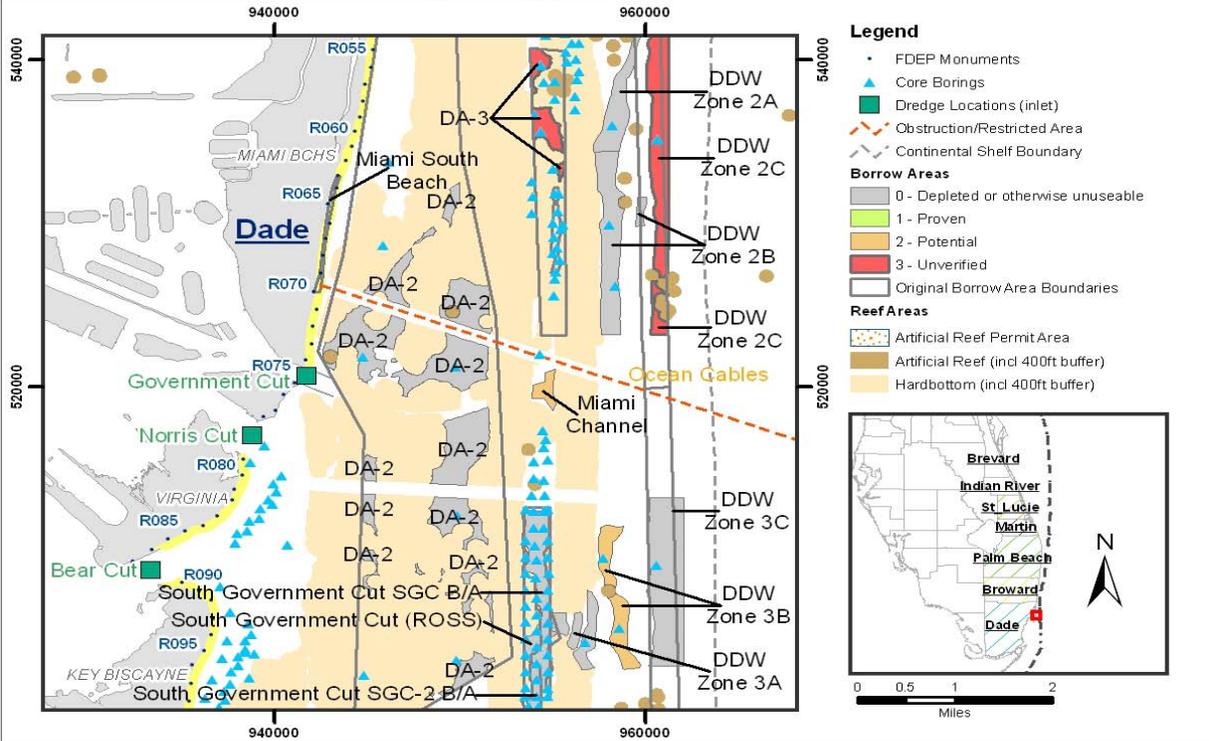
<u>Name:</u>	Borrow Area D
<u>Location:</u>	R051
<u>Volume Present:</u>	26,264 cy
<u>Volume Beach Quality:</u>	26,264 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-46.0 / -54.5 ft
<u>Distance from Shore:</u>	1.44 miles
<u>Narrative:</u>	Volume estimate from Ref 20 = 100-200k cy, area is much reduced through obstructions, so volume calculated as area*6ft depth of sand. Outline derived from Ref 6 (ROSS database)
<u>Source:</u>	Ref 20, Ref 6 (ROSS database)

<u>Name:</u>	Borrow Area E
<u>Location:</u>	R042 - R051
<u>Volume Present:</u>	150,000 cy
<u>Volume Beach Quality:</u>	150,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	9
<u>Depth (Min/Max):</u>	-84.3 / -111.0 ft
<u>Distance from Shore:</u>	1.70 miles
<u>Narrative:</u>	Volume estimated from Ref 20, no data on beach quality material. Outline derived from Ref 6 (ROSS database)
<u>Source:</u>	Ref 20, Ref 6 (ROSS database)

<u>Name:</u>	DDW Zone 2A
<u>Location:</u>	R033 - R061
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	3
<u>Depth (Min/Max):</u>	-101.9 / -296.3 ft
<u>Distance from Shore:</u>	2.78 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	DDW Zone 2C
<u>Location:</u>	R031 - R073
<u>Volume Present:</u>	9,900,000 cy
<u>Volume Beach Quality:</u>	9,900,000 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-251.6 / -375.7 ft
<u>Distance from Shore:</u>	2.94 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

Borrow Areas Dade County: DA-2,3; DDW Zone 2B; Miami Channel; Miami South Beach; South Government Cut SCG B/A, -2 B/A, (ROSS)



Name:	DA-2
Location:	R064 - R098
Volume Present:	10,894,364 cy
Volume Beach Quality:	0 cy
Category:	0 (Unusable)
Cores:	3
Depth (Min/Max):	-18.0 / -26.8 ft
Distance from Shore:	0.03 miles
Narrative:	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
Source:	Ref 6 (ROSS database)

<u>Name:</u>	DA-3
<u>Location:</u>	R055 - R063
<u>Volume Present:</u>	1,020,848 cy
<u>Volume Beach Quality:</u>	1,020,848 cy
<u>Category:</u>	3 (Unverified)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-55.0 / -85.6 ft
<u>Distance from Shore:</u>	1.75 miles
<u>Narrative:</u>	Volume calculated based on area x 6ft depth. ROSS database - Phase I Southeast Sand Search. Areas with obstructions were subtracted (Ref 6)
<u>Source:</u>	Ref 6 (ROSS database)

<u>Name:</u>	DDW Zone 2B
<u>Location:</u>	R061 - R072
<u>Volume Present:</u>	1,000,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	2
<u>Depth (Min/Max):</u>	-102.2 / -265.3 ft
<u>Distance from Shore:</u>	3.20 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	South Government Cut SGC B/A
<u>Location:</u>	R085 - R105
<u>Volume Present:</u>	378,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-37.8 / -67.5 ft
<u>Distance from Shore:</u>	3.08 miles
<u>Narrative:</u>	Area cannot be dredged due to presence of hardbottom; correspondence with Jacksonville COE, April 2009
<u>Source:</u>	Ref 1

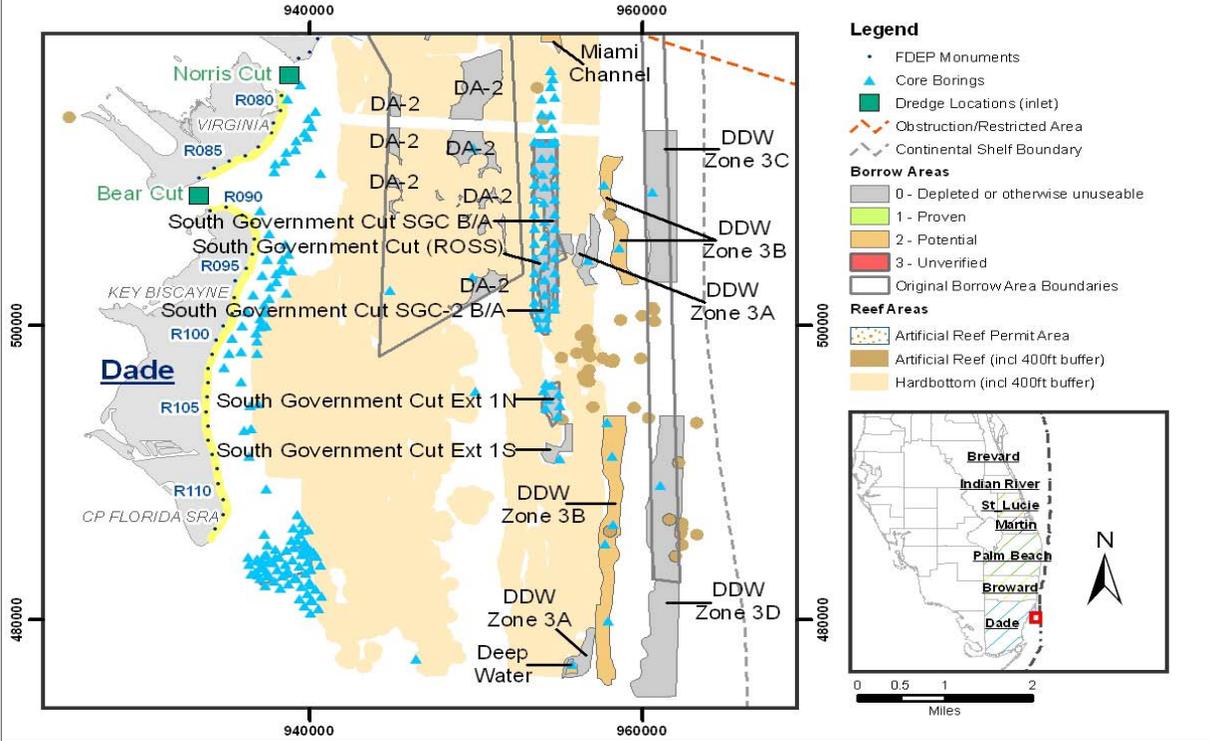
<u>Name:</u>	South Government Cut SGC-2 B/A
<u>Location:</u>	R096 - R099
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	6
<u>Depth (Min/Max):</u>	-38.8 / -51.3 ft
<u>Distance from Shore:</u>	3.42 miles
<u>Narrative:</u>	Volume from Ref 20. Area outline from USACE microstation design files
<u>Source:</u>	Ref 20

<u>Name:</u>	South Government Cut (ROSS)
<u>Location:</u>	R093 - R095
<u>Volume Present:</u>	284,164 cy
<u>Volume Beach Quality:</u>	284,164 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-37.0 / -52.4 ft
<u>Distance from Shore:</u>	3.17 miles
<u>Narrative:</u>	Area cannot be dredged due to presence of hardbottom
<u>Source:</u>	Ref 20

<u>Name:</u>	Miami South Beach
<u>Location:</u>	R063 - R070
<u>Volume Present:</u>	400,000 cy
<u>Volume Beach Quality:</u>	400,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	0.0 / 0.0 ft
<u>Distance from Shore:</u>	0.00 miles
<u>Narrative:</u>	Ref 20. 50,000 cy per year accumulates at South Beach, which can be removed to nourish other beaches. Currently trucked, could possibly use pipeline.
<u>Source:</u>	Ref 20, Dade County; Personal Communication with USACE Jacksonville District, June 2009

<u>Name:</u>	Miami Channel
<u>Location:</u>	R070 - R074
<u>Volume Present:</u>	204,960 cy
<u>Volume Beach Quality:</u>	204,960 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-74.2 / -86.5 ft
<u>Distance from Shore:</u>	2.34 miles
<u>Narrative:</u>	Areas delineated by USACE. Currently in plans and specs phase and will be depleted by end of 2009
<u>Source:</u>	Personal Communication with USACE Jacksonville District, April 2009

Borrow Areas Dade County: DDW Zone 3A, 3B, 3C, 3D; South Government Cut Ext 1N, 1S; Deep Water



Name:	DDW Zone 3A
Location:	R091 - R113
Volume Present:	1,400,000 cy
Volume Beach Quality:	0 cy
Category:	0 (Unusable)
Cores:	2
Depth (Min/Max):	-87.2 / -142.2 ft
Distance from Shore:	4.64 miles
Narrative:	Area delineated by Dade County Deep Water Sand Investigation
Source:	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	DDW Zone 3B
<u>Location:</u>	R084 - R113
<u>Volume Present:</u>	1,710,000 cy
<u>Volume Beach Quality:</u>	1,710,000 cy
<u>Category:</u>	2 (Potential)
<u>Cores:</u>	7
<u>Depth (Min/Max):</u>	-123.3 / -230.5 ft
<u>Distance from Shore:</u>	4.92 miles
<u>Narrative:</u>	Volume contains carbonate rock fragments but these can be filtered out during the dredging process. Volume reduced by 10% due to overlap for environmental concerns
<u>Source:</u>	CPE, 2002. Deep Water Geotech Inv. for Dade County, FL; Comm. USACE Jax District, 6/09

<u>Name:</u>	DDW Zone 3C
<u>Location:</u>	R082 - R096
<u>Volume Present:</u>	6,000,000 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-249.4 / -344.6 ft
<u>Distance from Shore:</u>	4.96 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	DDW Zone 3D
<u>Location:</u>	R105 - R113
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	1
<u>Depth (Min/Max):</u>	-225.5 / -340.3 ft
<u>Distance from Shore:</u>	5.65 miles
<u>Narrative:</u>	Area delineated by Dade County Deep Water Sand Investigation
<u>Source:</u>	CPE, 2002. Deep Water Geotechnical Investigation for Dade County, FL

<u>Name:</u>	South Government Cut Ext 1N
<u>Location:</u>	R103 - R106
<u>Volume Present:</u>	0 cy
<u>Volume Beach Quality:</u>	0 cy
<u>Category:</u>	0 (Depleted)
<u>Cores:</u>	6
<u>Depth (Min/Max):</u>	-38.7 / -64.5 ft
<u>Distance from Shore:</u>	3.82 miles
<u>Narrative:</u>	Volume from Ref 20. Area outline from USACE microstation design files
<u>Source:</u>	Ref 20

<u>Name:</u>	South Government Cut Ext 1S
<u>Location:</u>	R106 - R110
<u>Volume Present:</u>	500,000 cy
<u>Volume Beach Quality:</u>	500,000 cy
<u>Category:</u>	1 (Proven)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-36.1 / -79.5 ft
<u>Distance from Shore:</u>	3.74 miles
<u>Narrative:</u>	Areas delineated by USACE. Jacksonville COE indicates 500,000 cy remains; Will be used within next 5 years
<u>Source:</u>	Personal Communication with USACE Jacksonville District, April 2009; June 2009

<u>Name:</u>	Deep Water
<u>Location:</u>	Begins at 1.6 miles S of R114 and ends at 1.85 miles S
<u>Volume Present:</u>	151,418 cy
<u>Volume Beach Quality:</u>	151,418 cy
<u>Category:</u>	0 (Unusable)
<u>Cores:</u>	0
<u>Depth (Min/Max):</u>	-90.6 / -104.1 ft
<u>Distance from Shore:</u>	4.32 miles
<u>Narrative:</u>	Areas delineated by USACE. Volume now unavailable, due to location within Florida Keys National Marine Sanctuary
<u>Source:</u>	Personal Communication with USACE Jacksonville District, April 2009; June 2009

APPENDIX C

MCACES Cost Analysis; USACE

**Dade County Shore Protection
Northern Miami Beach Evaluation Report
Alternative Borrow Sources**

(ESCALATED TO FY09 COST LEVEL)

Thu 05 Mar 2009
Eff. Date 10/01/08

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
TITLE PAGE 1

Dade County Shore Protection
Northern Miami Beach
Evaluation Report
Alternative Borrow Sources
(ESCALATED TO FY09 COST LEVEL)

Designed By: CESAJ-EN-HC
Estimated By: CESAJ-EN-C

Prepared By: B. Blake

Preparation Date: 02/05/09
Effective Date of Pricing: 10/01/08

Sales Tax: 7.30%

This report is not copyrighted, but the information
contained herein is For Official Use Only.

M C A C E S G O L D E D I T I O N
Composer GOLD Software Copyright (c) 1985-1994
by Building Systems Design, Inc.
Release 5.30A

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

Planning Estimate for Project Evaluation Report (Including Profit and Contingency)

Dade County Shore Protection Project, Northern Miami Beach

RE: CESAJ-EN-HC memorandum dated 22 Feb 2001.

** -Dade County Evaluation Report, Geotechnical Report prepared by CESAJ-EN-G, D. Rosen, dated 18 May 2001.

*** - Email dated 15 Feb 2007 from CESAJ-DP-C/C. Stevens (Item #3) indicating that the costs included in the subject reported were to be escalated to current FY07 level using CWCCIS cost indexing.

**** - Verbal request from CESAJ-PD-N/M. Schrader to further escalate the costs to FY09 level to be used for the Regional Sediment Management Study being conducted by Taylor Engineering.

Scope of Estimates (as per the above reference):

Cost estimates are required for a construction of a beach fill consisting of the placement of 500,000 cubic yards of material along a 2-mile reach of northern Miami Beach. Two borrow areas are being considered, and separate cost estimates are required for each borrow area, and for each method of construction.

1. Borrow Area #1: South Miami Beach borrow site is located along the southern portion of Miami Beach. This is a naturally-accreting area of the shoreline, with beach widths in excess of 500 feet in some areas. It is proposed to relocate beach fill from this accreted region to the eroded project area along northern Miami Beach. The distance between the center of the borrow area and the center of the fill area is about 6 miles.

Two methods of construction area proposed (for the above alternative).

Method #1 consists of truck-hauling the material northward along the beach, and placing the fill using earthmoving equipment.

A separate cost estimate is required for each construction method using borrow area #1.

2. Borrow Site #2: Martin/St. Lucie County Offshore Borrow Site is located approximately 110 miles north of the fill area, approximately 5 miles offshore of Martin and St. Lucie Counties. The borrow area is a series of large offshore sand banks, 50 to 100 feet deep. Request cost estimate for construction of the proposed beach fill using borrow area #2 and hopper dredge(s).

** - Alternative Borrow Sources (As per the above referenced Geotechnical Report):

3. SGC-Extension Offshore of Government Cut is southeast of the Government Cut (Miami Harbor). The borrow area is situated in a sand filled swale

Thu 05 Mar 2009
Eff. Date 10/01/08
PROJECT NOTES

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
TITLE PAGE 3

between two outcroppings of limestone in approximately 22 to 38 foot water depth. This area contains approximately 500,000 cubic yards of sand. It has been discussed that this area should be kept as an emergency source of sand should the project need it.

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

4. Previously Used Dade County Offshore Borrow Areas - It is anticipated that some of the Dade County offshore borrow areas used for construction may have residual sand reserves that could be tapped for smaller quantities of sand. It is generally expected that approximately 100,000 to 200,000 cubic yards of sand is recoverable from many of the previously used borrow areas. In addition, there are smaller sand pockets in this size range that have never been dredged due to the smaller quantity of sand available.

5. Deepwater borrow sites offshore Dade Co. - Results of the Coast of Florida Deep Water Geotechnical Investigation of Offshore Sand Deposits for Beach Renourishment in Dade County, Florida, dated September 2000, estimates 20,000,000 cubic yards of beach sand within the deep water sand sources. The dredging industry has expressed that these are dredgeable water depths, if the work were available. Equipment for dredging at these water depths (55 to 300 feet) is currently not available in the U.S. due to now work at these water depths.

6. Borrow sites offshore of Palm Beach County - Two borrow areas containing approximately 3.1 million cubic yards of beach quality sediment have been identified off of Delray Beach, Palm Beach County, Florida. Based upon geotechnical investigations in 1984 and 1994, four borrow areas were delineated offshore of Boca Raton, Palm Beach County. The total volume available for the four borrow sites is 2,471,000 cubic yards of beach compatible sand. The borrow sites are located approximately 45 miles north of the beach fill limits at North Miami Beach.

7. Upland borrow sites from commercial sand quarries or limestone mines. Transportation of the sand continues to be an issue, since Miami Beach has limited the amount of sand than may be truck hauled through the city. Barge delivery of sand would be acceptable to Miami Beach, but only one known source has direct barge capabilities Tarmac America can use barge or boats to transport their material, but has to mechanically transfer it from the truck to the boat because of lack of infrastructure in the area for this type of transfer.

8. Carbonates/Aragonite from Bahamas and Turks and Caicos Islands.

9. Ebb Shoal at Bakers Haulover Inlet - The ebb tidal shoal is located in 15 to 20 feet of water northeast of Bakers Haulover Inlet. In 1997 the total volume of sand in the ebb shoal was estimated to be approximately 630,000 cubic yards.

Estimate Assumptions:

1. Borrow Area #1/Construction Method #1 will be accomplished by a General Marine Contractor using heavy earth moving equipment to excavate, stockpile, and load the beach material into off-road dumptrucks. This would include hydraulic excavators, low ground pressure dozers and wheeled front end loaders.

The off-road dumptrucks will then transport the material up the beach to the northern beach placement limits. The transported material will then be spread and graded by heavy earth moving equipment consisting of wheeled front end loaders and low ground pressure dozers to construct the designated northern Miami Beach segment. In order for the material placement to meet natural beach compaction requirements, water trucks will be used to keep the material moist during the spreading and grading operation.

2. Borrow Area #1/Construction Method #2 will be accomplished by a Big Business Dredging Contractor. The beach material will be excavated and stockpiled on the beach using similar heavy equipment used in Construction Method #1 above. The material will then be transferred hydraulically from the beach over to large 3,000-4,000 cubic yard scow barges using a 12-inch Aquamog modular or similar pumping unit. A large slurry pit will have to be constructed on the beach in order to utilize the modular pumping unit. This could be constructed using the same heavy equipment being used for the excavation and stockpiling. The scow barges will not be allowed to overflow during the hydraulic loading and hauling operations, so the maximum volume of solid material per barge load is reduced in the estimate accordingly.

The loaded scow barges will then be towed up to and opposite of the north beach placement area for offloading. The material will be offloaded from the scow barges and pumped to the beach placement area using a 30-inch hydraulic pipeline unloader unit (which will have to be US Coast Guard certified for offshore operation). The pumped material will then be spread and graded using similar heavy equipment used in Method #1.

Borrow Area #2 will utilize one or more medium hopper dredges or one large hopper dredge to dredge and haul the beach fill material from the offshore borrow sand banks located at Martin/St Lucie County to the designated beach placement area at northern Miami Beach. The dredge material will then be pumped out utilizing a self-elevating hydraulic booster to transfer the material from the loaded hopper dredge over to the beach placement areas. This operation is the same as has been used on all prior beach nourishment contracts at Miami Beach.

** - Alternative Borrow Sources

1. SGC-Extension Borrow Area will utilize a medium hopper dredge with pumpout capability to dredge and haul the borrow material from the borrow site to an offshore pumpout location. The hopper dredge will then hydraulically pumpout the material through a jackup booster over to the beach fill limits. The material will then be spread using a front end loader and bull dozers.

2. Previous used Dade Co. offshore borrow areas will be accomplished in the same manner as the above SGC-Extension Borrow area alternative. It is anticipated that there will be a greater percentage of rock to be separated in the remaining borrow material. This cost is included in the estimate.

3. Deepwater borrow sites offshore Dade Co. - This will require the use of a large deep dredging hopper dredge which is not currently owned or operated by the U.S. dredging industry. The dredging industry has indicated an interest in obtaining the deep dredge capability if the work becomes available. The estimate is based on the acquisition of a new large deep dredging "MEGADREDGE", based on existing European Jumbo hopper dredge specifications. This would include much larger dredge pumps (twice the existing horsepower) and pump diameter due to the much deeper dredging requirements. The available months per year is assumed to be 5 months versus the normal 10 months due to the limited workload available to the deep working dredge.

Also, the hopper load capacity is reduced by 50 percent in the estimate in order to allow adequate draft clearance due to shallow depths over hardbottoms at the pumpout location. Dredge pumpout and beach placement of the dredge material will be the same as the previous alternatives.

4. Borrow Sites offshore Palm Beach County - will utilize existing medium or large hopper dredges to excavate the borrow material at Palm Beach Co. and transport it opposite of the beach placement areas at North Miami Beach. Will utilize the same pumpout operation and beach placement operation as the previous alternatives.

5. Upland Borrow Site - Will obtain suitable beach quality material from a commercial supplier. The material will be delivered via truck and/or railroad from the supplier to the Port at an existing loading terminal facility. The cost for the suitable upland material obtained from Daytona or Lake Wales quarries was taken from the GeoTechnical Report.

The material will be stockpiled at the Port loading facility. The material will then be loaded into a medium or large hopper dredge using mechanical conveyors systems and front end loaders. It is assumed that the material delivery and loading rate can be maintained at a level of production equal to the production capability of the hopper dredge. The material will then be transported by the hopper dredge offshore and opposite of the beach placement limits at North Miami Beach. Will use the same pumpout and beach placement operation as the previous alternatives.

6. Carbonates/Aragonite from Bahamas and Turks-Caicos Islands - Beach suitable material will be purchased from and delivered by the supplier to the Port. The cost for suitable Bahamas carbonate/aragonite material was taken from the GeoTechnical Report. The material will then be loaded into a medium or large hopper dredge as in the previous alternative. The material will then be transported, pumped out, and placed on the beach as in the previous alternative.

7. Baker's Haulover Inlet Ebb Shoal - based on the shallower depths and shorter distance from the beach placement areas, the dredging and beach pumpout from the ebb shoal borrow site will be by pipeline dredge verses hopper dredge. The estimate is based on using a 24-inch cuttersuction pipeline dredge as this is the smallest sized pipeline dredge that would be USCG certified for offshore operations. The beach fill material will be spread with the same front end loader and dozers as the previous alternatives.

The hopper dredge and pumpout production is based on the past dredging contracts as reported to this office via the Daily Report of Operations - Hopper Dredge, Eng Form 27A. The pipeline dredge production is based on past dredging contracts at Bakers Haulover Inlet reported to this office via the Daily Report of Operations - Pipeline Dredge, Eng Form 4267.

Beach Tilling and Endangered Species Monitoring costs area included in all the above project alternatives.

Estimate Parameters:

1. Assumed 4 percent field O/H and 8 percent home office O/H on General Marine Contractor (GC).
2. Assumed 6.5 percent field O/H and 10 percent home office O/H on the Big Business Dredging Contractor (DC).
3. Assumed 10 percent profit on GC and DC.
4. Assumed 1.5 percent contractor bonds on GC and DC.
5. Used 25 percent contingency for Borrow Area #1, Construction Methods #1 and #2, due to the limited amount of available design and past construction information using these methods. Used 15 percent contingency for all of the remaining Borrow Area alternative using hopper dredges and pipeline dredges, because of the amount of available production information from prior contracts as a proven method of construction.
6. The estimate is construction costs only and DOES NOT included E&D, S&A, or Real Estate costs.

*** - Costs were escalated from previous FY01 level included in the final report to current FY07 cost level using the Civil Works Construction Cost Index System, EM 1110-2-1304 dated 31 March 2000, Revised 30 Sept 2006.

Thu 05 Mar 2009
Eff. Date 10/01/08
PROJECT NOTES

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
TITLE PAGE 8

**** - Costs further escalated to FY09 using the above CWCCIS cost indexes for
CWBS Code 17, Beach Replenishment, edition revised 31 March 2008.

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

Thu 05 Mar 2009
Eff. Date 10/01/08

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 1

** PROJECT OWNER SUMMARY - Contract **

	QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
01 South Beach B/A - Truck Hauling		4,140,692	1,345,395	1,371,522	6,857,609	
02 South Beach B/A - Barge Transfer		10,706,854	3,478,875	3,546,432	17,732,162	
03 Martin/St Lucie Co. O/S B. Sites		14,706,109	4,778,315	2,922,664	22,407,088	
04 SGC-Extension Borrow Area		6,976,398	2,266,774	1,386,476	10,629,648	
05 Previous Dade Co. Borrow Areas		5,601,808	1,820,142	1,113,292	8,535,242	
06 Deepwater O/S Dade Co. Sites		6,195,766	2,013,131	1,231,334	9,440,231	
07 Palm Beach Co. O/S Borrow Sites		13,086,832	4,252,179	2,600,852	19,939,862	
08 Upland Borrow Sites (Quarries)		21,952,089	7,132,681	4,362,716	33,447,486	
09 Bahama Isl. Carbonates/Aragonite		16,424,378	5,336,615	3,264,149	25,025,142	
10 Bakers Haulover Inlet Ebb Shoal		6,118,955	1,988,173	1,216,069	9,323,197	

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 2

** PROJECT OWNER SUMMARY - Item **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT

01	South Beach B/A - Truck Hauling							
01:	A Construction Cost			4,140,692	1,345,395	1,371,522	6,857,609	
01:	B Non-Construction Cost							
	TOTAL South Beach B/A - Truck Hauling			4,140,692	1,345,395	1,371,522	6,857,609	

02	South Beach B/A - Barge Transfer							
02:	A Construction Cost			10,706,854	3,478,875	3,546,432	17,732,162	
02:	B Non-Construction Cost							
	TOTAL South Beach B/A - Barge Transfer			10,706,854	3,478,875	3,546,432	17,732,162	

03	Martin/St Lucie Co. O/S B. Sites							
03:	01 Mobilization and Demobilization			1,002,745	325,812	199,284	1,527,841	
03:	02 Beach Fill	500000	CY	13,595,920	4,417,591	2,702,027	20,715,537	41.43
03:	03 Beach Tilling	50.00	AC	9,565	3,108	1,901	14,573	291.47
03:	04 Endangered Species Observers			97,880	31,803	19,453	149,136	
	TOTAL Martin/St Lucie Co. O/S B. Sites			14,706,109	4,778,315	2,922,664	22,407,088	

04	SGC-Extension Borrow Area							
04:	01 Mobilization and Demobilization			871,947	283,313	173,289	1,328,549	
04:	02 Beach Fill	500000	CY	6,032,657	1,960,133	1,198,918	9,191,708	18.38
04:	03 Beach Tilling	50.00	AC	9,565	3,108	1,901	14,573	291.47
04:	04 Endangered Species Observers			62,230	20,220	12,367	94,817	
	TOTAL SGC-Extension Borrow Area			6,976,398	2,266,774	1,386,476	10,629,648	

05	Previous Dade Co. Borrow Areas							
05:	01 Mobilization and Demobilization			871,947	283,313	173,289	1,328,549	
05:	02 Beach Fill	500000	CY	4,672,550	1,518,207	928,614	7,119,370	14.24
05:	03 Beach Tilling	50.00	AC	9,565	3,108	1,901	14,573	291.47
05:	04 Endangered Species Observers			47,746	15,514	9,489	72,749	
	TOTAL Previous Dade Co. Borrow Areas			5,601,808	1,820,142	1,113,292	8,535,242	

06	Deepwater O/S Dade Co. Sites							
06:	01 Mobilization and Demobilization			2,441,523	793,300	485,223	3,720,046	
06:	02 Beach Fill	500000	CY	3,728,763	1,211,551	741,047	5,681,361	11.36

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 3

** PROJECT OWNER SUMMARY - Item **

		QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
06:	03 Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
06:	04 Endangered Species Observers		15,915	5,171	3,163	24,250	
TOTAL Deepwater O/S Dade Co. Sites			6,195,766	2,013,131	1,231,334	9,440,231	
07 Palm Beach Co. O/S Borrow Sites							
07:	01 Mobilization and Demobilization		937,346	304,563	186,286	1,428,195	
07:	02 Beach Fill	500000 CY	12,052,864	3,916,221	2,395,363	18,364,448	36.73
07:	03 Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
07:	04 Endangered Species Observers		87,058	28,287	17,302	132,646	
TOTAL Palm Beach Co. O/S Borrow Sites			13,086,832	4,252,179	2,600,852	19,939,862	
08 Upland Borrow Sites (Quarries)							
08:	01 Mobilization and Demobilization		871,947	283,313	173,289	1,328,549	
08:	02 Beach Fill	500000 CY	21,023,627	6,831,005	4,178,195	32,032,827	64.07
08:	03 Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
08:	04 Endangered Species Observers		46,951	15,255	9,331	71,537	
TOTAL Upland Borrow Sites (Quarries)			21,952,089	7,132,681	4,362,716	33,447,486	
09 Bahama Isl. Carbonates/Aragonite							
09:	01 Mobilization and Demobilization		871,947	283,313	173,289	1,328,549	
09:	02 Beach Fill	500000 CY	15,495,916	5,034,939	3,079,628	23,610,483	47.22
09:	03 Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
09:	04 Endangered Species Observers		46,951	15,255	9,331	71,537	
TOTAL Bahama Isl. Carbonates/Aragonite			16,424,378	5,336,615	3,264,149	25,025,142	
10 Bakers Haulover Inlet Ebb Shoal							
10:	01 Mobilization and Demobilization		705,088	229,097	140,128	1,074,313	
10:	02 Beach Fill	500000 CY	5,340,641	1,735,283	1,061,389	8,137,312	16.27
10:	03 Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
10:	04 Endangered Species Observers		63,662	20,685	12,652	96,999	
TOTAL Bakers Haulover Inlet Ebb Shoal			6,118,955	1,988,173	1,216,069	9,323,197	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 4

** PROJECT OWNER SUMMARY - Element **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
01	South Beach B/A - Truck Hauling							
01:	A Construction Cost							
01:	A/17 Beach Replenishment							
01:	A/17.00 Beach Replenishment							
01:	A/17.00.01 Mobil, Demobil & Prep Work			135,386	43,990	44,844	224,219	
01:	A/17.00.13 Traffic Control			221,360	71,924	73,321	366,606	
01:	A/17.00.14 Excavation & Stock Piling Sand			673,018	218,677	222,924	1,114,620	
01:	A/17.00.15 Truck Loading and Hauling Sand	500000	CY	2,417,183	785,392	800,644	4,003,219	8.01
01:	A/17.00.16 Spreading & Grading Sand			639,194	207,687	211,720	1,058,601	
01:	A/17.00.99 Associated General Items			54,551	17,725	18,069	90,345	
	TOTAL Beach Replenishment			4,140,692	1,345,395	1,371,522	6,857,609	
	TOTAL Beach Replenishment			4,140,692	1,345,395	1,371,522	6,857,609	
	TOTAL Construction Cost			4,140,692	1,345,395	1,371,522	6,857,609	
01:	B Non-Construction Cost							
01:	B/31 Construction Management (S&I)							
	TOTAL South Beach B/A - Truck Hauling			4,140,692	1,345,395	1,371,522	6,857,609	
02	South Beach B/A - Barge Transfer							
02:	A Construction Cost							
02:	A/17 Beach Replenishment							
02:	A/17.00 Beach Replenishment							
02:	A/17.00.01 Mobil, Demobil & Prep Work			1,256,896	408,391	416,322	2,081,608	
02:	A/17.00.02 Excavation & Stock Piling Sand			701,960	228,081	232,510	1,162,551	
02:	A/17.00.03 Barge Loading and Hauling Sand	500000	CY	2,303,736	748,531	763,067	3,815,333	7.63
02:	A/17.00.04 Hydraulic Pumpout of Barges	500000	CY	6,036,327	1,961,326	1,999,413	9,997,065	19.99
02:	A/17.00.05 Spreading & Grading Sand			351,039	114,060	116,275	581,374	
02:	A/17.00.99 Associated General Items			56,897	18,487	18,846	94,230	
	TOTAL Beach Replenishment			10,706,854	3,478,875	3,546,432	17,732,162	
	TOTAL Beach Replenishment			10,706,854	3,478,875	3,546,432	17,732,162	
	TOTAL Construction Cost			10,706,854	3,478,875	3,546,432	17,732,162	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 5

** PROJECT OWNER SUMMARY - Element **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
02:	B Non-Construction Cost							
02:	B/31 Construction Management (S&I)							
	TOTAL South Beach B/A - Barge Transfer			10,706,854	3,478,875	3,546,432	17,732,162	
03:	Martin/St Lucie Co. O/S B. Sites							
03:	01 Mobilization and Demobilization							
03:	01/17 Beach Replenishment							
03:	01/17.00 Beach Replenishment							
03:	01/17.00. 1 Mobilization, Demob & Prep Work			916,980	297,946	182,239	1,397,165	
03:	01/17.00. 2 Associated General Items			85,765	27,867	17,045	130,676	
	TOTAL Beach Replenishment			1,002,745	325,812	199,284	1,527,841	
	TOTAL Beach Replenishment			1,002,745	325,812	199,284	1,527,841	
	TOTAL Mobilization and Demobilization			1,002,745	325,812	199,284	1,527,841	
03:	02 Beach Fill							
03:	02/17 Beach Replenishment							
03:	02/17.00 Beach Replenishment							
03:	02/17.00. 1 Hopper Dredging	500000	CY	13,066,718	4,245,643	2,596,854	19,909,215	39.82
03:	02/17.00. 2 Placement Area - Shore Equipment			529,202	171,948	105,173	806,323	
	TOTAL Beach Replenishment			13,595,920	4,417,591	2,702,027	20,715,537	
	TOTAL Beach Replenishment			13,595,920	4,417,591	2,702,027	20,715,537	
	TOTAL Beach Fill	500000	CY	13,595,920	4,417,591	2,702,027	20,715,537	41.43
03:	03 Beach Tilling							
03:	03/17 Beach Replenishment							
03:	03/17.00 Beach Replenishment							
03:	03/17.00. 1 Associated General Items			9,565	3,108	1,901	14,573	
	TOTAL Beach Replenishment			9,565	3,108	1,901	14,573	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 6

** PROJECT OWNER SUMMARY - Element **

	QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
TOTAL Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
03: 04 Endangered Species Observers						
03: 04/17 Beach Replenishment						
03: 04/17.00 Beach Replenishment						
03: 04/17.00. 1 Associated General Items		97,880	31,803	19,453	149,136	
TOTAL Beach Replenishment		97,880	31,803	19,453	149,136	
TOTAL Beach Replenishment		97,880	31,803	19,453	149,136	
TOTAL Endangered Species Observers		97,880	31,803	19,453	149,136	
TOTAL Martin/St Lucie Co. O/S B. Sites		14,706,109	4,778,315	2,922,664	22,407,088	
04 SGC-Extension Borrow Area						
04: 01 Mobilization and Demobilization						
04: 01/17 Beach Replenishment						
04: 01/17.00 Beach Replenishment						
04: 01/17.00. 1 Mobilization, Demob & Prep Work		786,182	255,447	156,244	1,197,873	
04: 01/17.00. 2 Associated General Items		85,765	27,867	17,045	130,676	
TOTAL Beach Replenishment		871,947	283,313	173,289	1,328,549	
TOTAL Beach Replenishment		871,947	283,313	173,289	1,328,549	
TOTAL Mobilization and Demobilization		871,947	283,313	173,289	1,328,549	
04: 02 Beach Fill						
04: 02/17 Beach Replenishment						
04: 02/17.00 Beach Replenishment						
04: 02/17.00. 1 Hopper Dredging	500000 CY	5,696,252	1,850,828	1,132,062	8,679,142	17.36
04: 02/17.00. 2 Placement Area - Shore Equipment		336,405	109,305	66,856	512,566	
TOTAL Beach Replenishment		6,032,657	1,960,133	1,198,918	9,191,708	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
 SUMMARY PAGE 7

** PROJECT OWNER SUMMARY - Element **

	QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
TOTAL Beach Replenishment		6,032,657	1,960,133	1,198,918	9,191,708	
TOTAL Beach Fill	500000 CY	6,032,657	1,960,133	1,198,918	9,191,708	18.38
04: 03 Beach Tilling						
04: 03/17 Beach Replenishment						
04: 03/17.00 Beach Replenishment						
04: 03/17.00. 1 Associated General Items		9,565	3,108	1,901	14,573	
TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
TOTAL Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
04: 04 Endangered Species Observers						
04: 04/17 Beach Replenishment						
04: 04/17.00 Beach Replenishment						
04: 04/17.00. 1 Associated General Items		62,230	20,220	12,367	94,817	
TOTAL Beach Replenishment		62,230	20,220	12,367	94,817	
TOTAL Beach Replenishment		62,230	20,220	12,367	94,817	
TOTAL Endangered Species Observers		62,230	20,220	12,367	94,817	
TOTAL SGC-Extension Borrow Area		6,976,398	2,266,774	1,386,476	10,629,648	
05 Previous Dade Co. Borrow Areas						
05: 01 Mobilization and Demobilization						
05: 01/17 Beach Replenishment						
05: 01/17.00 Beach Replenishment						
05: 01/17.00. 1 Mobilization, Demob & Prep Work		786,182	255,447	156,244	1,197,873	
05: 01/17.00. 2 Associated General Items		85,765	27,867	17,045	130,676	
TOTAL Beach Replenishment		871,947	283,313	173,289	1,328,549	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 8

** PROJECT OWNER SUMMARY - Element **

		QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
TOTAL Beach Replenishment			871,947	283,313	173,289	1,328,549	
TOTAL Mobilization and Demobilization			871,947	283,313	173,289	1,328,549	
05: 02 Beach Fill							
05: 02/17 Beach Replenishment							
05: 02/17.00 Beach Replenishment							
05:	02/17.00.1	Hopper Dredging	500000 CY	4,414,432	1,434,339	877,316	6,726,086 13.45
05:	02/17.00.2	Placement Area - Shore Equipment		258,118	83,868	51,298	393,284
TOTAL Beach Replenishment			4,672,550	1,518,207	928,614	7,119,370	
TOTAL Beach Replenishment			4,672,550	1,518,207	928,614	7,119,370	
TOTAL Beach Fill		500000 CY	4,672,550	1,518,207	928,614	7,119,370	14.24
05: 03 Beach Tilling							
05: 03/17 Beach Replenishment							
05: 03/17.00 Beach Replenishment							
05:	03/17.00.1	Associated General Items		9,565	3,108	1,901	14,573
TOTAL Beach Replenishment			9,565	3,108	1,901	14,573	
TOTAL Beach Replenishment			9,565	3,108	1,901	14,573	
TOTAL Beach Tilling		50.00 AC	9,565	3,108	1,901	14,573	291.47
05: 04 Endangered Species Observers							
05: 04/17 Beach Replenishment							
05: 04/17.00 Beach Replenishment							
05:	04/17.00.1	Associated General Items		47,746	15,514	9,489	72,749
TOTAL Beach Replenishment			47,746	15,514	9,489	72,749	
TOTAL Beach Replenishment			47,746	15,514	9,489	72,749	
TOTAL Endangered Species Observers			47,746	15,514	9,489	72,749	
TOTAL Previous Dade Co. Borrow Areas			5,601,808	1,820,142	1,113,292	8,535,242	

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 9

** PROJECT OWNER SUMMARY - Element **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT	

06	Deepwater O/S Dade Co. Sites								
06:	01 Mobilization and Demobilization								
06:	01/17 Beach Replenishment								
06:	01/17.00 Beach Replenishment								
06:	01/17.00. 1 Mobilization, Demob & Prep Work			2,355,758	765,434	468,179	3,589,371		
06:	01/17.00. 2 Associated General Items			85,765	27,867	17,045	130,676		
	TOTAL Beach Replenishment			2,441,523	793,300	485,223	3,720,046		
	TOTAL Beach Replenishment			2,441,523	793,300	485,223	3,720,046		
	TOTAL Mobilization and Demobilization			2,441,523	793,300	485,223	3,720,046		

06:	02 Beach Fill								
06:	02/17 Beach Replenishment								
06:	02/17.00 Beach Replenishment								
06:	02/17.00. 1 Hopper Dredging	500000	CY	3,642,724	1,183,595	723,948	5,550,267	11.10	
06:	02/17.00. 2 Placement Area - Shore Equipment			86,039	27,956	17,099	131,095		
	TOTAL Beach Replenishment			3,728,763	1,211,551	741,047	5,681,361		
	TOTAL Beach Replenishment			3,728,763	1,211,551	741,047	5,681,361		
	TOTAL Beach Fill	500000	CY	3,728,763	1,211,551	741,047	5,681,361	11.36	

06:	03 Beach Tilling								
06:	03/17 Beach Replenishment								
06:	03/17.00 Beach Replenishment								
06:	03/17.00. 1 Associated General Items			9,565	3,108	1,901	14,573		
	TOTAL Beach Replenishment			9,565	3,108	1,901	14,573		
	TOTAL Beach Replenishment			9,565	3,108	1,901	14,573		
	TOTAL Beach Tilling	50.00	AC	9,565	3,108	1,901	14,573	291.47	

06:	04 Endangered Species Observers								

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
 SUMMARY PAGE 10

** PROJECT OWNER SUMMARY - Element **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
06:	04/17 Beach Replenishment							
06:	04/17.00 Beach Replenishment							
06:	04/17.00. 1 Associated General Items			15,915	5,171	3,163	24,250	
	TOTAL Beach Replenishment			15,915	5,171	3,163	24,250	
	TOTAL Beach Replenishment			15,915	5,171	3,163	24,250	
	TOTAL Endangered Species Observers			15,915	5,171	3,163	24,250	
	TOTAL Deepwater O/S Dade Co. Sites			6,195,766	2,013,131	1,231,334	9,440,231	
07:	Palm Beach Co. O/S Borrow Sites							
07:	01 Mobilization and Demobilization							
07:	01/17 Beach Replenishment							
07:	01/17.00 Beach Replenishment							
07:	01/17.00. 1 Mobilization, Demob & Prep Work			851,581	276,696	169,242	1,297,519	
07:	01/17.00. 2 Associated General Items			85,765	27,867	17,045	130,676	
	TOTAL Beach Replenishment			937,346	304,563	186,286	1,428,195	
	TOTAL Beach Replenishment			937,346	304,563	186,286	1,428,195	
	TOTAL Mobilization and Demobilization			937,346	304,563	186,286	1,428,195	
07:	02 Beach Fill							
07:	02/17 Beach Replenishment							
07:	02/17.00 Beach Replenishment							
07:	02/17.00. 1 Hopper Dredging	500000	CY	11,582,161	3,763,280	2,301,816	17,647,257	35.29
07:	02/17.00. 2 Placement Area - Shore Equipment			470,703	152,941	93,547	717,191	
	TOTAL Beach Replenishment			12,052,864	3,916,221	2,395,363	18,364,448	
	TOTAL Beach Replenishment			12,052,864	3,916,221	2,395,363	18,364,448	
	TOTAL Beach Fill	500000	CY	12,052,864	3,916,221	2,395,363	18,364,448	36.73
07:	03 Beach Tilling							

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 11

** PROJECT OWNER SUMMARY - Element **

	QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT

07: 03/17 Beach Replenishment						
07: 03/17.00 Beach Replenishment						
07: 03/17.00. 1 Associated General Items		9,565	3,108	1,901	14,573	
TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
TOTAL Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
07: 04 Endangered Species Observers						
07: 04/17 Beach Replenishment						
07: 04/17.00 Beach Replenishment						
07: 04/17.00. 1 Associated General Items		87,058	28,287	17,302	132,646	
TOTAL Beach Replenishment		87,058	28,287	17,302	132,646	
TOTAL Beach Replenishment		87,058	28,287	17,302	132,646	
TOTAL Endangered Species Observers		87,058	28,287	17,302	132,646	
TOTAL Palm Beach Co. C/S Borrow Sites		13,086,832	4,252,179	2,600,852	19,939,862	
08 Upland Borrow Sites (Quarries)						
08: 01 Mobilization and Demobilization						
08: 01/17 Beach Replenishment						
08: 01/17.00 Beach Replenishment						
08: 01/17.00. 1 Mobilization, Demob & Prep Work		786,182	255,447	156,244	1,197,873	
08: 01/17.00. 2 Associated General Items		85,765	27,867	17,045	130,676	
TOTAL Beach Replenishment		871,947	283,313	173,289	1,328,549	
TOTAL Beach Replenishment		871,947	283,313	173,289	1,328,549	
TOTAL Mobilization and Demobilization		871,947	283,313	173,289	1,328,549	
08: 02 Beach Fill						
08: 02/17 Beach Replenishment						

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 12

** PROJECT OWNER SUMMARY - Element **

		QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
08:	02/17.00 Beach Replenishment						
08:	02/17.00. 1 Purchase and Delivery of Sand	500000 CY	15,354,754	4,989,073	3,051,574	23,395,401	46.79
08:	02/17.00. 2 Hopper Dredging	500000 CY	5,415,036	1,759,456	1,076,174	8,250,666	16.50
08:	02/17.00. 3 Placement Area - Shore Equipment		253,837	82,477	50,447	386,760	
	TOTAL Beach Replenishment		21,023,627	6,831,005	4,178,195	32,032,827	
	TOTAL Beach Replenishment		21,023,627	6,831,005	4,178,195	32,032,827	
	TOTAL Beach Fill	500000 CY	21,023,627	6,831,005	4,178,195	32,032,827	64.07
08:	03 Beach Tilling						
08:	03/17 Beach Replenishment						
08:	03/17.00 Beach Replenishment						
08:	03/17.00. 1 Associated General Items		9,565	3,108	1,901	14,573	
	TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
	TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
	TOTAL Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
08:	04 Endangered Species Observers						
08:	04/17 Beach Replenishment						
08:	04/17.00 Beach Replenishment						
08:	04/17.00. 1 Associated General Items		46,951	15,255	9,331	71,537	
	TOTAL Beach Replenishment		46,951	15,255	9,331	71,537	
	TOTAL Beach Replenishment		46,951	15,255	9,331	71,537	
	TOTAL Endangered Species Observers		46,951	15,255	9,331	71,537	
	TOTAL Upland Borrow Sites (Quarries)		21,952,089	7,132,681	4,362,716	33,447,486	
09	Bahama Isl. Carbonates/Aragonite						
09:	01 Mobilization and Demobilization						
09:	01/17 Beach Replenishment						

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34

SUMMARY PAGE 13

** PROJECT OWNER SUMMARY - Element **

		QUANTY	UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT	
09:	01/17.00	Beach Replenishment							
09:	01/17.00. 1	Mobilization, Demob & Prep Work							
09:	01/17.00. 2	Associated General Items							
				786,182	255,447	156,244	1,197,873		
				85,765	27,867	17,045	130,676		
		TOTAL Beach Replenishment							
				871,947	283,313	173,289	1,328,549		
		TOTAL Beach Replenishment							
				871,947	283,313	173,289	1,328,549		
		TOTAL Mobilization and Demobilization							
				871,947	283,313	173,289	1,328,549		
09:	02	Beach Fill							
09:	02/17	Beach Replenishment							
09:	02/17.00	Beach Replenishment							
09:	02/17.00. 1	500000	CY	9,827,043	3,193,006	1,953,007	14,973,057	29.95	
09:	02/17.00. 2	500000	CY	5,415,036	1,759,456	1,076,174	8,250,666	16.50	
09:	02/17.00. 3	Placement Area - Shore Equipment							
				253,837	82,477	50,447	386,760		
		TOTAL Beach Replenishment							
				15,495,916	5,034,939	3,079,628	23,610,483		
		TOTAL Beach Replenishment							
				15,495,916	5,034,939	3,079,628	23,610,483		
		TOTAL Beach Fill							
		500000	CY	15,495,916	5,034,939	3,079,628	23,610,483	47.22	
09:	03	Beach Tilling							
09:	03/17	Beach Replenishment							
09:	03/17.00	Beach Replenishment							
09:	03/17.00. 1	Associated General Items							
				9,565	3,108	1,901	14,573		
		TOTAL Beach Replenishment							
				9,565	3,108	1,901	14,573		
		TOTAL Beach Replenishment							
				9,565	3,108	1,901	14,573		
		TOTAL Beach Tilling							
		50.00	AC	9,565	3,108	1,901	14,573	291.47	
09:	04	Endangered Species Observers							
09:	04/17	Beach Replenishment							
09:	04/17.00	Beach Replenishment							

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
 SUMMARY PAGE 14

** PROJECT OWNER SUMMARY - Element **

		QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
09:	04/17.00. 1	Associated General Items	46,951	15,255	9,331	71,537	
		TOTAL Beach Replenishment	46,951	15,255	9,331	71,537	
		TOTAL Beach Replenishment	46,951	15,255	9,331	71,537	
		TOTAL Endangered Species Observers	46,951	15,255	9,331	71,537	
		TOTAL Bahama Isl. Carbonates/Aragonite	16,424,378	5,336,615	3,264,149	25,025,142	
10:	Bakers Haulover Inlet Ebb Shoal						
10:	01 Mobilization and Demobilization						
10:	01/17 Beach Replenishment						
10:	01/17.00 Beach Replenishment						
10:	01/17.00. 1	Mobilization, Demob & Prep Work	692,008	224,847	137,528	1,054,384	
10:	01/17.00. 2	Associated General Items	13,080	4,250	2,599	19,929	
		TOTAL Beach Replenishment	705,088	229,097	140,128	1,074,313	
		TOTAL Beach Replenishment	705,088	229,097	140,128	1,074,313	
		TOTAL Mobilization and Demobilization	705,088	229,097	140,128	1,074,313	
10:	02 Beach Fill						
10:	02/17 Beach Replenishment						
10:	02/17.00 Beach Replenishment						
10:	02/17.00. 1	Pipline Dredging	500000 CY	4,996,483	1,623,459	992,991	7,612,933
10:	02/17.00. 2	Placement Area - Shore Equipment		344,158	111,824	68,397	524,379
		TOTAL Beach Replenishment		5,340,641	1,735,283	1,061,389	8,137,312
		TOTAL Beach Replenishment		5,340,641	1,735,283	1,061,389	8,137,312
		TOTAL Beach Fill	500000 CY	5,340,641	1,735,283	1,061,389	8,137,312
10:	03 Beach Tilling						
10:	03/17 Beach Replenishment						
10:	03/17.00 Beach Replenishment						

LABOR ID: SARY2K

EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A

UPB ID: NAT95A

Thu 05 Mar 2009
 Eff. Date 10/01/08

U.S. Army Corps of Engineers
 PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
 SUMMARY PAGE 15

** PROJECT OWNER SUMMARY - Element **

		QUANTY UOM	CONTRACT	ESCALATN	CONTINGN	TOTAL COST	UNIT
10:	03/17.00.1 Associated General Items		9,565	3,108	1,901	14,573	
	TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
	TOTAL Beach Replenishment		9,565	3,108	1,901	14,573	
	TOTAL Beach Tilling	50.00 AC	9,565	3,108	1,901	14,573	291.47
10:	04 Endangered Species Observers						
10:	04/17 Beach Replenishment						
10:	04/17.00 Beach Replenishment						
10:	04/17.00.1 Associated General Items		63,662	20,685	12,652	96,999	
	TOTAL Beach Replenishment		63,662	20,685	12,652	96,999	
	TOTAL Beach Replenishment		63,662	20,685	12,652	96,999	
	TOTAL Endangered Species Observers		63,662	20,685	12,652	96,999	
	TOTAL Bakers Haulover Inlet Ebb Shoal		6,118,955	1,988,173	1,216,069	9,323,197	

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

Thu 05 Mar 2009
Eff. Date 10/01/08
ERROR REPORT

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
ERROR PAGE 1

No errors detected...

* * * END OF ERROR REPORT * * *

LABOR ID: SARY2K EQUIP ID: REG03A

Currency in DOLLARS

CREW ID: NAT97A UPB ID: NAT95A

Thu 05 Mar 2009
Eff. Date 10/01/08
TABLE OF CONTENTS

U.S. Army Corps of Engineers
PROJECT BDF903: Dade County Shore Protection - Northern Miami Beach

TIME 15:22:34
CONTENTS PAGE 1

SUMMARY REPORTS	SUMMARY PAGE
PROJECT OWNER SUMMARY - Contract.....	1
PROJECT OWNER SUMMARY - Item.....	2
PROJECT OWNER SUMMARY - Element.....	4

No Detailed Estimate...

No Backup Reports...

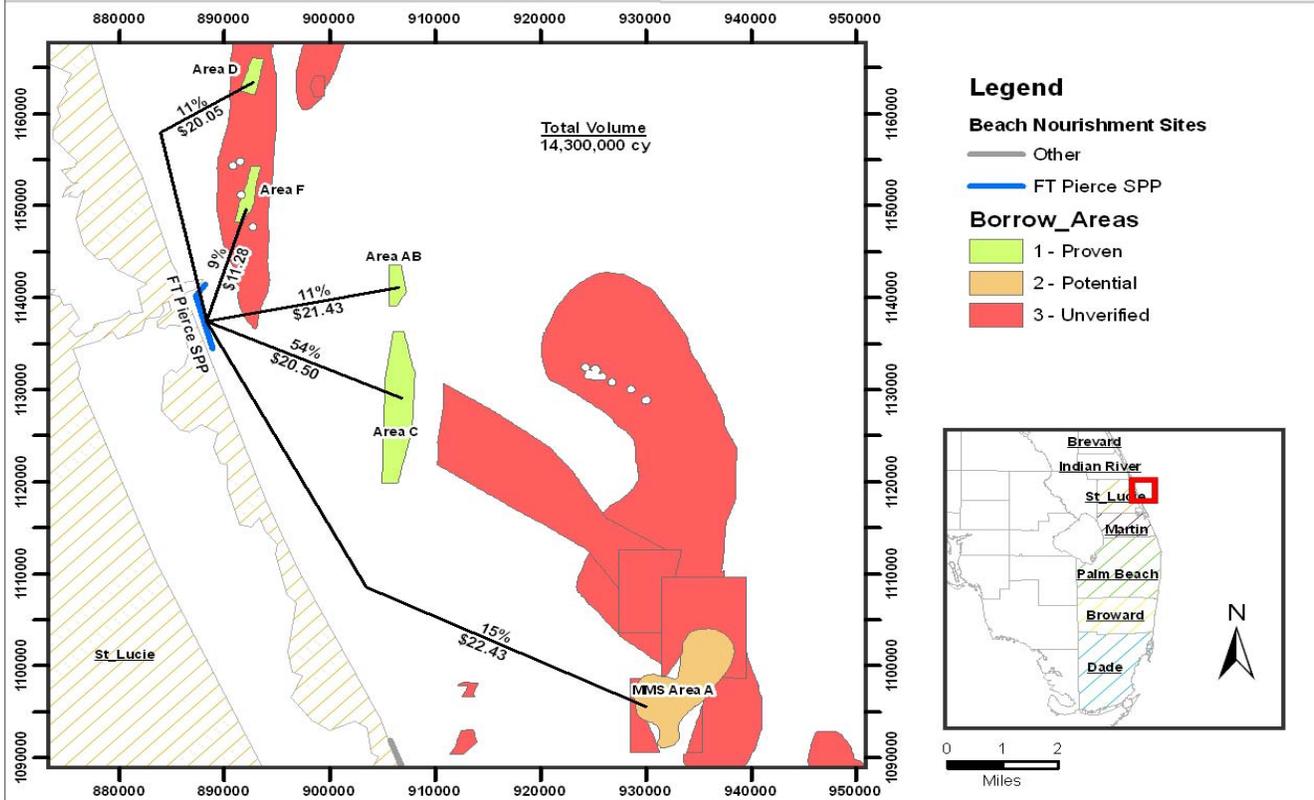
* * * END TABLE OF CONTENTS * * *

APPENDIX D

Plan Formulation Project Summary Information

Sub-Region Method ~ Non-Domestic Sources Included

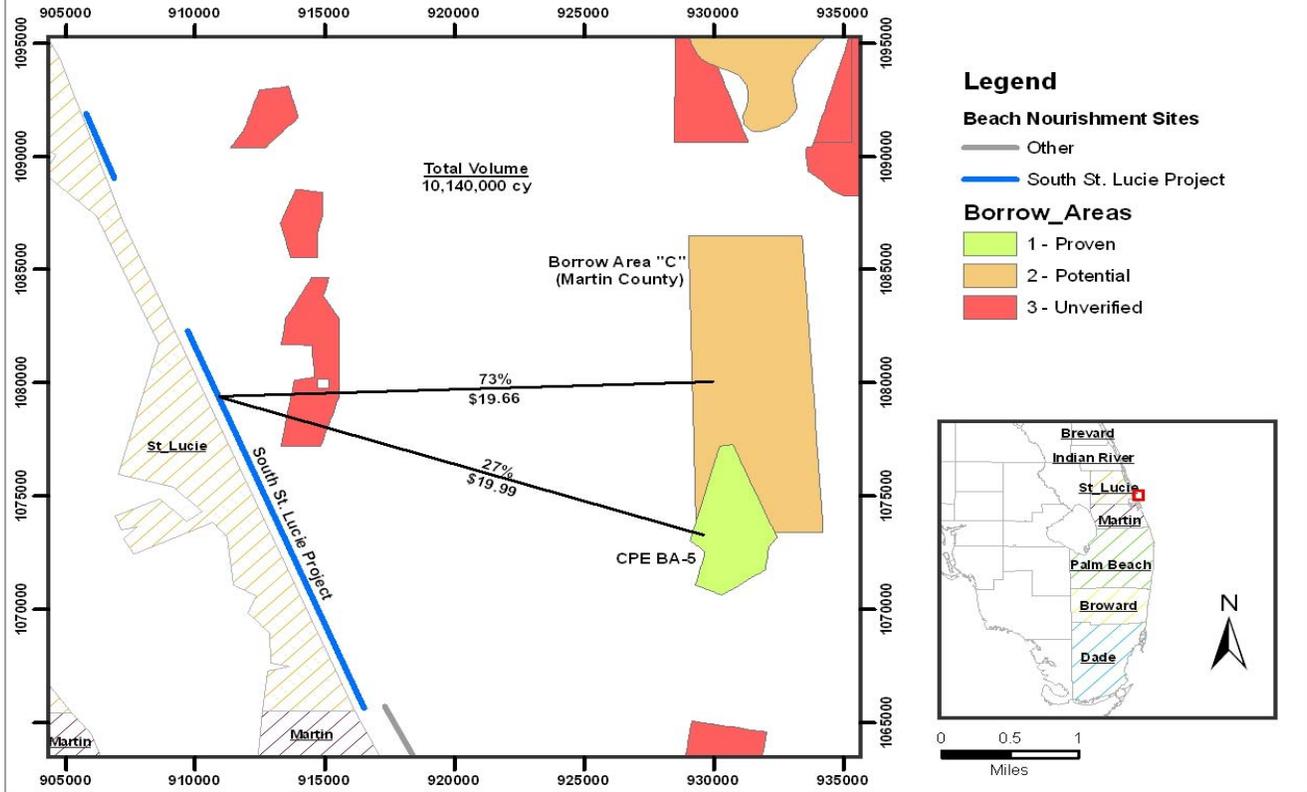
Ft. Pierce SPP Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Ft Pierce SPP	550,000	May-09	2	26	14,300,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Area F	1,230,000	1 - 3	Hydraulic Dredge	\$13,868,843	\$11.28	May-13
Area AB	1,570,000	3 - 6	Hopper Dredge	\$33,647,940	\$21.43	May-19
Area C	7,760,000	6 - 20	Hopper Dredge	\$159,097,806	\$20.50	May-47
Area D	1,540,000	20 - 22	Hopper Dredge	\$30,874,425	\$20.05	May-51
MMS Area A	2,200,000	23 - 26	Hopper Dredge	\$49,347,499	\$22.43	Not Depleted
TOTAL	14,300,000	-	-	\$286,836,513	\$20.06	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

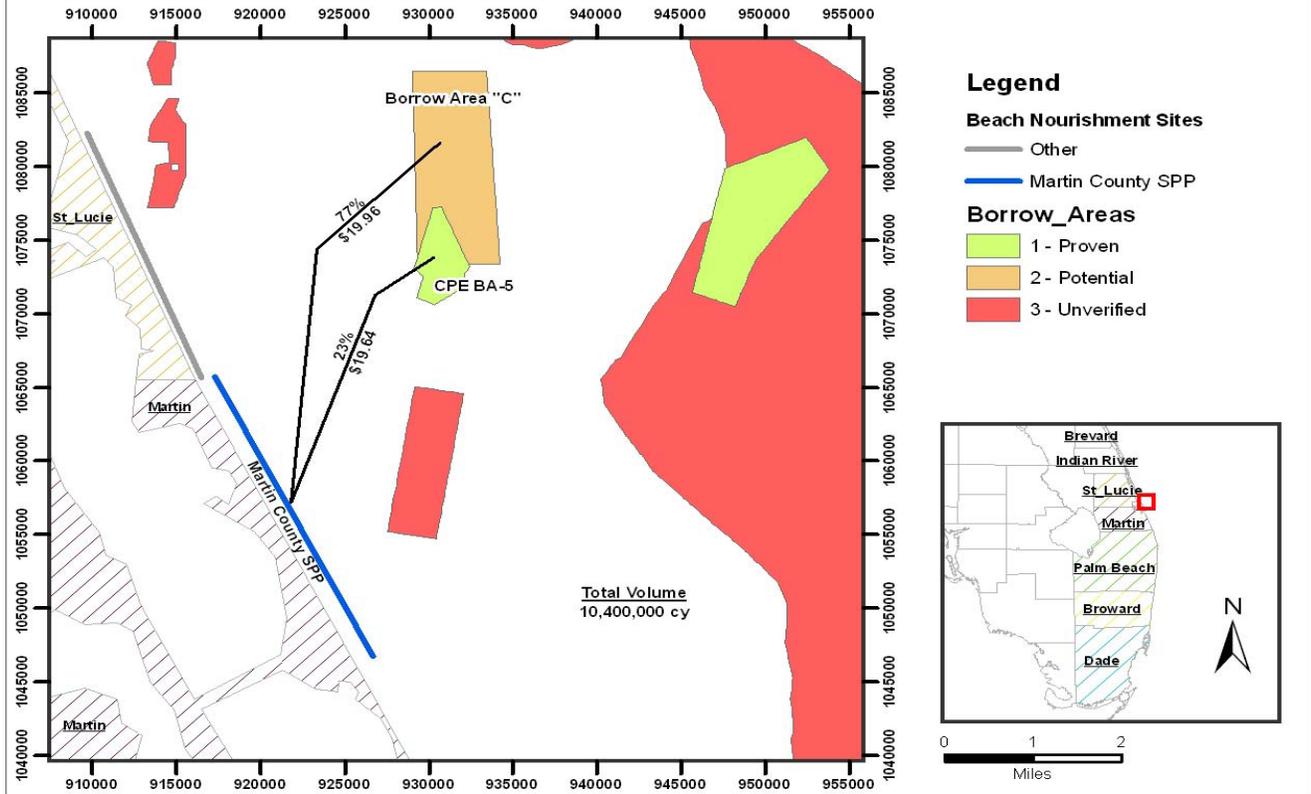
South St. Lucie Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
South St. Lucie Project	780,000	May-11	4	13	10,140,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
CPE BA-5	2,718,750	1 - 4	Hopper Dredge	\$54,359,769	\$19.99	May-23
Borrow Area "C"	7,421,250	4 - 13	Hopper Dredge	\$145,890,564	\$19.66	Not Depleted
TOTAL	10,140,000	-	-	\$200,250,332	\$19.75	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

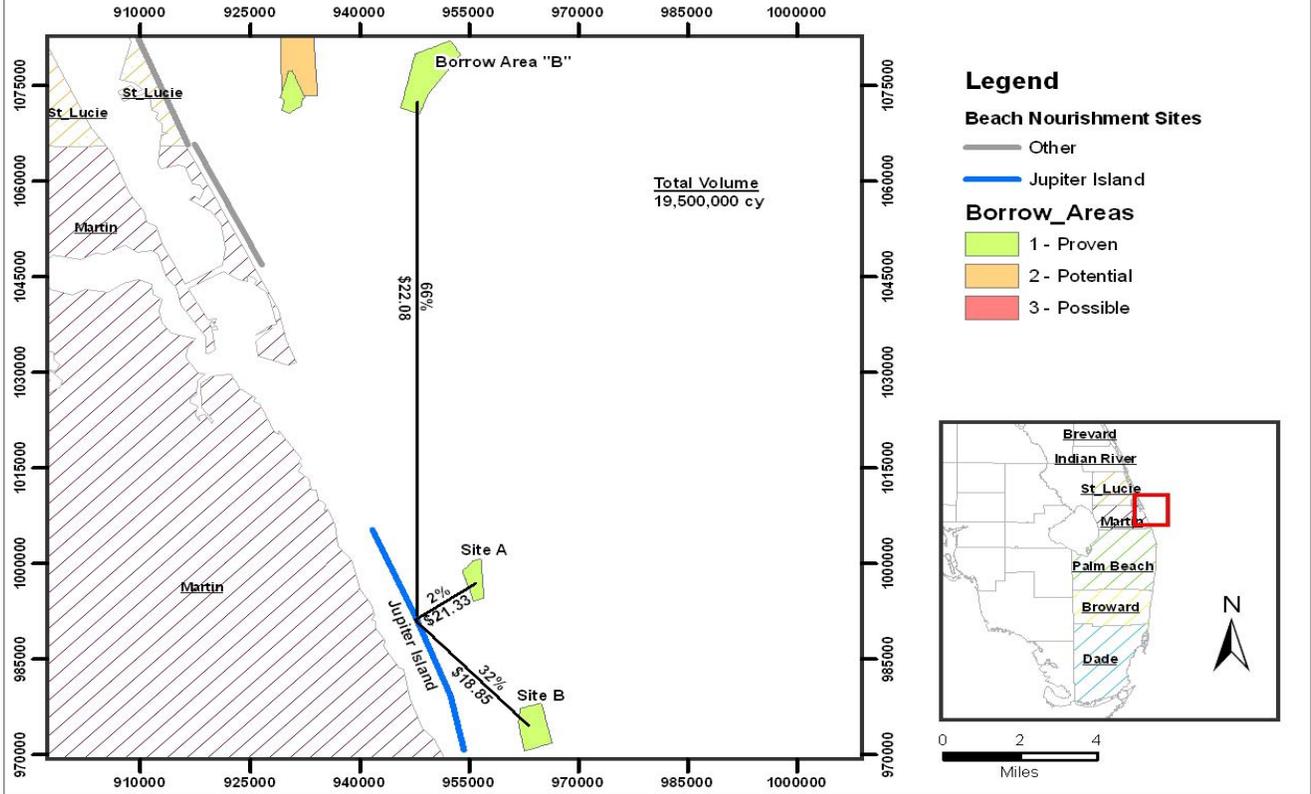
Martin County SPP Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Martin County SPP	800,000	May-11	4	13	10,400,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
CPE BA-5	2,400,000	1 - 3	Hopper Dredge	\$47,145,303	\$19.64	-
Borrow Area "C"	8,000,000	4 - 13	Hopper Dredge	\$159,705,192	\$19.96	Not Depleted
TOTAL	10,400,000	-	-	\$206,850,495	\$19.89	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

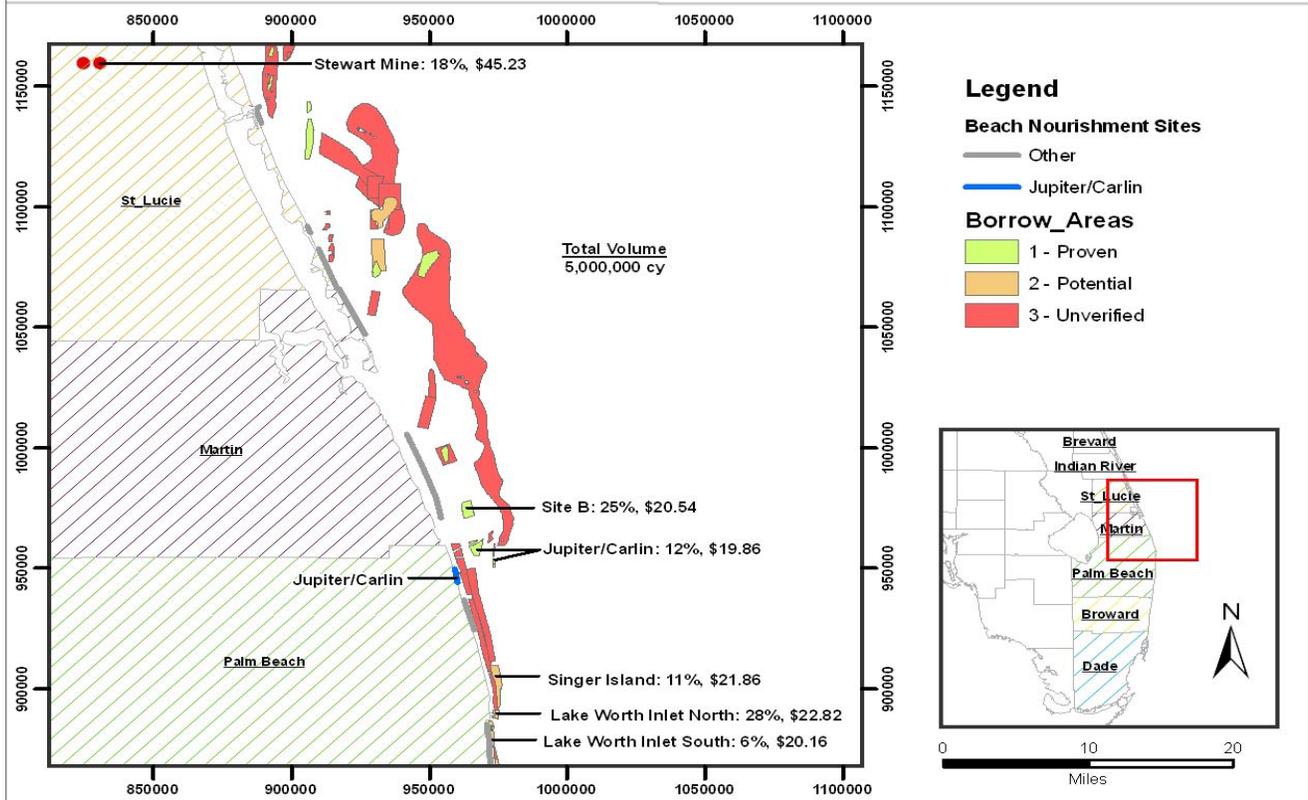
Jupiter Island Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Jupiter Island	1,500,000	Mar-11	4	13	19,500,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Site A	367,000	1	Hopper Dredge	\$7,828,357	\$21.33	Mar-11
Site B	6,164,000	1 - 5	Hopper Dredge	\$116,198,498	\$18.85	Mar-27
Borrow Area "B"	12,969,000	5 - 13	Hopper Dredge	\$286,296,927	\$22.08	<i>Not Depleted</i>
TOTAL	19,500,000	-	-	\$410,323,783	\$21.04	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

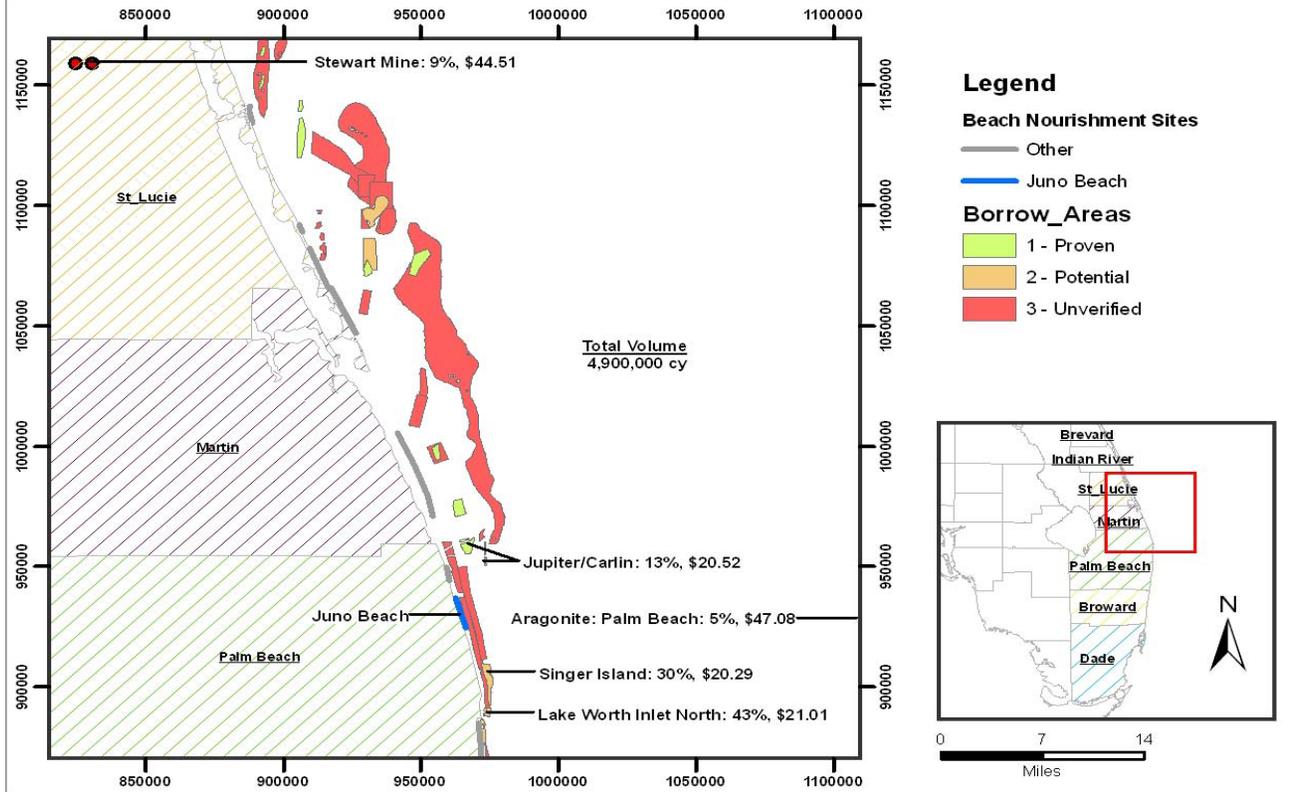
Jupiter/Carlin Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Jupiter/Carlin	625,000	Mar-10	7	8	5,000,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Jupiter/Carlin	625,000	1	Hopper Dredge	\$12,414,175	\$19.86	-
Site B	1,250,000	2, 3	Hopper Dredge	\$25,675,262	\$20.54	-
Singer Island	525,000	4	Hopper Dredge	\$11,478,067	\$21.86	Mar-31
Lake Worth Inlet N	1,400,000	4 - 7	Hopper Dredge	\$31,941,560	\$22.82	Mar-52
Lake Worth Inlet S	287,857	7	Hopper Dredge	\$5,803,554	\$20.16	Mar-52
Stewart Mine	912,143	7, 8	Truck/Barge	\$41,258,680	\$45.23	Not Depleted
TOTAL	5,000,000	-	-	\$128,571,299	\$25.71	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

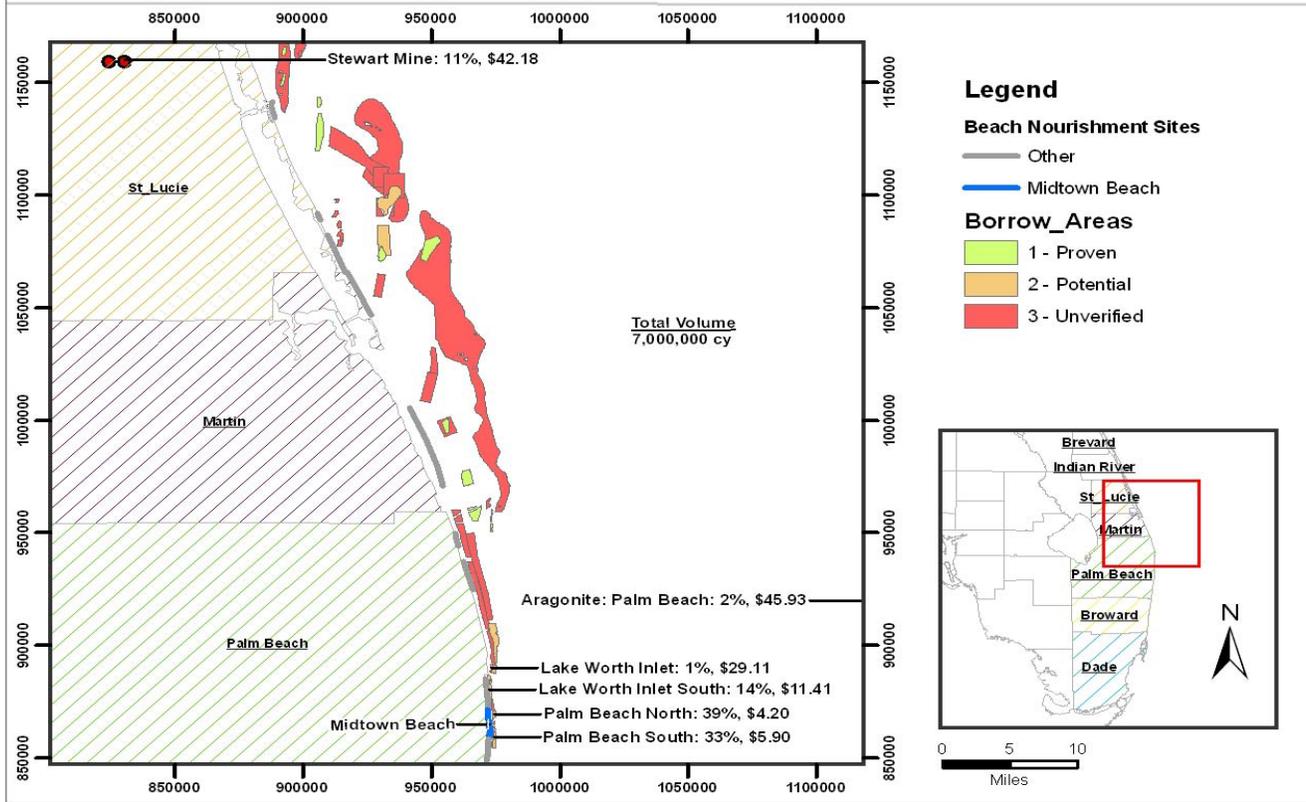
Juno Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Juno Beach	700,000	Mar-15	7	7	4,900,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Jupiter/Carlin	625,000	1	Hopper Dredge	\$12,822,331	\$20.52	Mar-15
Singer Island	1,475,000	1 - 3	Hopper Dredge	\$29,927,628	\$20.29	-
Lake Worth Inlet N	2,100,000	4 - 6	Hopper Dredge	\$44,119,620	\$21.01	-
Stewart Mine	450,000	7	Truck/Barge	\$20,029,226	\$44.51	Not Depleted
Aragonite: Palm Beach	250,000	7	Barge	\$11,769,315	\$47.08	Not Depleted
TOTAL	4,900,000	-	-	\$118,668,120	\$24.22	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

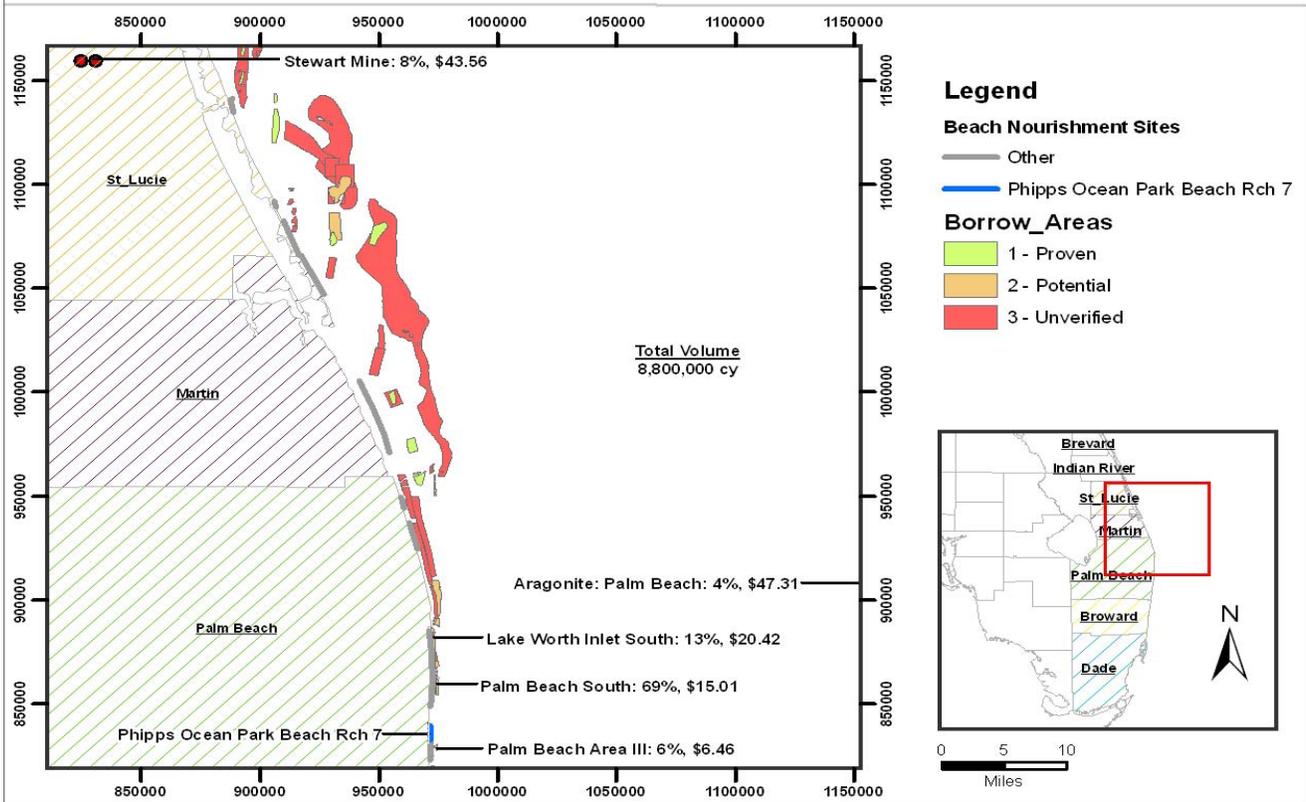
Midtown Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Midtown Beach	1,000,000	Feb-13	7	7	7,000,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Palm Beach North	2,700,000	1 - 3	Hydraulic Dredge	\$11,328,432	\$4.20	Feb-27
Palm Beach South	2,300,000	3 - 5	Hydraulic Dredge	\$13,566,439	\$5.90	-
Lake Worth Inlet S	1,000,000	6	Hydraulic Dredge	\$11,409,874	\$11.41	-
Lake Worth Inlet	80,000	7	Hydraulic Dredge	\$2,328,976	\$29.11	Feb-55
Stewart Mine	750,000	7	Truck/Barge	\$31,638,419	\$42.18	Not Depleted
Aragonite: Palm Beach	170,000	7	Barge	\$7,808,671	\$45.93	Not Depleted
TOTAL	7,000,000	-	-	\$78,080,811	\$11.15	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

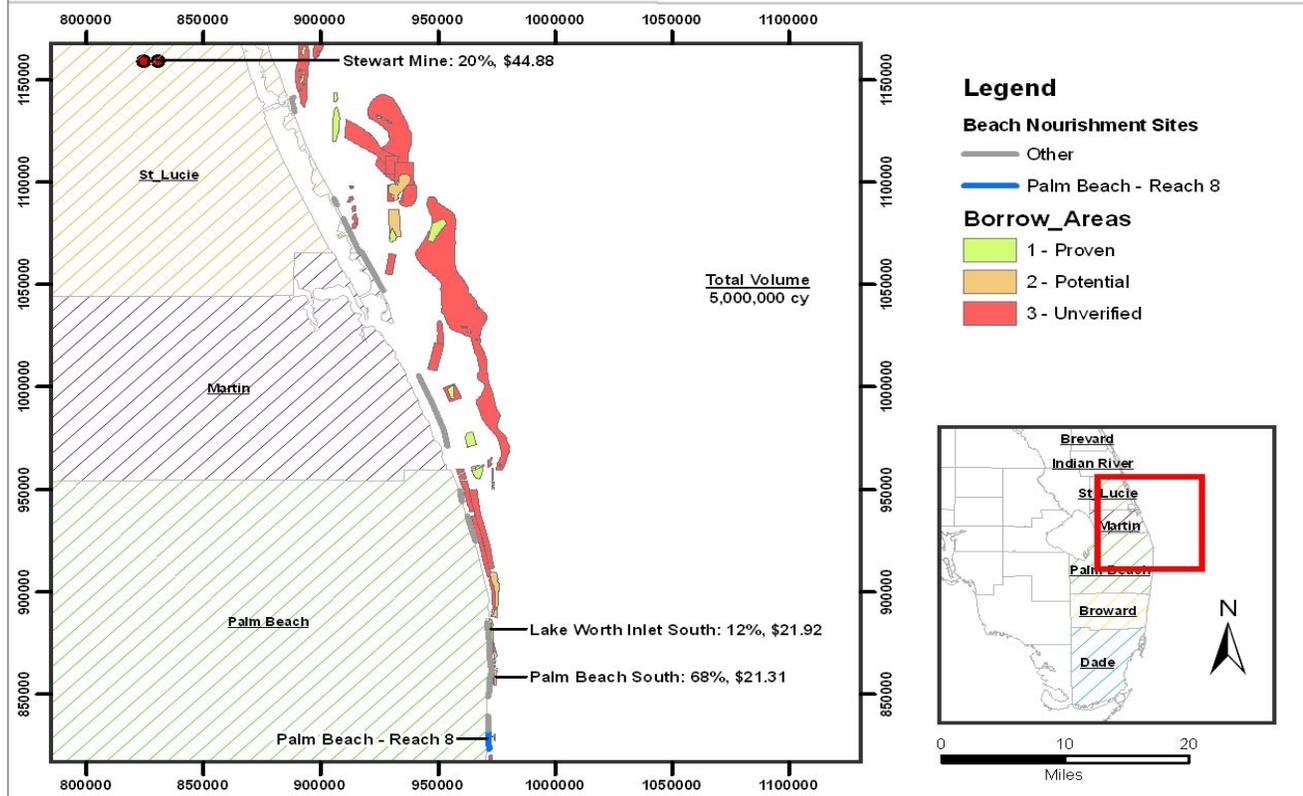
Phipps Ocean Park Beach Rch 7 Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Phipps Ocean Park Rch 7	1,100,000	May-12	6	8	8,800,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Palm Beach Area 3	545,000	1	Hydraulic Dredge	\$3,521,022	\$6.46	May-12
Palm Beach South	6,055,000	1 - 6	Hydraulic Dredge	\$90,885,953	\$15.01	-
Lake Worth Inlet S	1,100,000	7	Hopper Dredge	\$22,461,794	\$20.42	-
Stewart Mine	750,000	8	Truck/Barge	\$32,667,929	\$43.56	<i>Not Depleted</i>
Aragonite: Palm Beach	350,000	8	Barge	\$16,557,114	\$47.31	<i>Not Depleted</i>
TOTAL	8,800,000	-	-	\$166,093,813	\$18.87	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

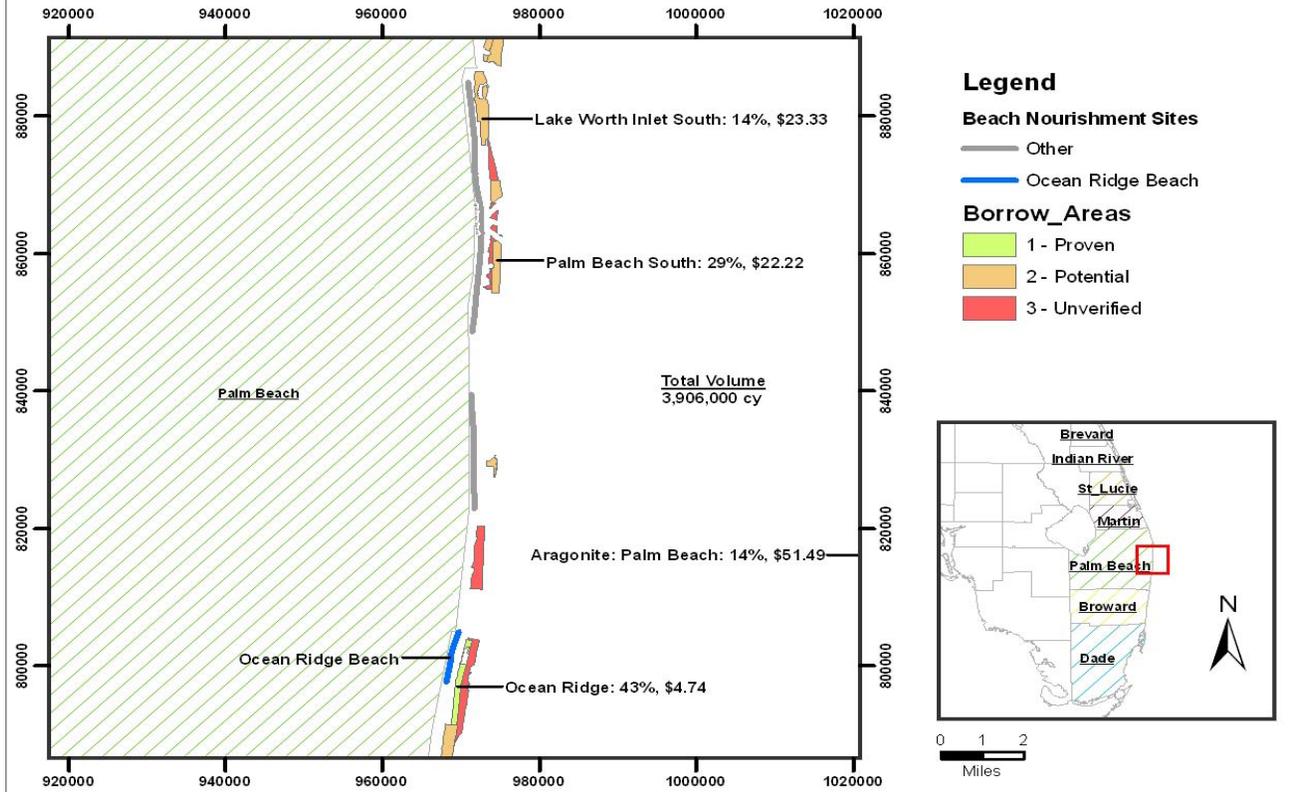
Palm Beach Reach 8 Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Palm Beach - Reach 8	500,000	Nov-12	5	10	5,000,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Palm Beach South	3,407,701	1 - 7	Hopper Dredge	\$72,626,304	\$21.31	Nov-42
Lake Worth Inlet S	592,299	7, 8	Hopper Dredge	\$12,981,991	\$21.92	-
Steward Mine	1,000,000	9, 10	Truck/Barge	\$44,875,078	\$44.88	Not Depleted
TOTAL	5,000,000	-	-	\$130,483,373	\$26.10	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

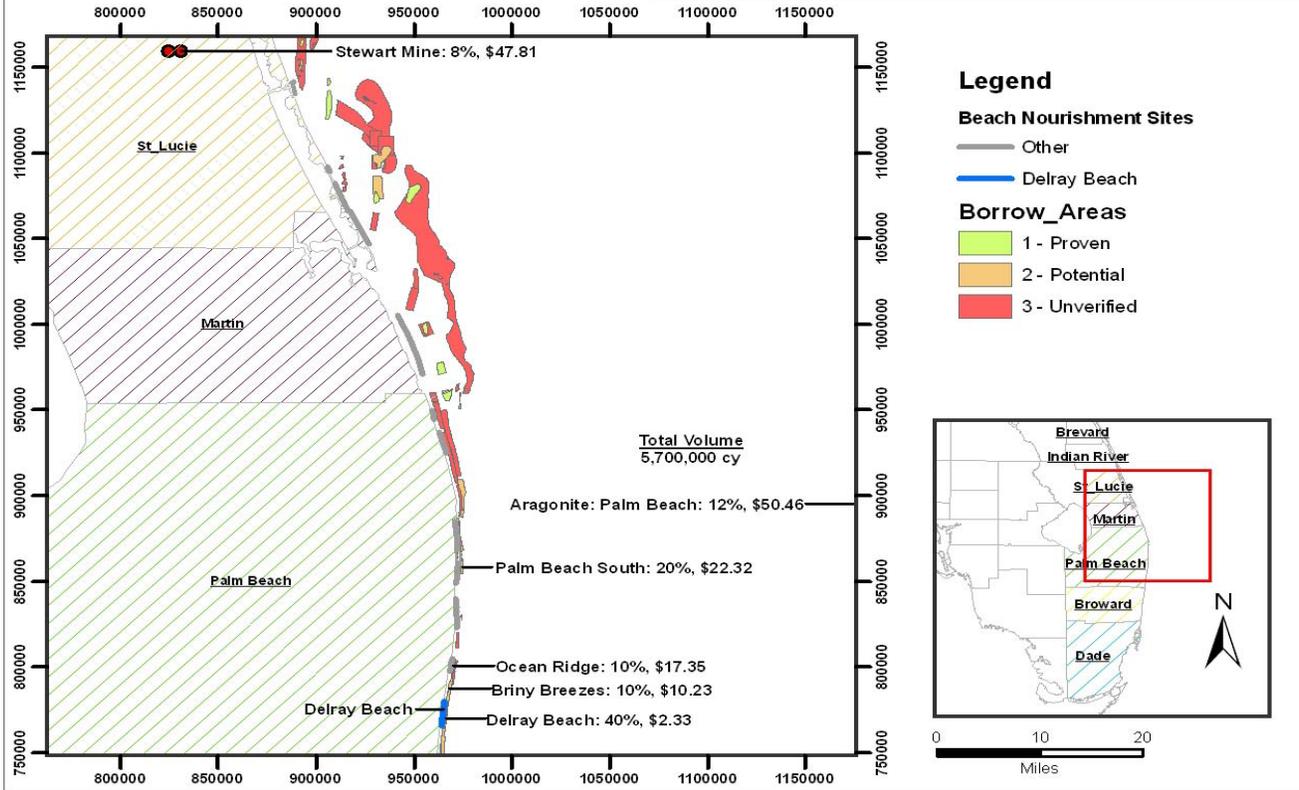
Ocean Ridge Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Ocean Ridge Beach	558,000	Nov-12	7	7	3,906,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Ocean Ridge	1,674,000	1 - 3	Hydraulic Dredge	\$7,930,573	\$4.74	-
Palm Beach South	1,116,000	4, 5	Hopper Dredge	\$24,795,474	\$22.22	-
Lake Worth Inlet S	558,000	6	Hopper Dredge	\$13,020,326	\$23.33	-
Aragonite: Palm Beach	558,000	7	Barge	\$28,732,409	\$51.49	Not Depleted
TOTAL	3,906,000	-	-	\$74,478,783	\$19.07	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

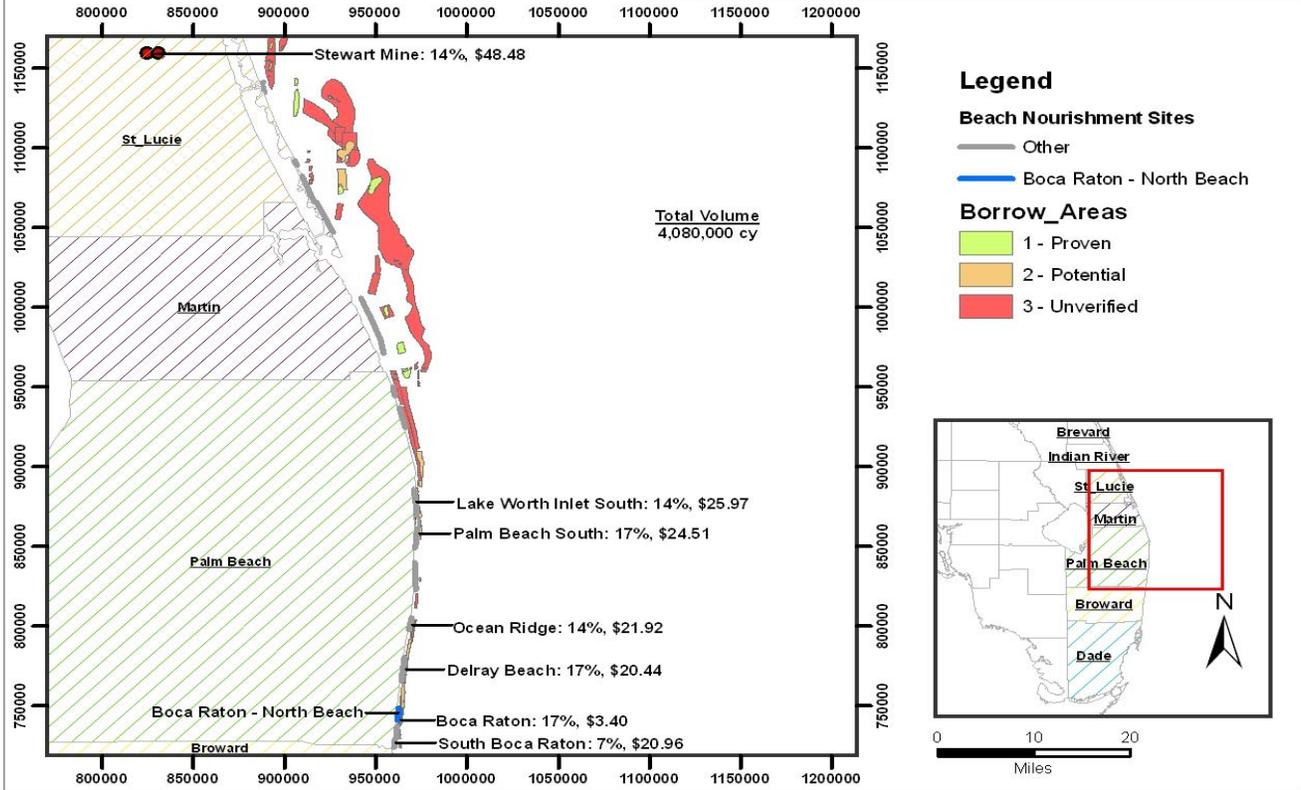
Delray Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Delray Beach	1,140,000	Apr-12	10	5	5,700,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Delray Beach	2,280,000	1, 2	Hydraulic Dredge	\$5,310,108	\$2.33	-
Briny Breezes	583,291	3	Hydraulic Dredge	\$5,969,334	\$10.23	Apr-32
Ocean Ridge	556,709	3	Hydraulic Dredge	\$9,656,664	\$17.35	-
Palm Beach South	1,140,000	4	Hopper Dredge	\$25,443,765	\$22.32	-
Stewart Mine	462,857	5	Truck/Barge	\$22,128,380	\$47.81	Not Depleted
Aragonite: Palm Beach	677,143	5	Barge	\$34,167,363	\$50.46	Not Depleted
TOTAL	5,700,000	-	-	\$102,675,613	\$18.01	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

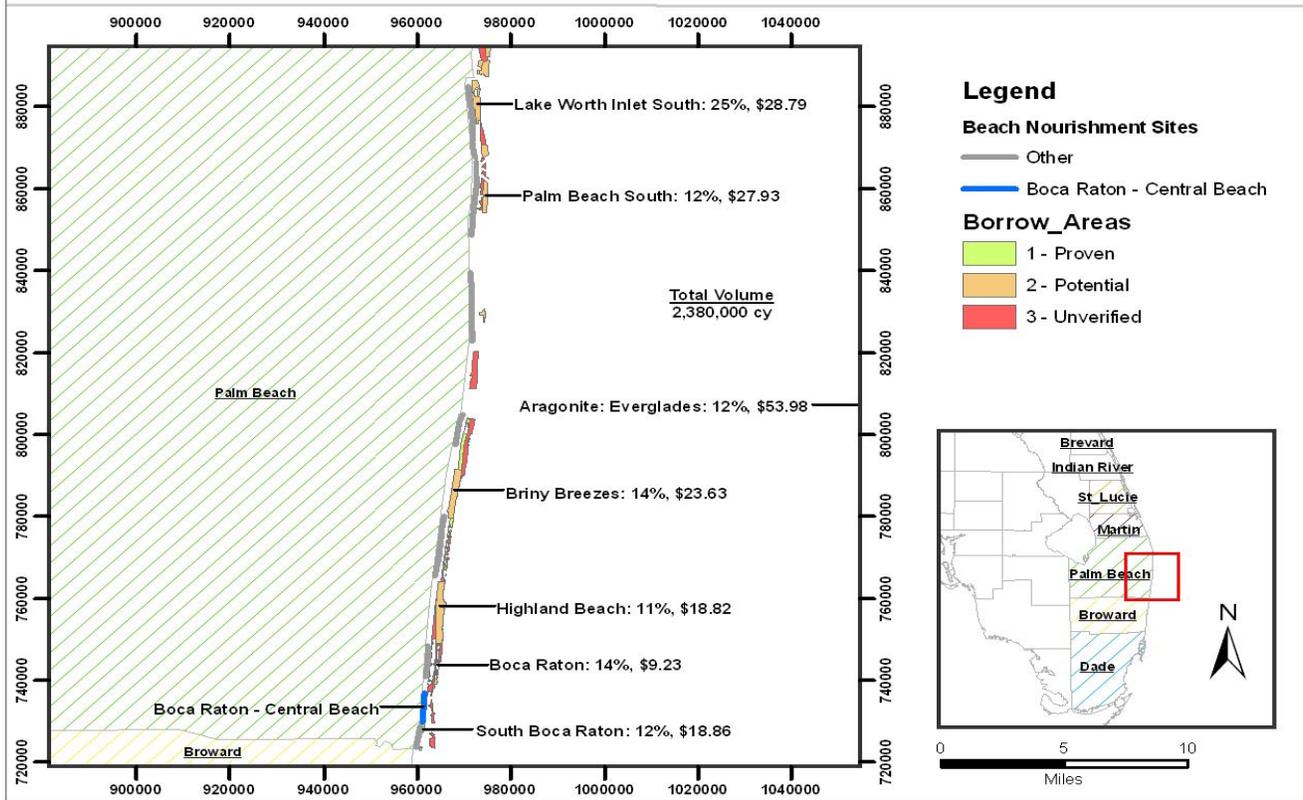
Boca Raton - North Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Boca Raton - N Beach	680,000	Apr-16	8	6	4,080,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Boca Raton	680,000	1	Hydraulic Dredge	\$2,315,050	\$3.40	-
Delray Beach	680,000	2	Hopper Dredge	\$13,902,520	\$20.44	-
S Boca Raton	299,524	3, 5, 6	Hydraulic Dredge	\$6,276,997	\$20.96	<i>Accreting</i>
Ocean Ridge	578,545	3	Hopper Dredge	\$12,683,941	\$21.92	-
Palm Beach South	680,000	4	Hopper Dredge	\$16,668,018	\$24.51	-
Lake Worth Inlet S	583,386	5	Hopper Dredge	\$15,148,216	\$25.97	-
Stewart Mine	578,545	6	Truck/Barge	\$28,047,782	\$48.48	<i>Not Depleted</i>
TOTAL	4,080,000	-	-	\$95,042,525	\$23.29	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

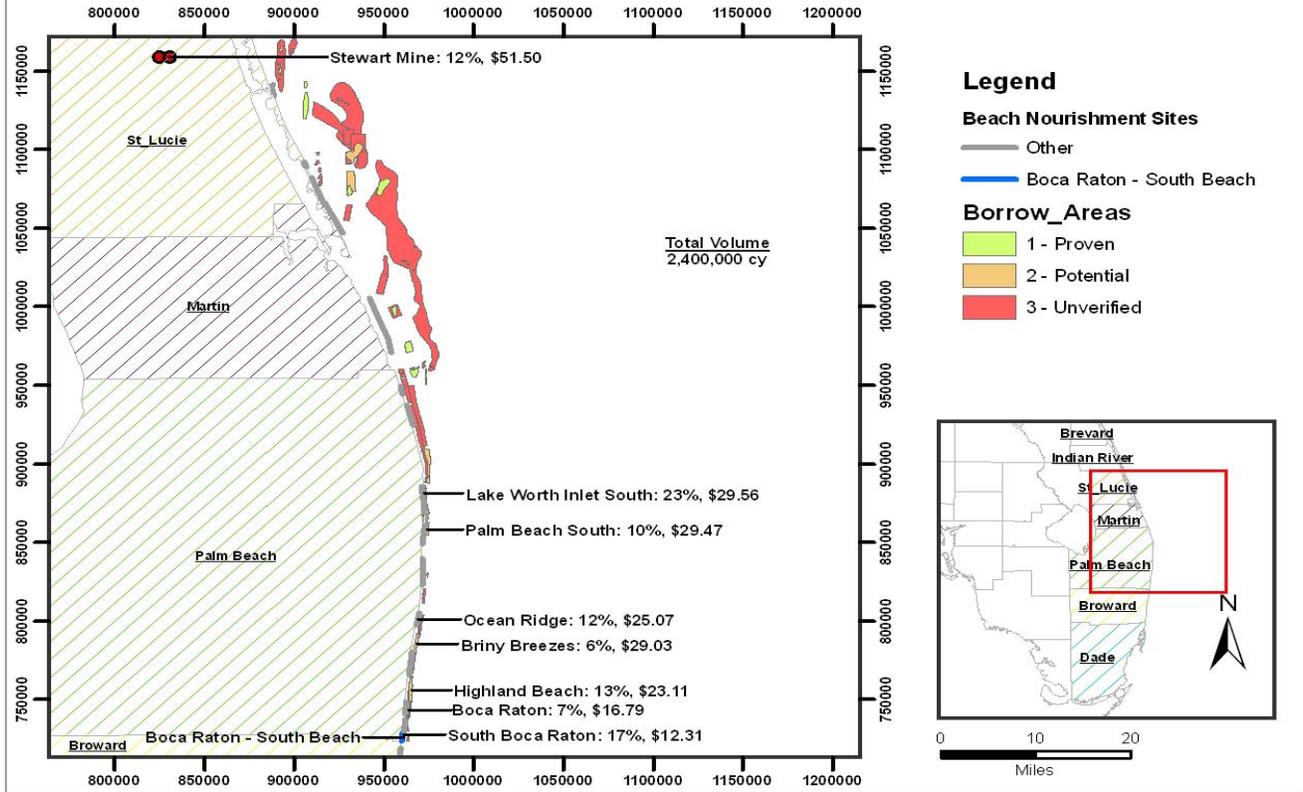
Boca Raton - Central Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Boca Raton Central Bch	340,000	Mar-11	8	7	2,380,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Boca Raton	340,000	1	Hydraulic Dredge	\$3,139,427	\$9.23	-
S Boca Raton	272,767	2, 4, 5, 7	Hydraulic Dredge	\$5,145,599	\$18.86	<i>Accreting</i>
Highland Beach	259,107	2	Hydraulic Dredge	\$4,875,942	\$18.82	-
Briny Breezes	340,000	3	Hopper Dredge	\$8,033,762	\$23.63	-
Palm Beach South	284,510	4	Hopper Dredge	\$7,945,501	\$27.93	-
Lake Worth Inlet S	599,107	5, 6	Hopper Dredge	\$17,249,557	\$28.79	-
Aragonite: Everglades	284,509	7	Barge	\$15,358,888	\$53.98	<i>Not Depleted</i>
TOTAL	2,380,000	-	-	\$61,748,676	\$25.94	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

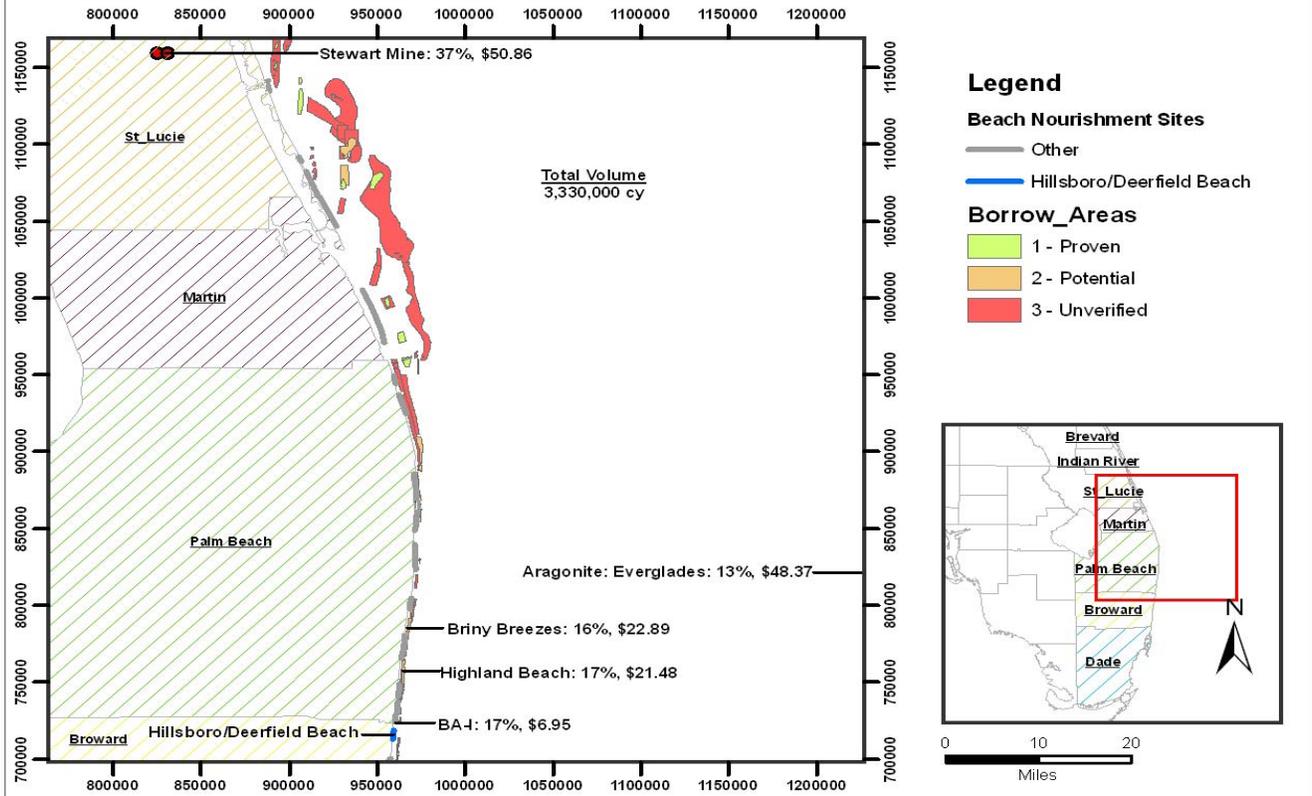
Boca Raton - South Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Boca Raton - S Beach	300,000	Dec-14	6	8	2,400,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
S Boca Raton	397,282	1, 3, 5, 7	Hydraulic Dredge	\$4,892,097	\$12.31	Accreting
Boca Raton	171,841	1	Hydraulic Dredge	\$2,884,853	\$16.79	-
Highland Beach	300,000	2	Hopper Dredge	\$6,932,328	\$23.11	-
Briny Breezes	152,737	3	Hopper Dredge	\$4,434,673	\$29.03	-
Ocean Ridge	300,000	4	Hopper Dredge	\$7,520,217	\$25.07	-
Palm Beach South	228,789	5	Hopper Dredge	\$6,743,230	\$29.47	-
Lake Worth Inlet S	549,351	6, 7	Hopper Dredge	\$16,239,397	\$29.56	-
Stewart Mine	300,000	8	Truck/Barge	\$15,450,509	\$51.50	Not Depleted
TOTAL	2,400,000	-	-	\$65,097,305	\$27.12	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

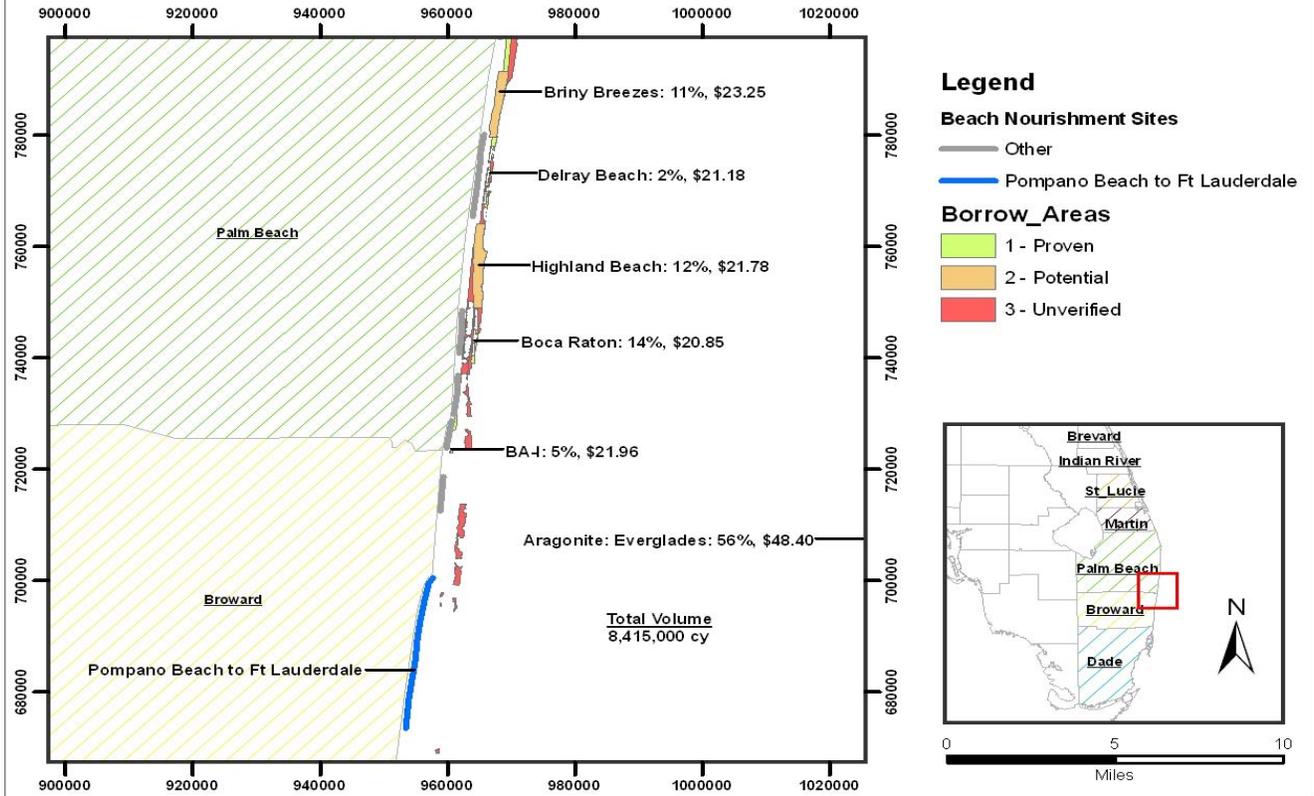
Hillsboro/Deerfield Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Hillsboro/Deerfield Bch	555,000	Mar-09	10	6	3,330,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
BA-I	555,000	1	Hydraulic Dredge	\$3,856,173	\$6.95	-
Highland Beach	555,000	2	Hopper Dredge	\$11,919,540	\$21.48	-
Briny Breezes	555,000	3	Hopper Dredge	\$12,706,114	\$22.89	-
Stewart Mine	1,235,000	4 - 6	Truck/Barge	\$62,811,710	\$50.86	Not Depleted
Aragonite: Everglades	430,000	6	Barge	\$20,800,682	\$48.37	Not Depleted
TOTAL	3,330,000	-	-	\$112,094,220	\$33.66	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

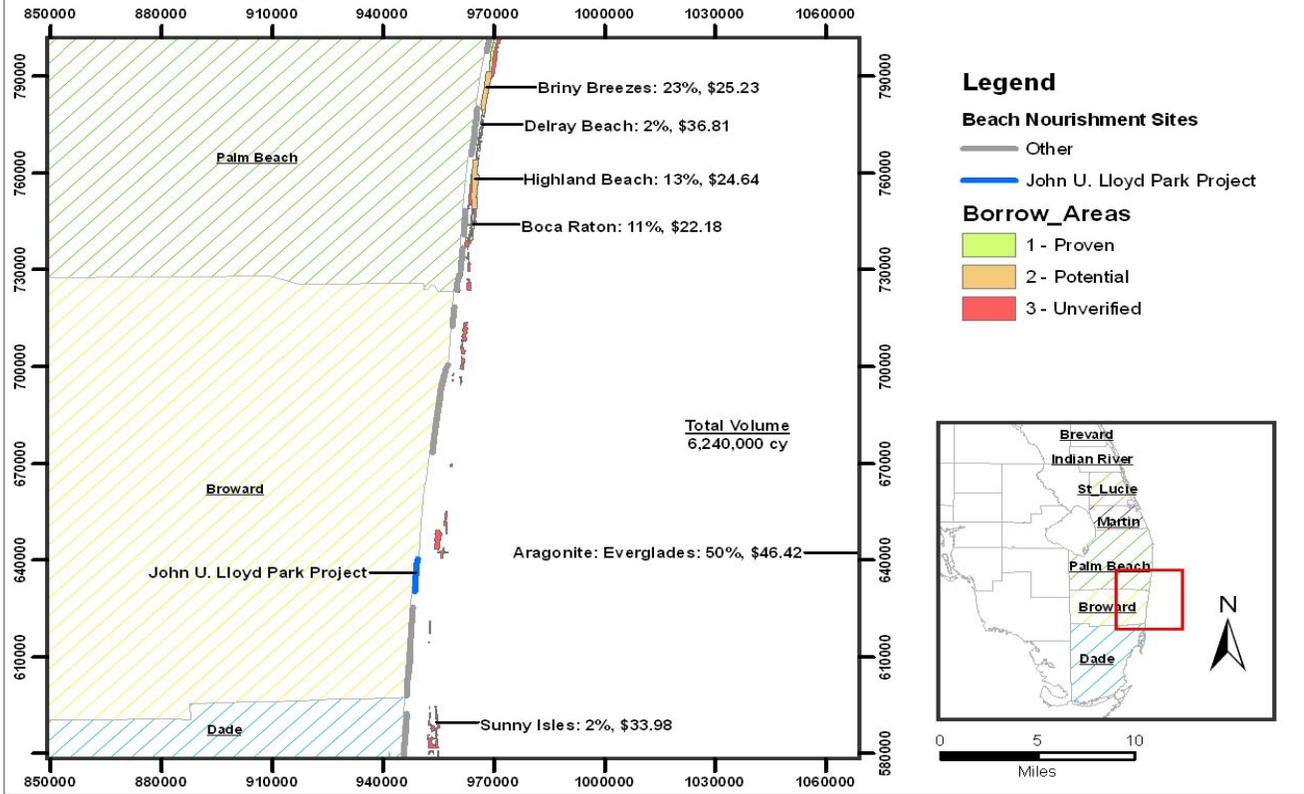
Pompano Beach to Ft Lauderdale Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Pompano/Lauderdale	935,000	Apr-10	6	9	8,415,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
BA-1	433,400	1	Hopper Dredge	\$9,518,395	\$21.96	Apr-10
Boca Raton	1,187,837	1, 2	Hopper Dredge	\$24,763,441	\$20.85	Apr-16
Highland Beach	972,675	2, 3	Hopper Dredge	\$21,182,042	\$21.78	Apr-22
Delray Beach	211,088	3	Hopper Dredge	\$4,470,209	\$21.18	-
Briny Breezes	935,000	4	Hopper Dredge	\$21,740,995	\$23.25	-
Aragonite: Everglades	4,675,000	5 - 9	Barge	\$226,253,582	\$48.40	Not Depleted
TOTAL	8,415,000	-	-	\$307,928,664	\$36.59	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

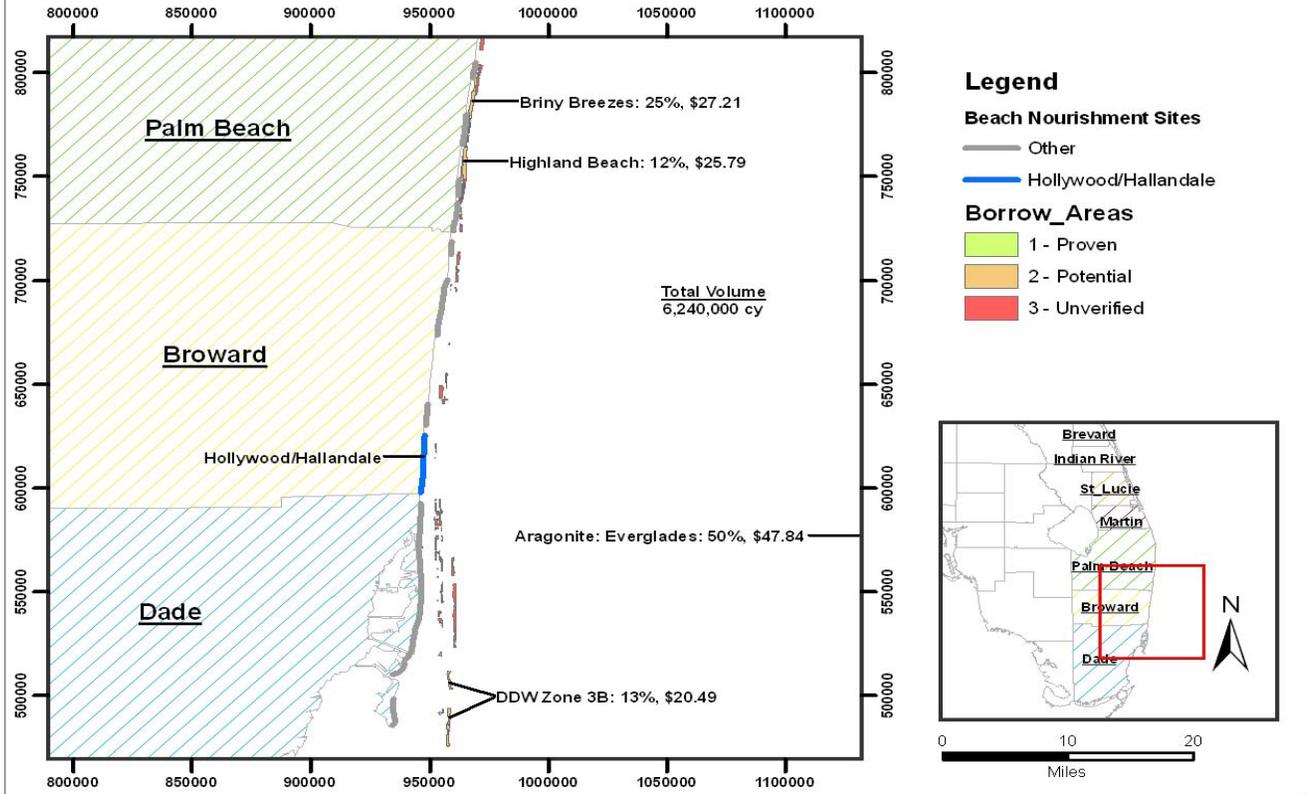
John U. Lloyd Park Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
John U. Lloyd Park	780,000	May-12	6	8	6,240,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Sunny Isles	94,753	1	Hopper Dredge	\$3,219,450	\$33.98	May-12
Boca Raton	685,247	1	Hopper Dredge	\$15,196,446	\$22.18	-
Highland Beach	780,000	2	Hopper Dredge	\$19,222,991	\$24.64	-
Delray Beach	106,912	3	Hopper Dredge	\$3,935,872	\$36.81	May-24
Briny Breezes	1,453,088	3, 4	Hopper Dredge	\$36,659,792	\$25.23	-
Aragonite: Everglades	3,120,000	5 - 8	Barge	\$144,819,380	\$46.42	<i>Not Depleted</i>
TOTAL	6,240,000	-	-	\$223,053,931	\$35.75	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

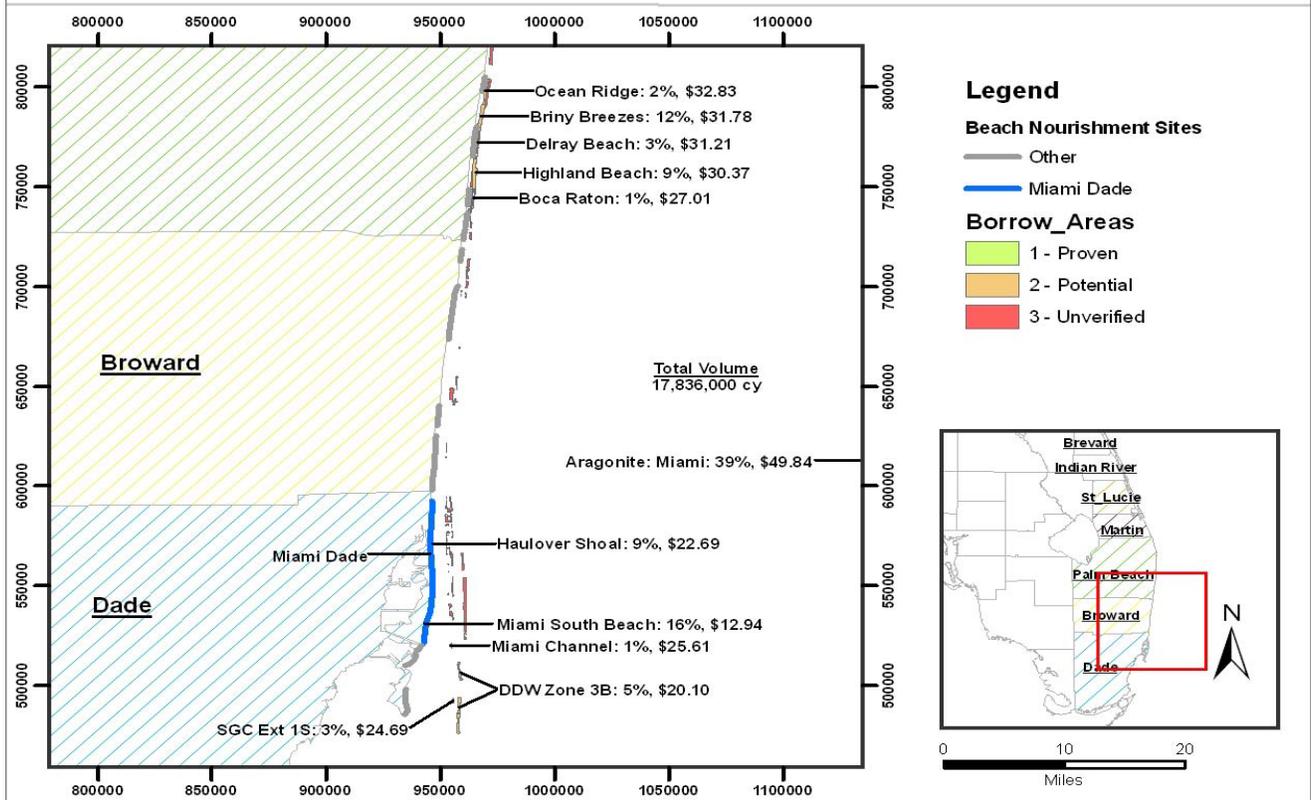
Hollywood/Hallandale Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
Hollywood/Hallandale	780,000	May-12	6	8	6,240,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
DDW ZONE 3B	780,000	1	Jumbo Dredge	\$15,979,755	\$20.49	-
Highland Beach	780,000	2	Hopper Dredge	\$20,115,074	\$25.79	-
Briny Breezes	1,560,000	3, 4	Hopper Dredge	\$42,441,668	\$27.21	-
Aragonite: Everglades	3,120,000	5 - 8	Barge	\$149,260,762	\$47.84	Not Depleted
TOTAL	6,240,000	-	-	\$227,797,260	\$36.51	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

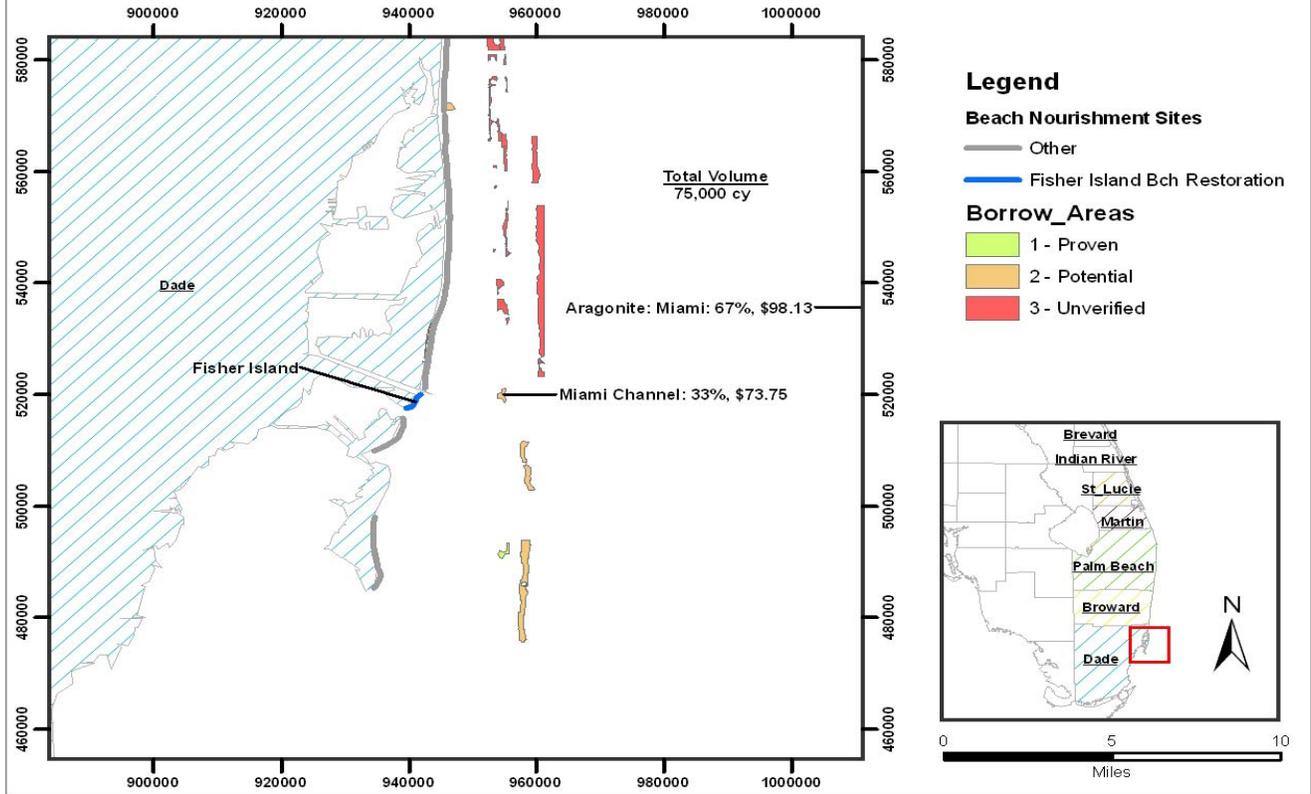
Miami Dade Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
DAD Miami Dade	686,000	Apr-09	2	26	17,836,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Miami South Beach	2,905,753	1 - 26	Hydraulic Dredge	\$37,587,374	\$12.94	Accreting
SGC Ext 1S	500,000	1, 4	Hopper Dredge	\$12,345,752	\$24.69	Apr-15
DDW Zone 3B	930,000	2, 3	Jumbo Dredge	\$18,689,223	\$20.10	Apr-13
Haulover Shoal	1,603,682	3 - 26	Hydraulic Dredge	\$36,394,274	\$22.69	Accreting
Miami Channel	179,960	3, 4	Hopper Dredge	\$4,608,366	\$25.61	Apr-15
Boca Raton	235,075	4	Hopper Dredge	\$6,348,439	\$27.01	-
Highland Beach	1,565,551	5 - 7	Hopper Dredge	\$47,539,910	\$30.37	-
Delray Beach	522,000	8	Hopper Dredge	\$16,290,796	\$31.21	-
Briny Breezes	2,087,551	9 - 12	Hopper Dredge	\$66,350,107	\$31.78	-
Ocean Ridge	439,746	13	Hopper Dredge	\$14,435,823	\$32.83	Apr-33
Aragonite: Miami	6,866,682	13 - 26	Barge	\$342,213,362	\$49.84	Not Depleted
TOTAL	17,836,000	-	-	\$602,803,425	\$33.80	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

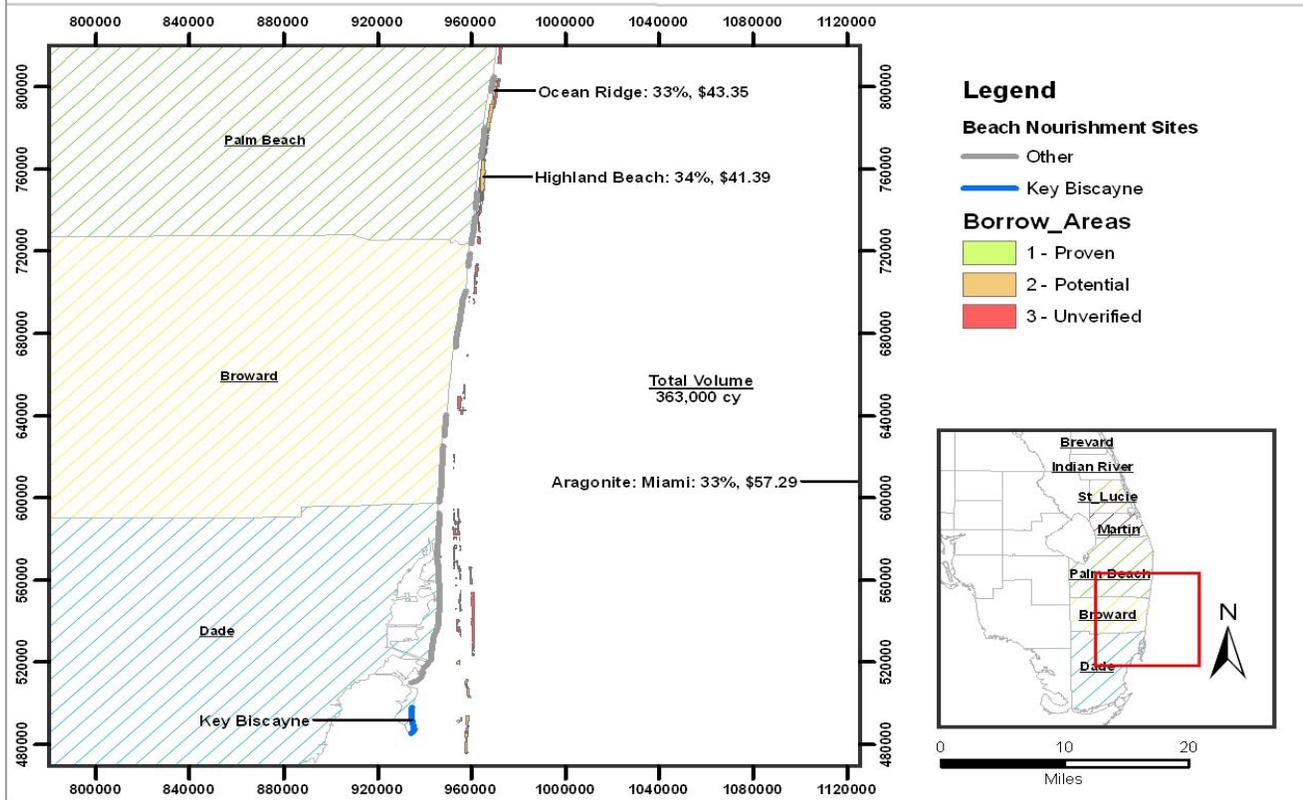
Fisher Island Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
DAD Fisher Island	25,000	Apr-12	21	3	75,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Miami Channel	25,000	1	Hopper Dredge	\$1,843,811	\$73.75	-
Aragonite: Miami	50,000	2, 3	Barge	\$4,906,739	\$98.13	Not Depleted
TOTAL	75,000	-	-	\$6,750,550	\$90.01	

*Data only provided if depleted by this project; dash indicates depletion by a different project.

Key Biscayne Beach Nourishment Project Summary



Project Name	Project Volume (cy)	Start Date	Renourishment Interval (yr)	Number of Events	50-Year Volume (cy)	
DAD Key Biscayne	121,000	Aug-17	15	3	363,000	
Source Name	Total Volume Used (cy)	Event Numbers	Delivery Method	Total Cost	Average Cost per Cubic Yard	Date Source Depleted*
Highland Beach	121,000	1	Hopper Dredge	\$5,008,637	\$41.39	-
Ocean Ridge	121,000	2	Hopper Dredge	\$5,245,800	\$43.35	-
Aragonite: Miami	121,000	3	Barge	\$6,932,623	\$57.29	Not Depleted
TOTAL	363,000	-	-	\$17,187,059	\$47.35	

*Data only provided if depleted by this project; dash indicates depletion by a different project.