



TOWN OF PALM BEACH

Town Manager's Office

**TENTATIVE-
SUBJECT TO
REVISION**

SHORE PROTECTION BOARD MEETING

AGENDA

THURSDAY, JANUARY 23, 2020

9:00 AM

**TOWN COUNCIL CHAMBERS
360 SOUTH COUNTY ROAD**

WELCOME!

The progress of this meeting may be monitored by visiting the Town's website (www.townofpalmbeach.com) and selecting "Live Meeting Audio" under the "Your Government" tab. If you have questions regarding that feature, please contact the Office of Information Systems (561) 227-6315. The audio recording of the meeting will appear within 24 hours after the conclusion of the meeting under "Agendas, Minutes, and Audio."

I. CALL TO ORDER

II. ROLL CALL

E. Llwyd Ecclestone, Chair
Lewis Katz, Vice-Chair
Kane Baker, Shore Protection Board Member
Melissa Cerialle, Shore Protection Board Member
James C. Gavigan, Shore Protection Board Member
Reuben B. Johnson, III, Shore Protection Board Member
Warren Belmar, Shore Protection Board Member
Vladimir Rapoport, Shore Protection Board Alternate Member
Erick Reickert, Shore Protection Board Alternate Member

III. PLEDGE OF ALLEGIANCE

IV. APPROVAL OF AGENDA

V. SWEARING IN OF APPOINTED MEMBERS

VI. ELECTION OF CHAIR FOR 2020 SHORE PROTECTION BOARD

VII. ELECTION OF VICE-CHAIR FOR 2020 SHORE PROTECTION BOARD

VIII. APPROVAL OF THE MINUTES OF THE NOVEMBER 21, 2019 MEETING

Post Office Box 2029 * 360 South County Road * Palm Beach, Florida 33480
Telephone (561) 838-5410 * Facsimile (561) 838-5411 * townmanager@townofpalmbeach.com

- IX. COMMUNICATIONS FROM CITIZENS - 3 MINUTE LIMIT PLEASE
- X. CURRENT SHORELINE CONDITIONS
[Robert Weber, Coastal Program Manager]
- XI. 2019 TOWNWIDE SEDIMENT BUDGET REVIEW AND EROSION RATES DISCUSSION
[Robert Weber, Coastal Program Manager, and Michael Jenkins, Ph.D., P.E., Coastal Engineering Principal, Applied Technology & Management, Inc.]
- XII. COASTAL PROJECTS UPDATE
[Robert Weber, Coastal Program Manager]
- Lake Worth Inlet Maintenance Dredging
 - 2020 Mid-Town Beach Nourishment
 - 2020 Phipps Ocean Park Beach Nourishment
 - Dune Planting
 - 2020 Dune Restoration in Reaches 7, 8, and 9
 - The Breakers/Clarke Avenue/Mid-Town Shoreline Stabilization Project
- XIII. ESTABLISH SHORE PROTECTION BOARD GOALS FOR 2020 CALENDAR YEAR
[Patricia Strayer, P.E., Town Engineer]
- XIV. SCHEDULING OF FUTURE MEETINGS
[Patricia Strayer, P.E., Town Engineer]
- Regular SPB Meeting, April 23, 2020
 - o FY 2021 Coastal Management Program Budget
- XV. COMMUNICATIONS FROM SHORE PROTECTION BOARD MEMBERS
- XVI. ANY OTHER MATTERS
- XVII. ADJOURNMENT

Note: Disabled persons who need an accommodation in order to participate in the Town Council Meeting are requested to contact the Town Manager's Office at 838-5410 or through the Florida Relay Service by dialing 1-800-955-8770 for voice callers or 1-800-955-8771 for TDD callers, at least two (2) working days before this meeting.



TOWN OF PALM BEACH

Town Manager's Office

MINUTES OF THE SHORE PROTECTION BOARD MEETING HELD ON THURSDAY, NOVEMBER 21, 2019

I. CALL TO ORDER

The Shore Protection Board meeting was called to order on Thursday, November 21, 2019, at 8:59 a.m. in the Town Council Chambers.

II. ROLL CALL

On roll call, all of the Board Members and alternate Board Members were present.

III. PLEDGE OF ALLEGIANCE

Chair E. Llwyd Ecclestone led the Pledge of Allegiance.

IV. APPROVAL OF AGENDA

Motion was made by Vice-Chair Lewis Katz and was seconded by Board Member Melissa Ceriale to approve the agenda. The motion carried unanimously.

V. APPROVAL OF THE MINUTES OF THE APRIL 25, 2019 MEETING

Motion was made by Vice-Chair Katz and was seconded by Board Member Ceriale to approve the April 25, 2019 minutes. The motion carried unanimously.

VI. COMMUNICATIONS FROM CITIZENS - 3 MINUTE LIMIT PLEASE

Pat Cooper, West Palm Beach, representing himself as a consultant to the Civic Association. Mr. Cooper stated he attended the Port of Palm Beach meeting, where it was brought up that there was dredging that took place this year and sand wound up on the beach. A pilot noticed that shoaling was taking place at the beginning of the inlet a month after dredging took place. There was a vote to dredge down to 38' at the mouth of the inlet (north part of inlet where sand had been accumulating) to capture the sand. Mr. Cooper wants to make the Shore Protection Board aware because (a) they are going down 38', (b) if there is dredging going on, perhaps sand can end up on the dry beach and (c) to discuss there is an overabundance of sand, why isn't the sand transfer plant capturing it as it seems

**MINUTES OF THE SHORE PROTECTION BOARD
HELD ON THURSDAY, NOVEMBER 21, 2019**

1 like an opportunity for the Town to capture more sand. Coastal Program Manager Robert
2 Weber responded that, at the Port Commission Meeting, November 21st, the Board
3 supported Port staff request that the Army Corps of Engineers dig a little deeper in the area
4 that is shoaling. That is not what's going to be happening in this area this winter. The
5 dredging is on its way and will be here momentarily as they were delayed due to rough
6 weather. Because shoaling occurred so rapidly, it was a thought that perhaps from the Port
7 that it could be dug deeper in the future. When they come to do the dredging, they are going
8 to dredge not only the channel, but the settling basin as well.

9
10 Diane Buhler, Friends of Palm Beach. Over the summer, they picked up a lot of trash from
11 Sloan's Curve to the inlet. Turtle season is over and tractors are out and are tilling the trash
12 and braking it up more on the beach. Scientists at Palm Beach Atlantic started a study of
13 where it can be coming from. The pieces collected from the 9 months of last year have
14 been catalogued and have been given to manufacturers.

15
16 Fellowship Friday will be held hosting another clean-up at 1576 South Ocean Boulevard
17 and everyone is welcome to come join Friends of Palm Beach. Board Member Harvey
18 Kinzelberg asked if there is any reduction of litter on the beach. Ms. Buhler replied that
19 what is coming onto the beach is washing ashore. Board Member Ceriale asked about
20 tilling and medical waste issue. As far as it being rotating down into sand not being picked
21 up and taken away. Could there be better coordination between your work and picking up
22 before any machines are around to till? Ms. Buhler responded she is asking for better
23 service from Town's vendor, the mechanism is not picking up what is needed. Chair
24 Ecclestone asked, where do they start on the beach and when they drive the tractor up and
25 down on the beach are they driving stuff into the sand. Coastal Program Manager Robert
26 Weber responded since seaweed became an issue, the Town has initiated beach cleaning
27 efforts on public beaches which is only done on Mondays and Fridays and is only for raking
28 and burying the seaweed. The contractor is to remove debris on the beach first before it is
29 raked; he is unable to pick-up micro-plastics. Picking up micro-plastics is not in the scope
30 of work.

31
32 Vice-Chair Katz asked Diane Buhler how would she schedule the clean-up process and
33 who does what, and when, because everyone goes in a track and at the end is cleaned up
34 of what is left. It is not the best way to clean up the beach. Ms. Buehler responded their
35 schedule is Monday-Friday, 8:00am-3:00pm every day. It would be a good idea to
36 coordinate to stay ahead of the plastics. Vice-Chair Katz said looking for medical waste is
37 the most important thing and should be a priority. Board Member Ceriale asked shouldn't
38 it be addressed the coordination between Diane Buhler and the Town for optimal use of
39 both entities. Town Engineer Patricia Strayer said it is important to note that the Town is
40 only doing two (2) beaches and a lot more coordination needs to go on with the private
41 beaches. Coastal Program Manager Weber responded that they meet with beach rakers
42 before sea turtle nesting season, and, with the state to coordinate efforts with sea turtle
43 nesting, a permit has to be obtained from DEP.

44
45 Bradford Gary, 229 Onondaga. Asked to share an exhibit he had with him of new data
46 showing flooding in the Town of Palm Beach which was developed by scientists at Florida

**MINUTES OF THE SHORE PROTECTION BOARD
HELD ON THURSDAY, NOVEMBER 21, 2019**

Atlantic, flood zones identified by first time Lidar Imagery (passed out data). Flooding out of Palm Beach at 2' main water at Lake Trail, it doesn't take much to overtop seawalls. It is new data and should be working hard to find a plan for the lake side. Mr. Gary feels Woods Hole Group's report was very incomplete.

Tom Warnke, Surfrider Foundation and Executive Director of Surfing Florida Museum in West Palm Beach. There is an event on December 7th the City of West Palm Beach is having a four (4) part movie series, 7:00pm movie is "The Story of Plastic". Mr. Warnke discussed the preferred alternative for Breakers/Clarke Beach area is something the Surfrider Foundation supports. Mr. Warnke asked how many meetings a year the Shore Protection Board has. The Board is the most important Board in the Town with a critical time, he recommends meeting monthly. There are serious issues coming up. Chair Ecclestone replied that he has the option to call a meeting, however, it would need to be approved by the Town Manager.

VII. CURRENT SHORELINE CONDITIONS

[Robert Weber, Coastal Program Manager]

Coastal Program Manager Robert Weber read Alternate Board Member Stephen Jacoby's letter of resignation. A series of shoreline condition photos were shown. Vice-Chair Katz said some of the areas after the hurricane are pretty good after planting the dunes. Vice-Chair Katz feels that there should be a dedicated effort to plant the dunes after the beach nourishment project. Coastal Program Manager Weber said vegetation would likely not be able to put on in the dunes before the height of turtle nesting season. Vice-Chair Katz said the Citizens Association should work with the condo members to coordinate another set of plantings and need to understand to do it once the sand is there that planting should start. Coastal Program Manager Weber said we just need to be conscious of sea turtle nesting season.

VIII. COASTAL PROJECTS UPDATE

[Robert Weber, Coastal Program Manager]

Lake Worth Inlet Maintenance Dredging 2019/2020 / Mid-Town Beach Nourishment 2020 / Phipps Ocean Park Beach Nourishment 2020 / Reach 8 Dune Restoration

Coastal Program Manager Weber presented update. The Corps' maintenance dredging is a little behind schedule, work will continue through Thanksgiving, and seems it will go through to December 6th. Coastal Program Manager Weber asked the Corps to be aware of the work being performed.

The Sand Forepassing Grant was received from the State to cost-share and it is good for a few years. Board Member Kane Baker asked what is the reason for less sand in inlet? Coastal Program Manager Weber replied it was a mild season, therefore, not as much sand movement. Public Works Director Paul Brazil said sand transfer plant was never permitted and the Town would have to go through a bidding process that could be challenging, there isn't an easement for it yet, which would have to include the Army Corps of Engineers, Palm Beach Shores, DEP, and everyone needs to be involved to be permitted. Then they

**MINUTES OF THE SHORE PROTECTION BOARD
HELD ON THURSDAY, NOVEMBER 21, 2019**

1 would have to show no damage to Palm Beach Shores, the more sand the Town moves, the
2 bigger impact we have to Palm Beach Shores. Board Member Kinzelberg asked of the cost
3 benefit analysis, would there a benefit to deferring beach nourishments for a few years to
4 invest in a large pumping station, is that feasible. Director Brazil responded that he does
5 not believe it will be and still limited to sand coming to Palm Beach.
6

7 Coastal Program Manager Weber stated that the only item that had significant change was
8 the Maintenance Dredging Project because of the schedule. The Mid-Town, Phipps, and
9 Reach 8 are all out to bid at this time. The Army Corps of Engineers will be opening their
10 bids on December 11th and more information will be available at that time.
11

12 Board Member Johnson made comments pertaining to easements and funding.
13

14 **IX. THE BREAKERS/CLARKE AVENUE/MID-TOWN TECHNICAL ADVISORY**
15 **COMMITTEE RECOMMENDATIONS**

16 [Michael Jenkins, Ph.D., P.E, Coastal Engineering Principal, Applied Technology &
17 Management, Inc.]
18

19 Dr. Michael Jenkins, Ph.D., P.E, Coastal Engineering Principal, Applied Technology &
20 Management (ATM), proceeded with presentation. Discussion ensued.
21

22 Board Member Ceriale thanked Dr. Jenkins for all work they do. Paul Leone, Chairman of
23 The Breakers, appreciates clarification of regional effort to using Clarke Avenue, he
24 appreciates the efforts of everyone, allocation of resources, consideration for the concerns
25 The Breakers raised through process. The Breakers has no objection to move forward. The
26 Breakers rock piles which were in place since 1968 were the cause of this situation about
27 5 years ago with the erosion that occurred right after landfill project. The condition of The
28 Breakers beach since March 2018 since its miraculous recovery, the beach has been stable.
29 The Breakers need sand eastward of the rock piles, the gap needs to be filled. It would be
30 worth considering an investment and mitigate. The Breakers is willing to invest in
31 mitigation. Public Works Director Brazil asked Mr. Leone the removal of the rock piles, is
32 there an objection to that. Paul Leone said he is unable to answer at this time. Discussion
33 needs to be had. Director Brazil advised if Shore Protection Board is comfortable with
34 removal but The Breakers is not, it can be brought to Town Council.
35

36 **Motion was made by Vice-Chair Katz Shore Protection Board recommends to the**
37 **Town Council to extend the Seabreeze Avenue groin to rehabilitate the Mid-Town**
38 **groin field and to remove the seaward section of The Breakers rock pile conditioned**
39 **upon their approval. Motion seconded by Board Member Ceriale. The motion carried**
40 **unanimously.**
41
42
43
44
45

**MINUTES OF THE SHORE PROTECTION BOARD
HELD ON THURSDAY, NOVEMBER 21, 2019**

X. DRAFT ANNUAL SHORE PROTECTION BOARD REPORT TO TOWN COUNCIL

[Robert Weber, Coastal Program Manager]

Coastal Program Manager, Robert Weber discussed Annual Shore Protection Board Report that will be brought to Town Council, December 10th. Board Member Ceriale asked could consideration of additional conversation on inlet side of island (include ocean and lagoon side). Coastal Program Manager Weber confirmed that he will add it.

Motion was made by Vice-Chair Katz to accept the Annual Shore Protection Board Report to Town Council. Seconded by Board Member Johnson. The motion carried unanimously.

Alternate Board Member Warren Belmar thanked staff for keeping the Shore Protection Board apprised and asked, going forward, to advise members of actions taken by Town Council and Town Manager.

Board Member Ceriale would like to have further discussion on the volunteer action in Town that Diane Buehler is heading up on clean-up, the raking, and the outside contractors that are brought in to, as a Board, to make recommendations to combine efforts in protecting citizens of the island.

XI. SCHEDULING OF FUTURE MEETINGS

[Patricia Strayer, P.E., Town Engineer]

Town Engineer, Patricia Strayer, conducted discussion. Meeting for January 23, 2020 is certain. Board Member Ceriale said she would like to include a workshop date for 2020. Coastal Program Manager Robert Weber will include on January's agenda and see what dates are available to reserve Council Chambers.

XII. COMMUNICATIONS FROM SHORE PROTECTION BOARD MEMBERS

Board Member Kane Baker said the Shore Protection Board serves as an advisory committee to the Town Council, nothing should be political, everything should always be positive. Board Member Melissa Ceriale has no additional comments at this moment. Board Member Gavigan said he would like to add workshop to discuss issues. Board Member Johnson had no additional comments. Vice-Chair Katz said (1) Thanked the audience for their turnout. (2) Thanked Council members for attending. (3) He is thankful for Coastal Program Manager Weber for an extraordinary job. Board Member Harvey Kinzelberg said the Nourishment Project is executed and underway and is hoping the whole matter of easement would be laid to rest. (1) In 2013 neighbors signed a 10 year easement agreement with the Town for nourishment of the beaches, most of the homeowners are residents at least 9 months out of year. (2) In 2019 parking fees were raised and caused consequences causing people to overrun properties and causing damage. (3) Easement Agreement has not been read by most people, it is clear from easement and Army Corp. fact sheet that the easement makes the private beaches public from the seawall to ECL and

**MINUTES OF THE SHORE PROTECTION BOARD
HELD ON THURSDAY, NOVEMBER 21, 2019**

1 prior owners are not allowed to say anything to the people on the beach. (4) Easement
2 Agreements - The Breakers signed Easement Agreement a small portion of their beach and
3 owners would give a larger portion of their property. (5) He objects to the term "Ocean 11"
4 homeowners have had their neighborhood upset and having their hands tied and giving
5 away property they pay for annually. (6) Residents want the sand, try to work out an
6 accommodation, neighbors have to call police to get people off their property. Board
7 Member Johnson said to oppose to providing easements and causing the Town to lose
8 federal monies and residents to pay more taxes because of refusal to sign easements, seems
9 like the wrong solution to the problem, jeopardizing the Town program with a substantial
10 amount of money. Alternate Board Member Belmar stated he lives at Sun & Surf
11 Condominium, 240 units, he does not know why rates for parking were raised at the public
12 beach. They're asking the public to pay for the sand on the beach. What is the solution? If
13 there are misconducts, why aren't they being enforced? Alternate Board Member Belmar
14 suggests a solution to the problem is not the parking, the Town should enforce the rules.
15 He urges Town Council to address the issue and the Town to enforce the rules in place.
16

17 **XIII. ANY OTHER MATTERS**

18
19 **XIV. ADJOURNMENT**

20
21 **There being no further business, the Shore Protection Board of November 21, 2019,**
22 **was adjourned at 12:07 p.m.**
23
24
25
26

27 APPROVED:

28
29
30
31
32 _____
33 E. Llwyd Ecclestone
34 Chairman

35 *Meeting audio is located at:*
36 *<https://townofpalmbeach.granicus.com/MediaPlayer.php>*

TOWN OF PALM BEACH

Information for Shore Protection Board Meeting on: January 23, 2020

TO: Shore Protection Board

FROM: Kirk W. Blouin, Town Manager

VIA: Robert Weber, Coastal Program Manager

RE: 2019 Town-wide Sediment Budget Review and Erosion Rates Discussion
Item XI.

DATE: January 17, 2020

STAFF RECOMMENDATION

Town staff requests that the Shore Protection Board (SPB) review the attached information and provides direction deemed necessary.

GENERAL INFORMATION

Each year, the Town contracts with a consultant to complete Town-wide physical surveys. This year, the survey was performed by Applied Technology & Management, Inc. (ATM). These surveys are generally conducted in the late summer/fall season. This data is used to compare the short-term change (annual) and the long-term change (20+ years, since the 1990 baseline) of both shoreline position and sand volume.

ATM organizes all physical monitoring data into a Town-wide report that is referred to as the Sediment Budget. The purpose of the Sediment Budget is to provide an analysis of the Town-wide coastal processes including volumetric change data. This analysis aids the Town in planning and implementing appropriate shore protection projects.

The Executive Summary of the Sediment Budget is attached. An explanation of the attached text, maps and figures will be provided in a presentation by ATM at the January 23, 2020 SPB meeting.

Although the Executive Summary and the maps have been produced for the SPB (see attached), the Town-wide 2019 Physical Monitoring Report has not yet been finalized by ATM. Following ATM's completion of the final report, Woods Hole Group (WHG) will provide an independent review of the data and produce a supplement document to the 2019 Sediment Budget. WHG's review of the Sediment Budget is part of their overall annual review of the entire coastal program as specified in the Town's 10-Year Coastal Management Program.

FUNDING/FISCAL IMPACTS

There are no funding or fiscal impacts from this item. The Coastal Management Program budget includes funding for the annual physical monitoring and reporting efforts.

Attachments

cc: Jay Boodheshwar, Deputy Town Manager
H. Paul Brazil, P.E., Director of Public Works
Patricia Strayer, P.E, Town Engineer
Michael Jenkins, Ph.D., P.E., Applied Technology & Management, Inc.
Bob Hamilton, P.E., Woods Hole Group, Inc.

Town of Palm Beach
2019 Town-Wide Physical Monitoring Report

EXECUTIVE SUMMARY

This report provides a summary of the Town of Palm Beach shoreline and beach volumetric performance based on physical monitoring data collected in August 2019 as compared to previous monitoring surveys. Additional analysis is provided regarding shoreline conditions north of the Lake Worth Inlet. This annual survey was conducted immediately prior to the passage of Hurricane Dorian in September 2019, so impacts from the storm are not included within this annual analysis.

Analysis of the 2019 Town-wide survey data suggests that during the most recent monitoring period, the Town's shorelines exhibited gains in volume throughout the Town, with a total net volumetric gain of 2,234,276 cubic yards (cy), as measured out to a depth of -26.2 feet. This significant gain is likely attributable to onshore movement of sand as a post-storm recovery response to impacts from Hurricane Irma in 2017. The noted gains are nearly equivalent to the volumetric losses in the nearshore (2,062,152 cy) quantified within the 2018 annual monitoring report. All reaches experienced gains above the depth of closure (DOC), with the greatest gains measuring 582,909 cy in Reaches 3 & 4 (Mid-Town). Reach 1 saw the least significant gains, totaling 50,502 cy. Reach 2 and 6 saw similar gains above the DOC of 240,965 cy and 285,371 cy, respectively. Reaches 5 and 7 (Phipps) also experienced volumetric gains out to the DOC, with gains totaling 601,639 cy and 345,682 cy, respectively. Reach 8 saw gains of 127,208 cy above the DOC. Reaches 1, 6, 7 and 8 were the only reaches to lose material above mean high water (MHW), experiencing losses of 10,433 cy, 2,368 cy, 41,474 cy, and 6,677 cy, respectively. There is a total overall gain of 1,220,236 cy in the region of the profile from the -13.1-foot contour to the DOC. While the DOC is generally the limit in which observable changes occur, analysis of the full profile out to the -40-foot contour showed gains seaward of the DOC of 813,947 cy. Losses observed above the MHW line, coupled with the large quantity of sand measured between the MHW line and the DOC, suggest that material from the offshore has migrated into the nearshore by natural coastal processes. The observed losses above the MHW line may have migrated into the nearshore, and material moving southward from northern reaches may also have contributed to positive net volumetric changes during this monitoring period. As of August 2019, the Sand Transfer Plant (STP) at the Lake Worth Inlet transported 84,700 cy of sand from the north side of the inlet into Reach 1.

Long term, the Town's beaches have shown positive trends in both shoreline position and average beach volume, although these gains are not evenly distributed. In comparison to 1990 conditions, approximately 9.4 miles or 77 percent of the Town's shoreline has exhibited shoreline advance. This is equivalent to 2018. Since 1990, the Town's beaches have exhibited a net volumetric gain of 4,439,385 cy.

Over this monitoring period, approximately 11.7 miles (96 percent) of the Town's shoreline has experienced net volumetric gains [above the -26.2 feet contour referenced to the North American Vertical Datum (NAVD88) of 1988]. This represents an increase in comparison to the 2018 estimate of 2.0 miles (16.3 percent).

The 2019 sediment budget suggests that over this time period, the beaches of the Town (out to a depth of -26.2 feet) have gained sand at a rate of 153,082 cubic yards per year (cy/yr), on average, since 1990. The long-term construction of beach projects in Mid-Town and Phipps has contributed significantly to this positive rate, adding approximately 208,732 cy/yr, on average, to the system. Accounting for this placement, the beaches of the Town have exhibited a net volumetric deficit on the order of 55,649 cy/yr over this time period. This value is a substantial decrease in the deficit estimate in comparison to the 2018 deficit value of 137,131 cy/yr. This interrupts the trend of increasing deficits over the past 3 years that were largely attributable to hurricane-related impacts from Matthew (in 2016) and Irma (in 2017). The 2019 volumetric deficit quantifies the annual volumetric need for the Town's shoreline and does not account for inlet sand bypassing at Lake Worth Inlet (both through maintenance dredging and the STP). This analysis suggests that a volume on the order of 55,649 cy/yr must be placed on an average-annual basis to maintain the current volume of sand within the Town's boundaries (independent of sand bypassing operations at the inlet). This value does not address the potential loss/gain of sand to the system associated with inlet maintenance and STP operations. The results of the data analysis by reach are provided in Table ES-1.

Table ES 1. Data Analysis Results

Location	Change
Short-Term Changes – September 2018 to August 2019	
Average (MHW) Shoreline Change:	
Reach 1: (R-76 to R-78)	-39.3 feet
Reach 2: (R-78 to R-90+400)	4.5 feet
Reaches 3 & 4: (R-90+400 to R-102+300)	4.3 feet
Reach 5: (R-102+300 to R-110+100)	12.9 feet
Reach 6: (R-110+100 to R-116+500)	-0.7 feet
Reach 7: (R-116+500 to R-128+500)	2.1 feet
Reach 8: (R-128+500 to R-134)	-1.6 feet
Town-Wide	2.5 feet
Volumetric Changes (to -26.2* feet):	
Reach 1: (R-76 to R-78)	50,502 cy
Reach 2: (R-78 to R-90+400)	240,965 cy
Reaches 3 & 4: (R-90+400 to R-102+300)	582,909 cy
Reach 5: (R-102+300 to R-110+100)	601,639 cy
Reach 6: (R-110+100 to R-116+500)	285,371 cy
Reach 7: (R-116+500 to R-128+500)	345,682 cy
Reach 8: (R-128+500 to R-134)	127,208 cy
Town-Wide	2,234,276 cy
Long-Term Changes – August 1990 to August 2019	
Average (MHW) Shoreline Change:	
Reach 1: (R-76 to R-78)	64.3 feet
Reach 2: (R-78 to R-90+400)	40.2 feet
Reaches 3 & 4: (R-90+400 to R-102+300)	47.9 feet
Reach 5: (R-102+300 to R-110+100)	54.2 feet
Reach 6: (R-110+100 to R-116+500)	26.4 feet
Reach 7: (R-116+500 to R-128+500)	44.1 feet
Reach 8: (R-128+500 to R-134)	2.5 feet
Town-Wide	40.0 feet
Volumetric Changes (to -26.2* feet):	
Reach 1: (R-76 to R-78)	624,121 cy
Reach 2: (R-78 to R-90+400)	-20,294 cy
Reaches 3 & 4: (R-90+400 to R-102+300)	1,039,694 cy
Reach 5: (R-102+300 to R-110+100)	1,049,625 cy
Reach 6: (R-110+100 to R-116+500)	384,356 cy
Reach 7: (R-116+500 to R-128+500)	1,265,163 cy
Reach 8: (R-128+500 to R-134)	96,720 cy
Town-Wide	4,439,385 cy

*Note – All years prior to 2012 calculated to 26.5 feet referenced to the National Geodetic Vertical Datum (NGVD).

SUMMARY OF SHORELINE PERFORMANCE BY REACH

Reach 1: (R-76 to R-78)

Reach 1 experienced a net shoreline recession of 39.3 feet during this monitoring period. Total volumetric gains were 50,502 cy, with 90 percent of the gain occurring between the -13.1 ft contour and the DOC (-26.2 ft NAVD88).

Overall, this reach has exhibited a long-term substantial net shoreline advance of 64.3 feet and volumetric gain (to the DOC) of 624,121 cy since 1990. This long-term advance in shoreline and volume is associated with discharge by the STP within this reach and direct placement of material from inlet maintenance operations.

Reach 2: (R-78 to R-90+400)

Over this monitoring period, the Reach 2 shoreline had an average recession of 4.5 feet. In total, the reach gained a net volume of 240,965 cy over the past year. Volumetric gains occurred throughout the reach and were most significant within the nearshore above the 13.1 foot depth contour.

Since 1990, the reach has exhibited a net shoreline advance of 40.2 feet, although this gain primarily occurs within the northernmost portion of the reach between R-78 and R-80. Overall, this reach has lost a net volume of 20,294 cy since 1990, although it is noted that this deficit has decreased significantly over this monitoring period. Reach 2 exhibits the most significant net long-term loss of volume between R-86 and R-88 and is the only reach which currently exhibits a net loss relative to 1990 conditions.

Reaches 3 & 4: (R-90+400 to R-102+300)

This segment comprises both north and south segments of the Mid-Town Beach Renourishment project. Over this monitoring period, the reach exhibited a net shoreline advance of 4.3 feet. Recession was observed between R-92 and R-95 and at R-102. Significant accretion was observed at R-91 and between R-97 and R-101, with the most significant shoreline advancement observed at R-97 and R-98, with 46.3 and 46.2 foot gains, respectively.

This segment exhibited the highest net volumetric gain during this monitoring period of 582,909 cy above the DOC. Gains were observed above the MHW line between R-90+400 to R-91 and between R-95 and R-101, with losses in the northern and southern portions of the Mid-Town shoreline segment.

Since 1990, this shoreline segment has exhibited a net increase in volume of 1,039,694 cy and an average advance in shoreline position of 47.9 feet due to direct sand placement. These significant gains are directly attributable to repeated renourishment efforts within this area.

Reach 5: (R-102+300 to R-110+100)

Over the current monitoring period, Reach 5 has experienced a net average shoreline advance of 12.9 feet, with losses occurring at the northern and southern extremes of the reach. Recession was greatest in the northern part of the reach, with a retreat of 34.1 feet. The reach exhibited a net volumetric gain of 601,639 cy. Losses were only observed above the MHW line and were limited to the northern and southern limits of Reach 5. These losses totaled 15,444 cy and were observed between R-102+300 to R-104 and between R-109 to R-110+100. Gains were observed through the reach profile.

Long term, this area has experienced a net shoreline advance of 54.2 feet since 1990 and has gained approximately 1,049,625 cy (above -26.2 feet NAVD) throughout the entire shoreline segment. Gains in shoreline position and volume are directly attributable to the movement of material into Reach 5 from repeated Mid-Town beach nourishment projects within Reaches 3 & 4. Lacking regular renourishment of the Mid-Town Project, this reach would likely revert to a net erosion/recession condition consistent with conditions present prior to the initiation of the beach nourishment program.

Reach 6: (R-110+100 to R-116+500)

Over the most recent monitoring period, Reach 6 exhibited a net shoreline recession of 0.07 feet, with the highest recession occurring between R-111 and R-116, with losses of 35.7, and 12.1 feet, respectively. This recession occurred in the vicinity of the Florida Department of Transportation (FDOT) revetment, which was likely a contributing factor to this behavior. Reach 6 exhibited a net volumetric gain (to the DOC) of 285,371 cy. Since 1990, Reach 6 has exhibited a net shoreline advance of 26.4 feet and a volumetric gain of 384,356 cy (to the DOC).

In general, Reach 6 has remained stable, with a long-term trend of shoreline advance and volumetric gains. Much of this behavior can be attributed to the downdrift effect of the Mid-Town nourishment projects, which have provided a sediment source to both Reaches 5 and 6. The monitoring data suggest that the functional limit of this beneficial downdrift effect occurs within Reach 6, in the vicinity of the FDOT revetment (between R-111 and R-116).

Reach 7: (R-116+500 to R-128+500)

Over the most recent monitoring period, the Reach 7 shoreline has experienced a net advance of 2.1 feet, with losses observed in the northern extreme of the reach and at R-122 and R-125. Over this monitoring period, Reach 7 gained a net volume of 345,682 cy. This shoreline segment did experience losses above MHW throughout the entirety of the reach. The most recent renourishment of the Phipps/Reach 7 section of the shoreline occurred between January and April 2016, during which time 1,022,318 cy of beach-quality material was placed. Noted losses from the upper beach are likely attributable, in part, to continued cross-shore equilibration of the material placed within the reach from the 2016 project.

Since 1990, Reach 7 has exhibited a net average shoreline advance of 44.1 feet. The reach has exhibited a net volumetric gain of 1,265,163 cy above the DOC since 1990. Gains have occurred throughout the reach and are attributable to repeated nourishment of the beach in this reach.

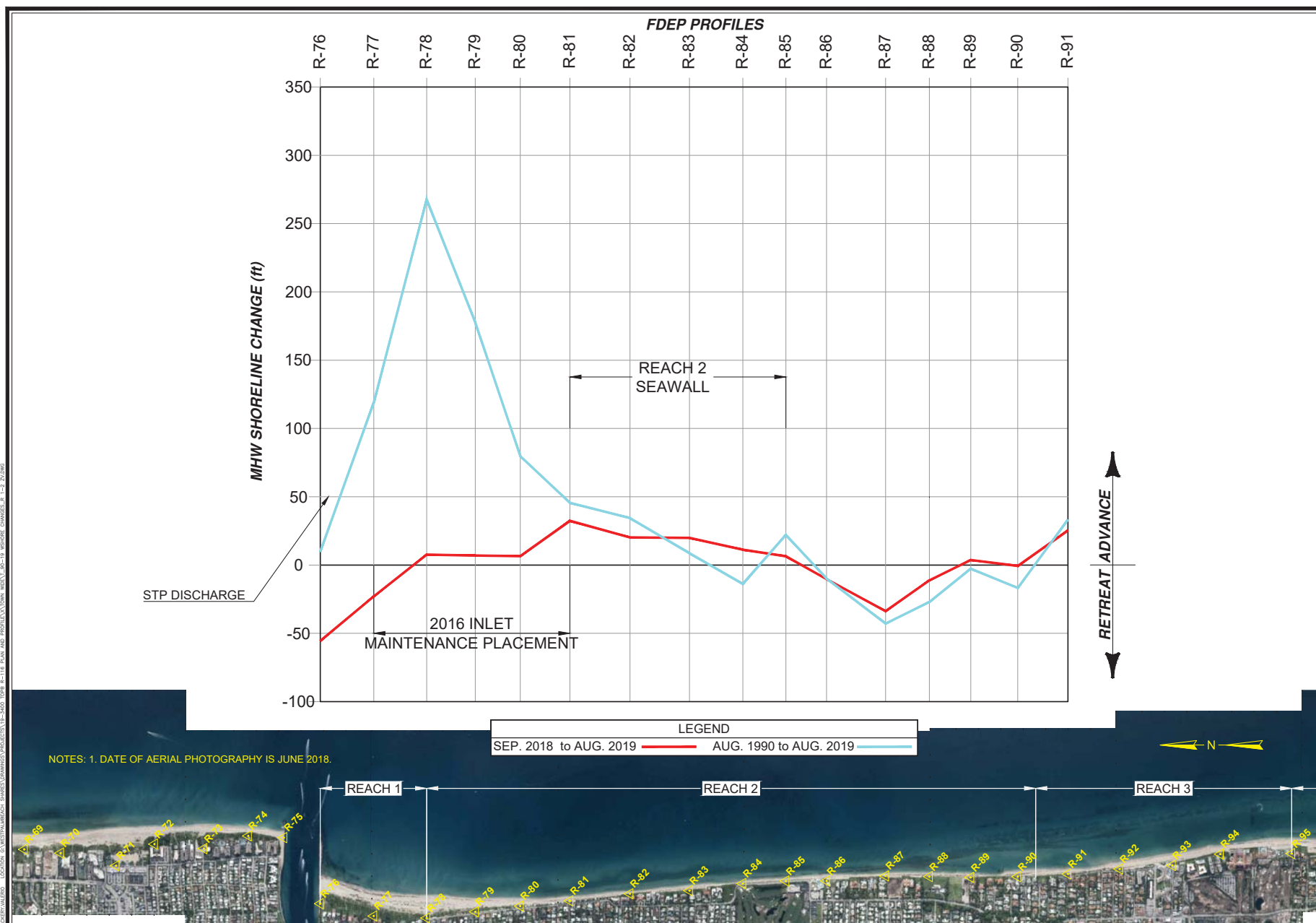
Reach 8: (R-128+500 to R-134)

Over the past year, Reach 8 exhibited a net shoreline recession of 1.6 feet. Shoreline losses occurred in the northern extreme of the reach. This reach exhibited a net volumetric gain above the DOC of 127,208 cy over this monitoring period. The beach experienced a net volumetric loss above MHW. Net gains were observed in the offshore portion, between the -13.1 and the -26.2-foot contour.

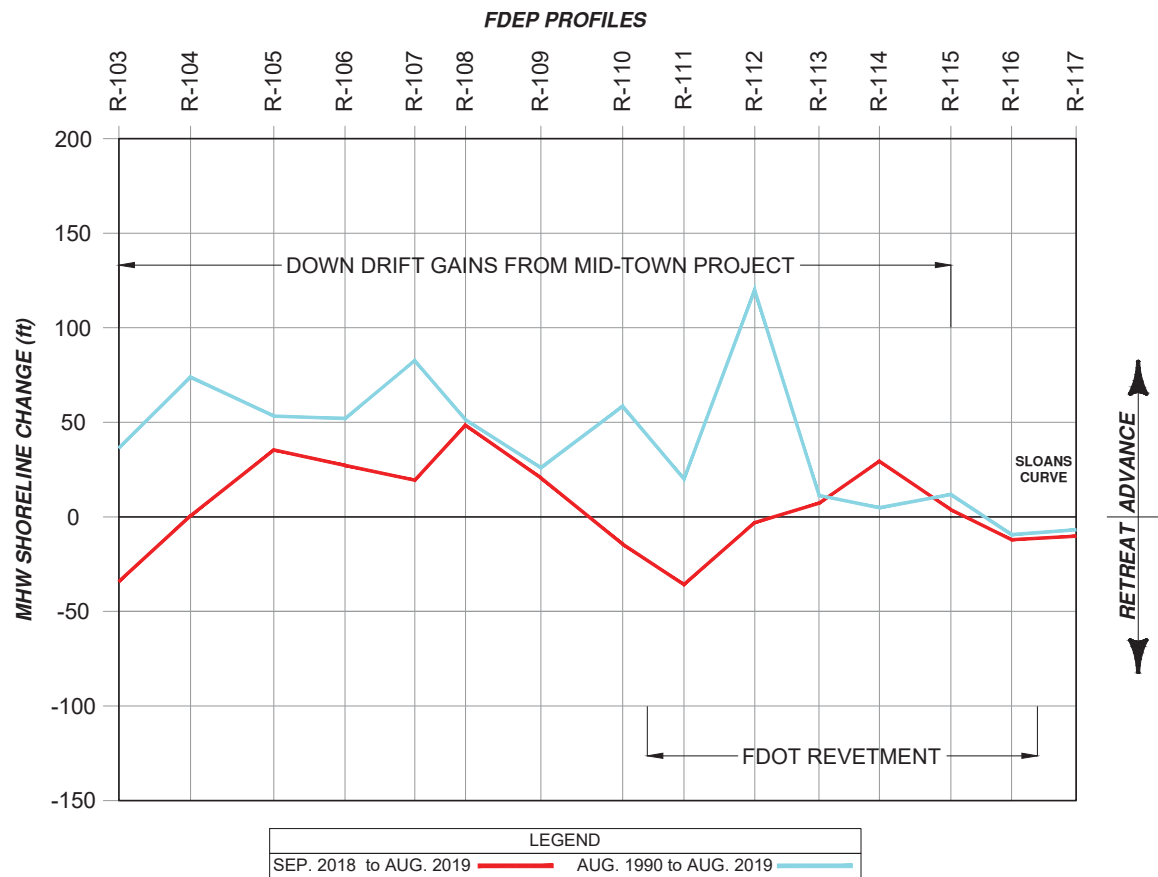
Since 1990, Reach 8 has exhibited a net average shoreline gain of 2.5 feet. Since 1990, the reach has exhibited a net volumetric gain of 96,720 cy (to the DOC).

Beaches North of Lake Worth Inlet

Given concerns regarding the potential supply of sand to the STP, the Town's monitoring program has been extended north to include monuments updrift of the inlet. Over this monitoring period, the 7,152-foot shoreline segment north of the inlet (from R-68 to R-75) exhibited a net volumetric gain of 214,277 cy. This result suggests an increasing supply of sand updrift of the STP and represents a change in the trend of net volumetric loss for this area that occurred from 2016 to 2018. Review of the profile at R-75 suggests that there is capacity for additional deposition within the expanded settling basin associated with the inlet.

Figure 1a
Shoreline Changes





NOTES: 1. DATE OF AERIAL PHOTOGRAPHY IS JUNE 2018.

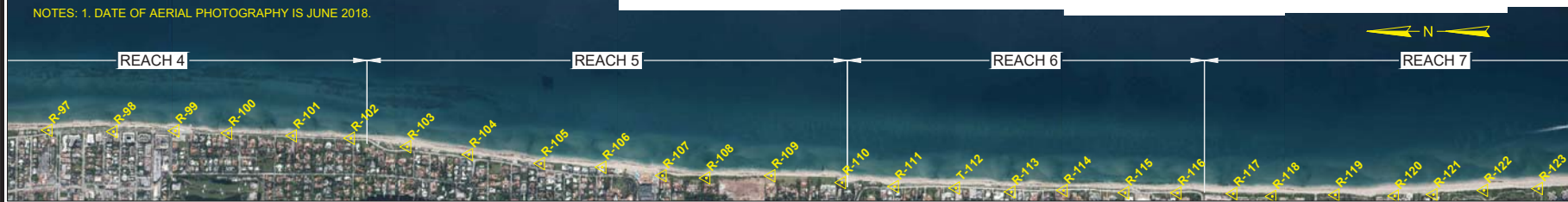


Figure 1c
Shoreline Changes

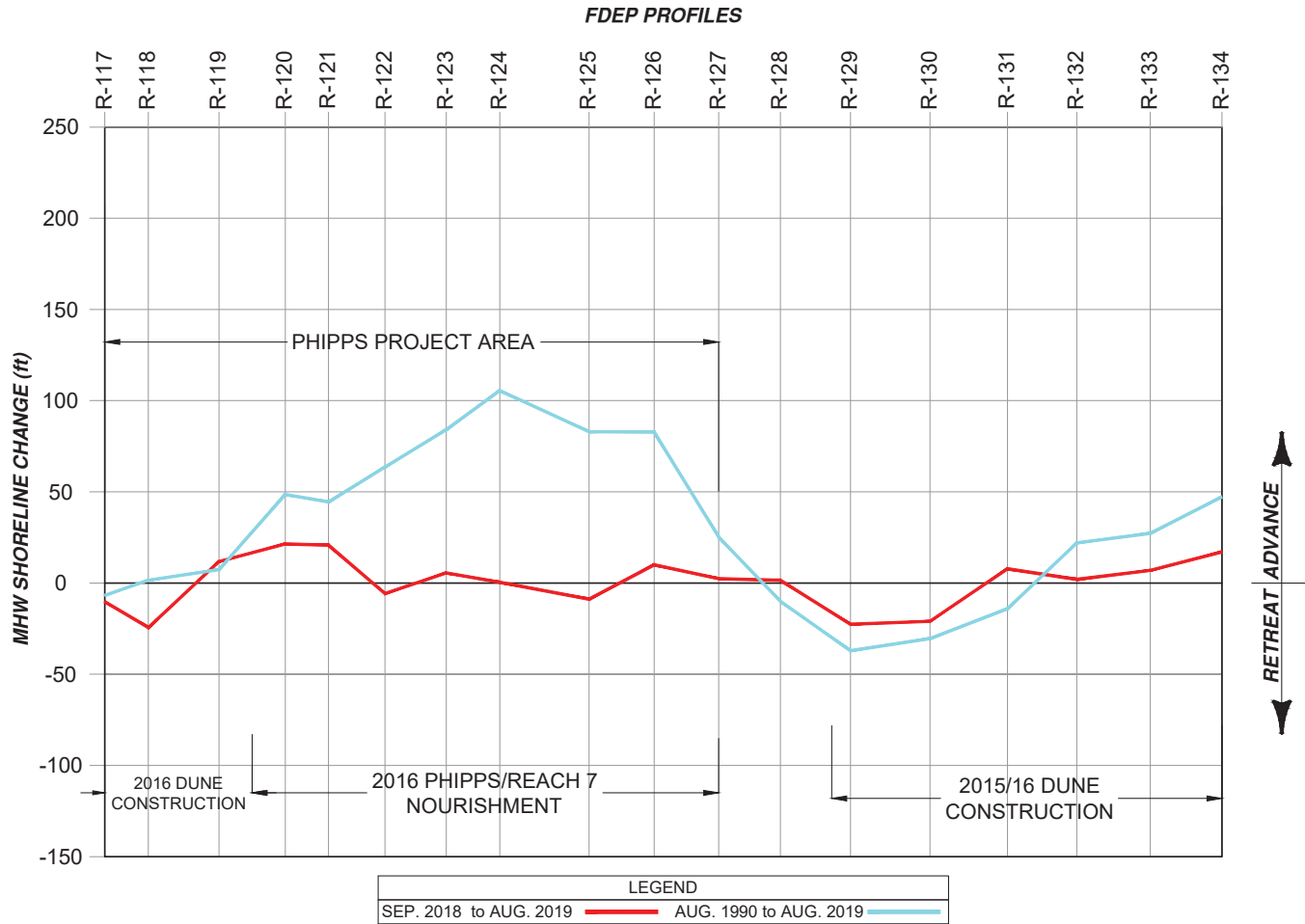


Figure 1d
Shoreline Changes

2020/07/10/10:00 LOCATION: 65 WESTERN AVENUE, BAYVIEW, ONTARIO, CANADA (43.761111, -79.375000) DATE: 2018-06-15 TIME: 14:15:15 PLAN AND PROFILE (A) TOWN WEST (1:10,000) SCALE: 1:10,000

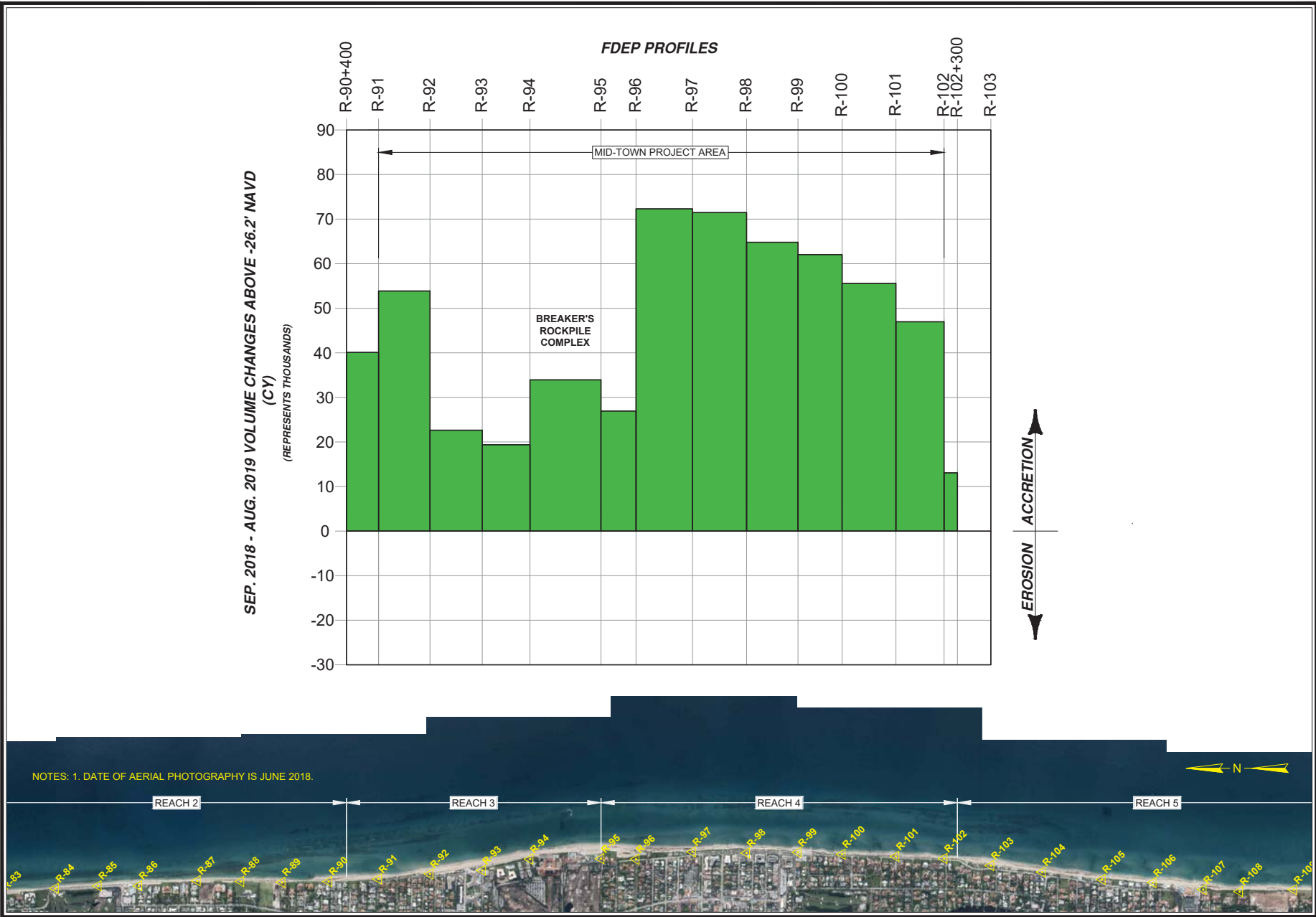
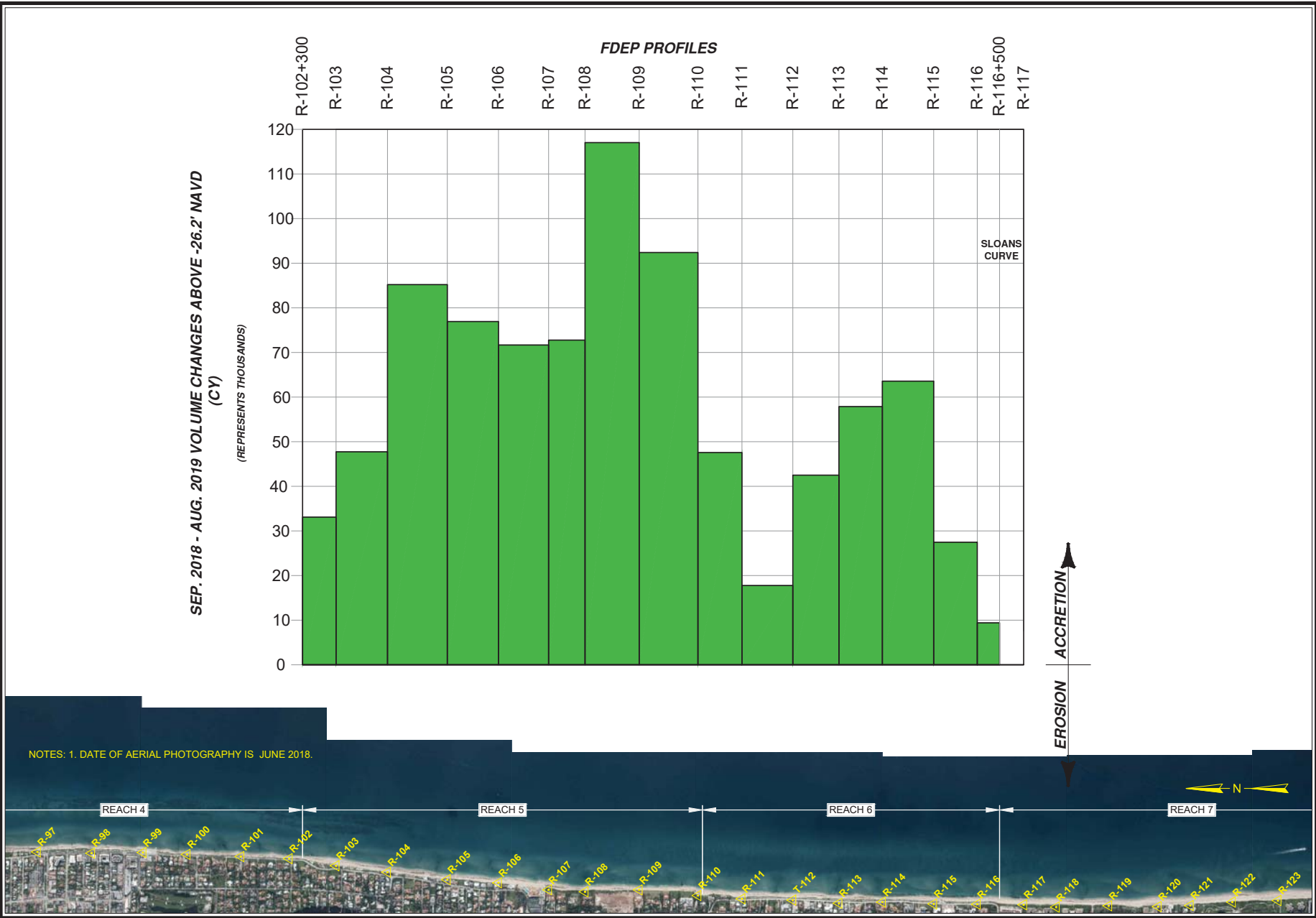


Figure 2b
Sep. 2018 - Aug. 2019 Volume Changes



2025 RELEASE UNDER E.O. 14176
 LOCATION: 15 WESTERN BEACH, SHARPS GRASSLAND PROJECTS, 15-3405 TOWNE R-116 PLAT AND IMPROVEMENTS, WESTLY 15-19 VOL. CHANGES, 15-4, 15-21 (1982)



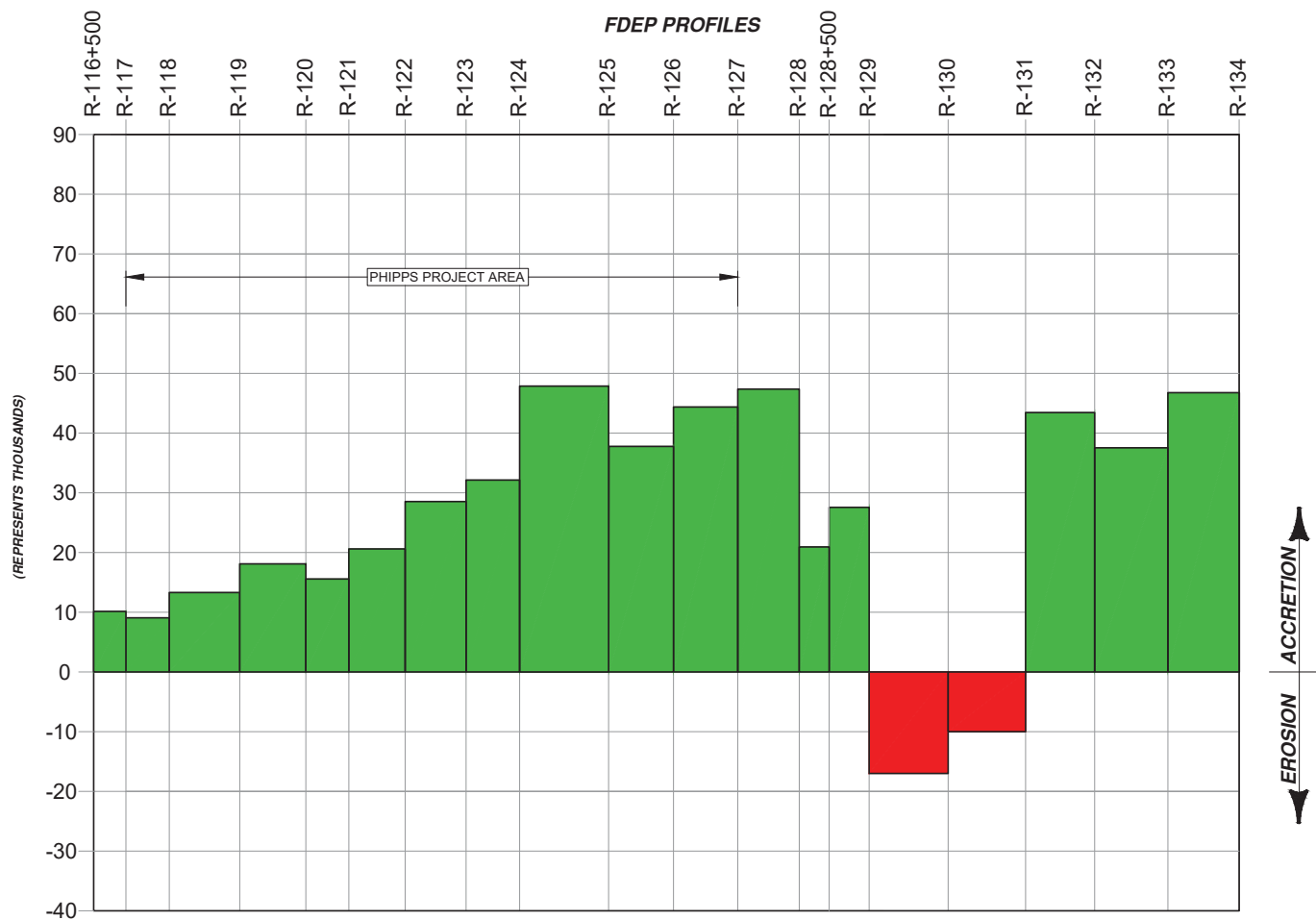


Figure 2d
Sep. 2018 - Aug. 2019 Volume Changes

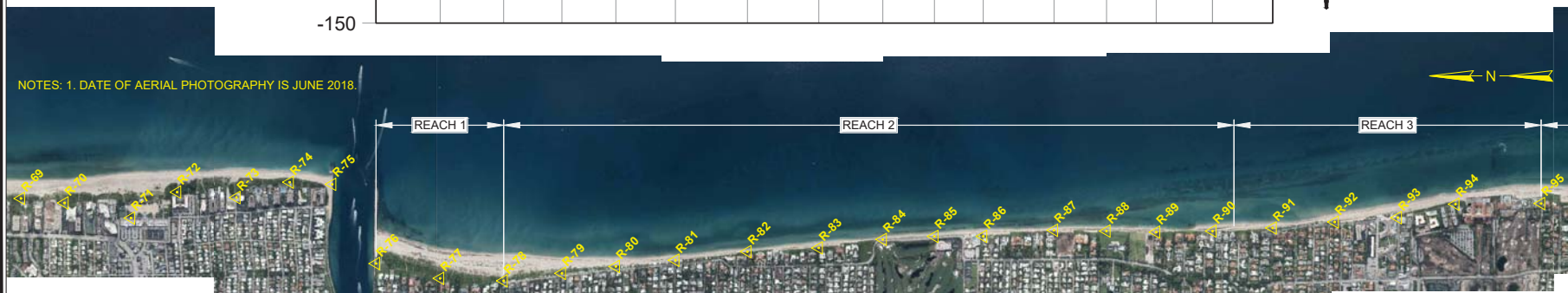
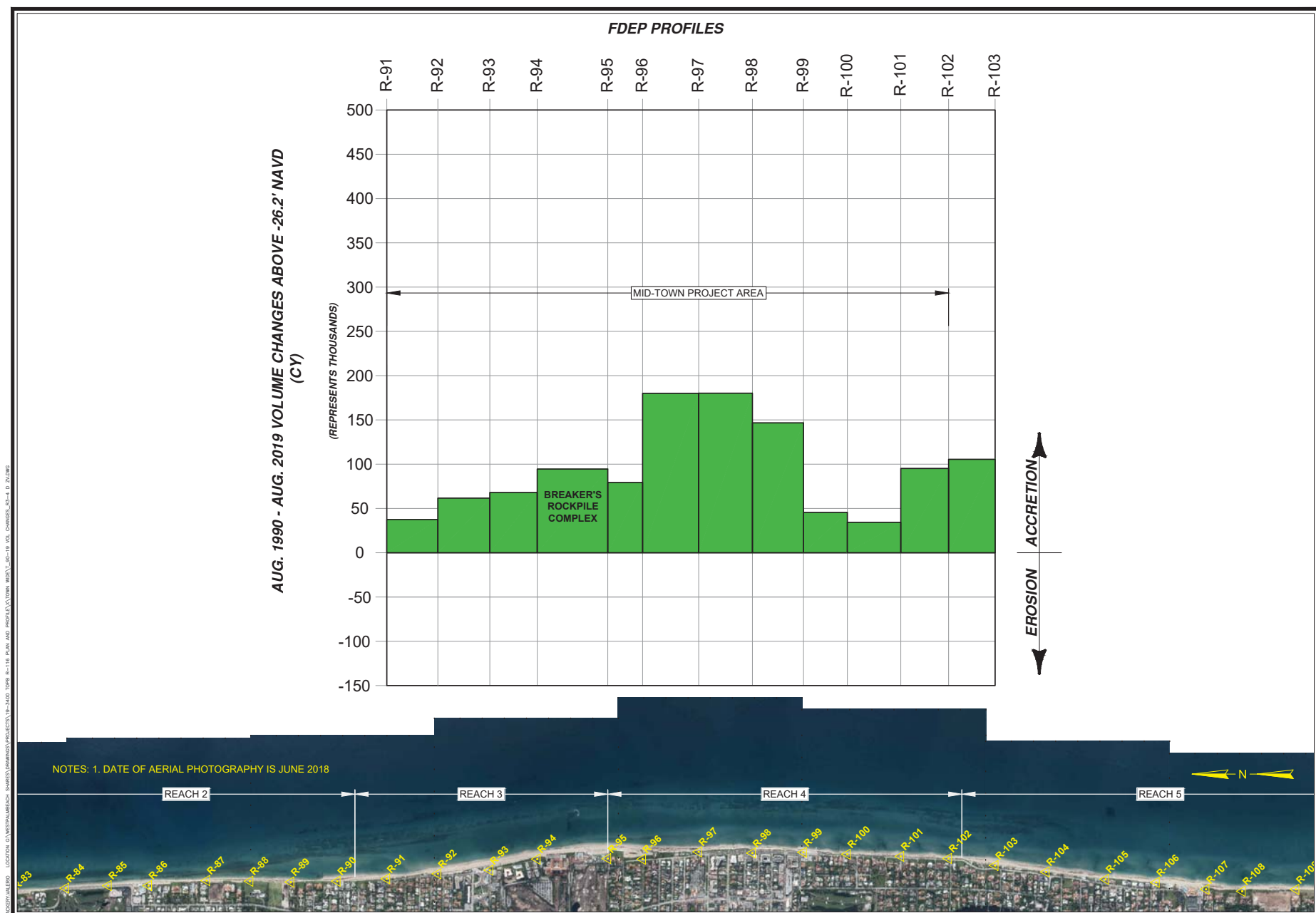


Figure 3a
Aug. 1990 - Aug. 2019 Volume Changes





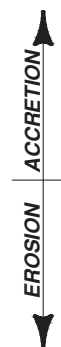


Figure 3d

TOWN OF PALM BEACH

Information for Shore Protection Board Meeting on: January 23, 2020

TO: Shore Protection Board

FROM: Kirk W. Blouin, Town Manager

VIA: Robert Weber, Coastal Program Manager

RE: Coastal Projects Update
Item XII.

DATE: January 17, 2020

STAFF RECOMMENDATION

Town staff requests the Shore Protection Board (SPB) review the attached information and provide any additional input deemed necessary.

GENERAL INFORMATION

Listed below is a brief update of the ongoing activities for the Coastal Management Program. Town staff will provide more details of each item during the SPB meeting.

Lake Worth Inlet Maintenance Dredging

- Construction occurred in the months of November and December 2019 between the Lake Worth Inlet and Onondaga Avenue (Reach 1).
- The volume placed (approximately 50,000 cubic yards) was much smaller than the anticipated volume (150,000 to 200,000 cubic yards).
- Sand placement work on the beach was completed before the Christmas holiday. Demobilization has occurred.
- The Town is in the process of restoring the Palmo Way beach access.
- The Corps is scheduling a return to the Lake Worth Inlet in late 2020 to perform a maintenance dredging that will include the settling basins. Only the channel was dredged during the latest event.

2020 Mid-Town Beach Nourishment

- The Corps awarded the Mid-Town project on January 15, 2020 in the amount of \$19.1 million.
- The project will include a volume of approximately 700,000 cubic yards.
- The contractor, Weeks Marine, is to begin mobilizing to Palm Beach in early February 2020.
- The Corps expects to provide scheduling and project-specific details for construction next week.

2020 Phipps Ocean Park Beach Nourishment and Dune Restoration in Reaches 7, 8, and 9

- This project was included in the bid solicitation for Mid-Town. The Corps expects to provide scheduling and project-specific details for construction next week. The plan is for the project to be completed this construction season (before May 2020).

- Should the project be delayed by the Corps or the Corps' contractor until November 1, the Town has been in touch with FEMA so that funds are not lost as the project will utilize expiring FEMA funds associated with both hurricanes Matthew and Irma.
- The project will include a volume of approximately 450,000 cubic yards, all of which is eligible for FEMA cost-sharing due to hurricanes Matthew and Irma.
- In addition, the project includes the stockpiling of sand at Phipps Ocean Park to be later hauled to Reach 8 and Reach 9 (in the Town of South Palm Beach) for dune restoration.

Dune Planting

- Dune planting will be performed upon completion of all sand placement projects. With a limited remaining schedule for construction due to sea turtle nesting season, dune planting most likely will occur after sea turtle nesting season (November 1).
- Town staff is working with FEMA to obtain relief funding for dune plants lost during Hurricane Dorian. Replacement of these plants is expected to occur after November 1.

Reach 8

- During a meeting with the Corps in October 2019, the Corps anticipated that the EIS Record of Decision could be issued in January 2020.
- Although the ROD has yet to be issued, Town staff has not received any indication that the ROD will not be issued in the next few weeks.
- Construction funds for the Town's preferred project are not included in the current Town Council-adopted 10-year plan.
- Reach 8 Dune Restoration is to be constructed concurrently with the Phipps nourishment. Reach 8 Dune Restoration includes a volume on the order of approximately 20,000 cubic yards of sand.
- The dunes are to be restored to their condition prior to hurricanes Matthew and Irma.
- Federal cost-sharing is expected consistent with Reach 8 dune losses from Hurricane Irma.

The Breakers/Clarke Avenue/Mid-Town Shoreline Stabilization Project

- The SPB recommended that Town staff obtain a scope of work and proposal to move forward with design and permitting of the solution presented by ATM as proposed by the Technical Advisory Committee (TAC).
- The Town has yet to receive the final report from the TAC. This is expected in the coming weeks.
- Town staff expects to advance a proposal for Town Council consideration at their March 2020 meeting.
- Following issuance of permits, it is possible that some of the work could take place next construction season (after November 1). Even if the Town had permits in-hand, no work would take place this construction season due to the upcoming Mid-Town Beach Nourishment.

cc: Jay Boodheshwar, Deputy Town Manager
H. Paul Brazil, P.E., Director of Public Works
Patricia Strayer, P.E., Town Engineer

TOWN OF PALM BEACH

Information for Shore Protection Board Meeting on: January 23, 2020

TO: Shore Protection Board

FROM: Kirk W. Blouin, Town Manager

VIA: Robert Weber, Coastal Program Manager

RE: 2020 Goals for Shore Protection Board
Item XIII.

DATE: January 17, 2020

STAFF RECOMMENDATION

Town staff requests the Shore Protection Board (SPB) consider a list of goals for 2020.

GENERAL INFORMATION

During the January SPB meeting, the SPB members discuss and develop board-specific actions to take during the ongoing calendar year. Following the meeting in January 2018, some input was provided individually by the SPB members via email or phone to Town staff. A list was created based on the input received and a discussion item was made for the following meeting.

For 2019, the SPB took this item a step further and held a public workshop in which the SPB reviewed and updated the eight (8) goals and objectives identified by the SPB in 2009. As a result of the workshop, the SPB updated or reaffirmed the following 2009 goals:

1. Continue bypassing 100% of the littoral drift across the inlet through a combination of sand bypassing and inlet dredging and placement of dredged sand on or near the dry beach extending south of Reach 1.
2. Pursue placing dry sand on hot spots (north part of Reach 7, south part of Reach 8) from inlet borrow areas to protect threatened property. *Achieved*
3. Implement permitted coastal hard structure technology where appropriate.
4. Review previous Shore Protection Board's recommendations and conclusions for lessons learned. *Achieved*
5. Initiate discussion, dialogue and problem solving through a series of guest speakers from government officials, industry experts, environmentalists and other municipalities to obtain real solutions to shore protection that include other municipalities and county. Make recommendations accordingly. *Achieved*
6. Continue to work with state and Federal agencies and governments to implement projects to protect its shoreline.
7. Where applicable, cause regulatory agencies to re-designate certain reaches as "Engineered Beach" and "Critically Eroded", e.g. Reach 1 should be an Engineered Beach, etc. *Achieved*

8. Investigate whether seawalls should be replaced in erosion prone areas not currently protected by such as “last resort” property protection. *Achieved*

Five of the eight goals have been achieved. The SPB added two new goals: Coastal Vulnerability & Resiliency and Communication.

Should the board decide to create a new list of goals or continue to focus on the two goals identified in 2019, Town staff can provide a suggested action plan at the April 23, 2020 SPB meeting.

cc: Jay Boodheshwar, Deputy Town Manager
H. Paul Brazil, P.E., Director of Public Works
Patricia Strayer, P.E., Town Engineer

TOWN OF PALM BEACH

Information for Shore Protection Board Meeting on: January 23, 2020

TO: Shore Protection Board

FROM: Kirk W. Blouin, Town Manager

VIA: Robert Weber, Coastal Program Manager

RE: Scheduling of Future Meetings
Item XIV.

DATE: January 17, 2020

STAFF RECOMMENDATION

Town staff requests that the Shore Protection Board (SPB) consider scheduling of future meetings for the 2020 calendar year.

GENERAL INFORMATION

The Town Manager's Office continues to look at opportunities to minimize staff time and operation costs by reducing the number of board and commission meetings. In 2018, it was suggested that Town Council limit the frequency of the SPB meetings to occur on an as-needed basis. It was the consensus of Town Council to allow the Town Manager to work with the SPB to determine the frequency of the meetings.

The 2019 schedule included SPB meetings in January, April, and November. A workshop was held in March. Town staff suggests to follow a similar schedule and suggests the following SPB meeting dates for 2020:

- January 23, 2020 – Establish Annual Goals and Review Annual Sediment Budget
- April 23, 2020 – Recommend FY 2020 Coastal Management Program Budget
- November 19, 2020 – Develop Annual Report to Town Council

During the November 21, 2019 meeting, the SPB decided to delay the scheduling of future meetings and only agreed to the first meeting of 2020 on January 23.

cc: Jay Boodheshwar, Deputy Town Manager
H. Paul Brazil, P.E., Director of Public Works
Patricia Strayer, P.E., Town Engineer