STORM DAMAGE REPORT: HURRICANE HELENE AND HURRICANE MILTON
CAPTIVA ISLAND, LEE COUNTY, FL

Prepared for:

Captiva Erosion Prevention District

Prepared by:

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STORM DAMAGE REPORT: HURRICANE HELENE AND HURRICANE MILTON CAPTIVA ISLAND, LEE COUNTY, FL

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I. INTRODUCTION

Florida was impacted by Hurricane Helene in late September 2024 and by Hurricane Milton in October 2024 with storm surge, waves, and high winds felt in the Lee County region for several days. Hurricane Helene formed in the northwestern Caribbean and made landfall in Florida approximately 250 miles north of Captiva Island. Hurricane Milton followed a similar path, developing in the northwestern Caribbean and making landfall approximately 60 miles north of Captiva Island. The storm surge, waves and winds created by the storm impacted the island, resulting in loss of sand from the Captiva Island Nourishment project area.

A survey of the island was conducted in June 2024 as part of the permit required monitoring for the beach projects. A Hurricane Helene and Milton post-storm survey was collected by Aptim Coastal Planning & Engineering, LLC (APTIM) in October 2024. These surveys were used to determine the shoreline and volume changes on the beach attributed to Hurricanes Helene and Milton. The changes due to Hurricanes Helene and Milton are described herein to provide funding assistance partners with data needed to develop their impact assessments.

II. BACKGROUND

Captiva Island is a barrier island located in Lee County in southwest Florida. The 5-mile-long barrier island separates the Gulf of Mexico to its west from Pine Island Sound to its east (Figure 1). Redfish Pass and Blind Pass define the northern and southern ends of Captiva Island, respectively. Historically, seven beach nourishment projects have been constructed on Captiva Island. The most recent project was constructed in Fall 2021 on Captiva Island.

Between September 1 and November 9, 2021, approximately 4.85 miles of shoreline was nourished with 845,600 cubic yards of sand. The sand was placed on the beaches using Great Lakes Dredge & Dock Company's (GLDD) trailing suction hopper dredges Dodge and Padre Island. GLDD was contracted by the Captiva Erosion Prevention District (CEPD) to construct the beach. All of the shoreline was renourished with sand from Borrow Area VI-E, which is located approximately 8.3 nautical miles offshore of the center of Captiva Island.

Historic renourishment projects managed by CEPD were conducted along Captiva Island in 1988-89, 1996, 2006, 2008, and 2013. Previous projects prior to the 2013 nourishment event included federal participation by the USACE. However, the 2021 and 2013 projects were managed and funded locally without federal participation due issues concerning public access and Perpetual Beach Storm Damage Reduction Easements.

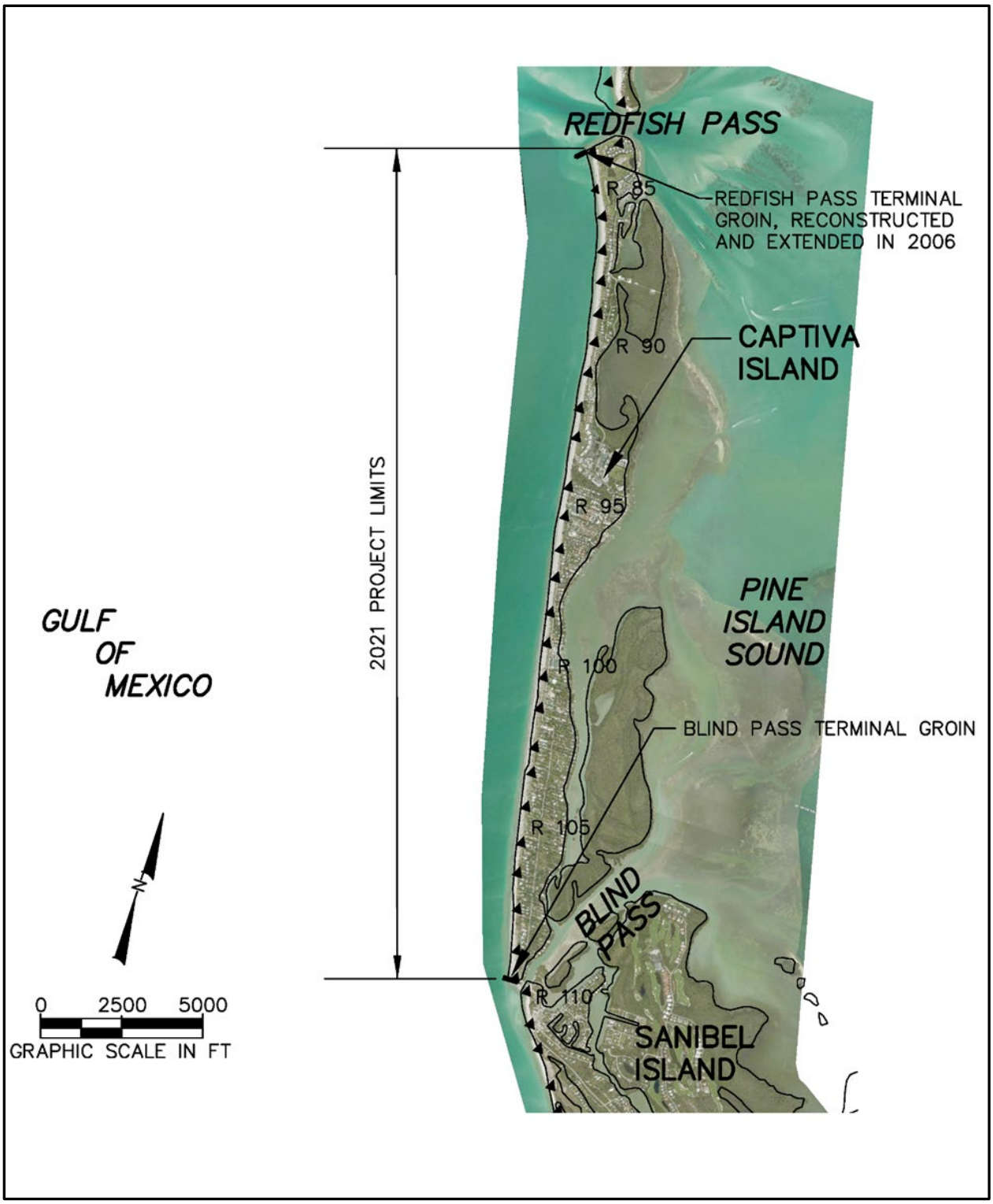

Figure 1. Location map of the 2021 nourishment project.

III. PROJECT DESIGN

The intent for the 2021 Captiva Island project was to renourish the project area to restore the design berm and advanced fill to the full capacity following storm losses from Hurricane Eta and background erosion. The project design maintains a 40-foot added design berm, relative to the 1987 6-feet NGVD contour line between profiles R-94 and R-109. The design between R-84 and R-94 is to hold the 1987 MHW shoreline position. The entire project length includes advanced nourishment.

The Captiva Island project extends from R-84 near Redfish Pass to R-109 at Blind Pass. The project includes flexibility for volume adjustments and rehabilitation of existing dunes on an as-needed basis. The elevation of the design beach berm incorporates a sloping design from +6.5 feet North American Vertical Datum (NAVD) at the dune line to +4.5 feet NAVD at the crest of the foreshore face of the berm, where it has a seaward slope of 1 foot vertical to 10 feet horizontal to the existing grade (Figure 2).

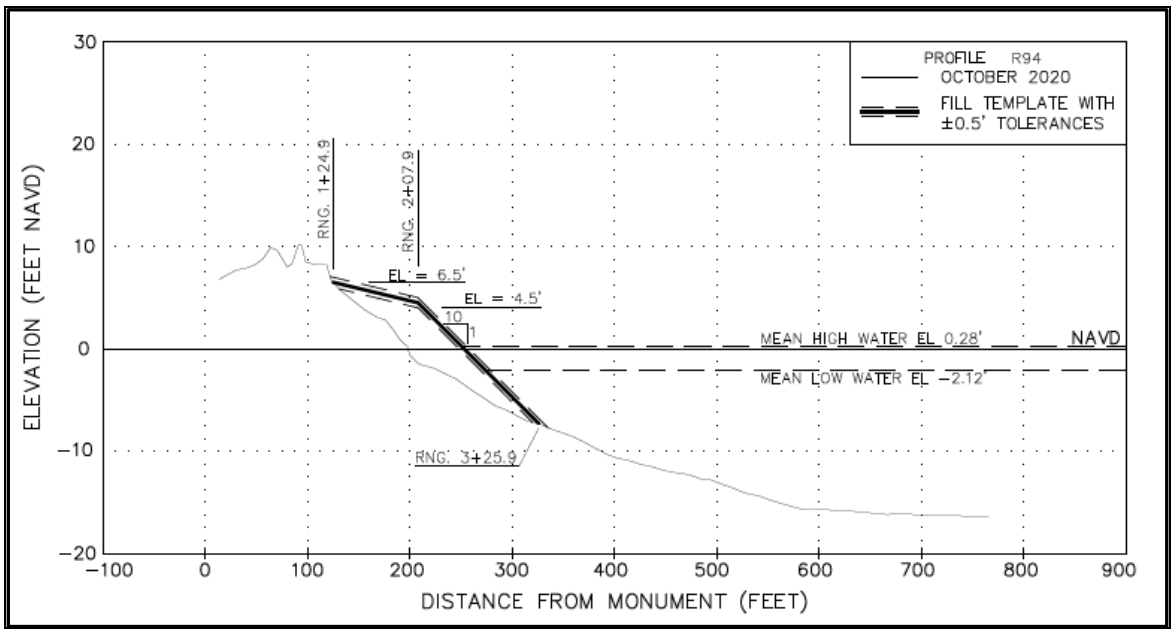

Figure 2. Example Design Cross-Section.

The 2021 Captiva Island Renourishment Project included the construction of a nearly island-wide dune feature. The dunes were constructed with a 1 foot vertical to 5 feet horizontal slope, starting at the apparent pre-Hurricane Eta toe of dune and until the desired elevation was reached. The dune continued landward at a uniform elevation until existing dune or vegetation was met. A maximum dune crest of 25 feet was utilized for the project, with back of dune tying into existing grade as dictated by site conditions. Dune elevations ranged from +6.5 feet-NAVD to +8.5 feet-NAVD, which varied due to existing dune heights along the island. The dune was planted with approximately 350,000 plants immediately following construction.

The 2021 Captiva Island Beach Renourishment Project was constructed with the following permits: FDEP Permit No. 0200269-001-JC and Permit Modification No. 0200269-009-JC.;

USACE Permit No. SAJ-1994-3952 (IP-MN) and Permit Modification No. SAJ-1994-3952 (MOD-CMW) Modification-2.

IV. HURRICANE HELENE

Hurricane Helene was a powerful and destructive Category 4 hurricane that caused significant damage across parts of the southeastern United States, especially in North Florida, in late September 2024. The eighth named storm, fifth hurricane, and first major hurricane of the 2024 Atlantic hurricane season, Helene underwent rapid intensification in the Gulf of Mexico, briefly becoming a Category 4 hurricane prior to making landfall in the Big Bend region of Florida on September 26, 2024. The storm path for Helene is shown in Figure 3.

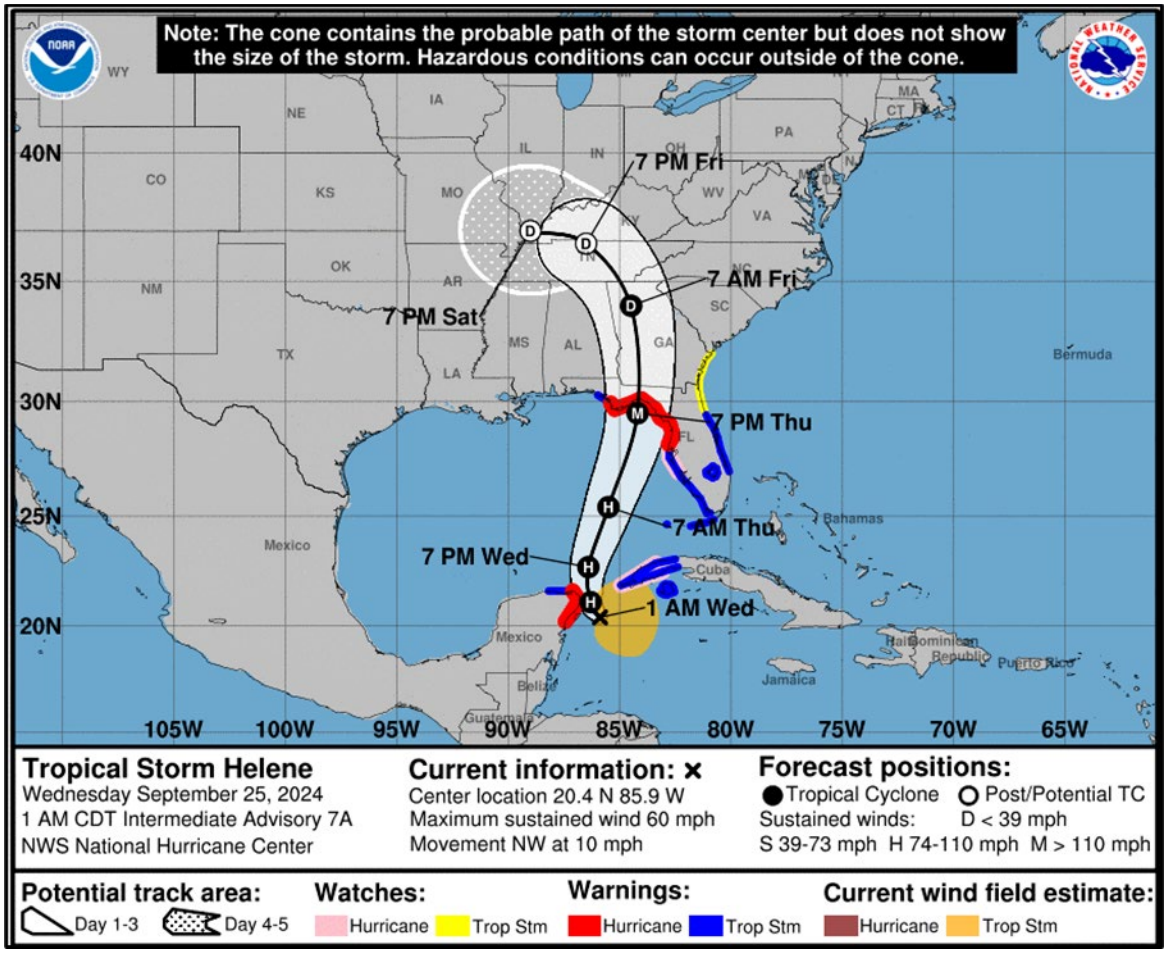

Figure 3. Relative Path of Hurricane Helene (NOAA 2024).

Although Hurricane Helene did not make a direct landfall to the Southwest Florida Peninsula, fringe impacts were widely felt along the region. Due to Helene's passage, significant impacts, such as storm surge, high surf, and beach and dune erosion were experienced along Captiva Island. The associated NOAA water levels in Fort Myers are shown in Figure 4.

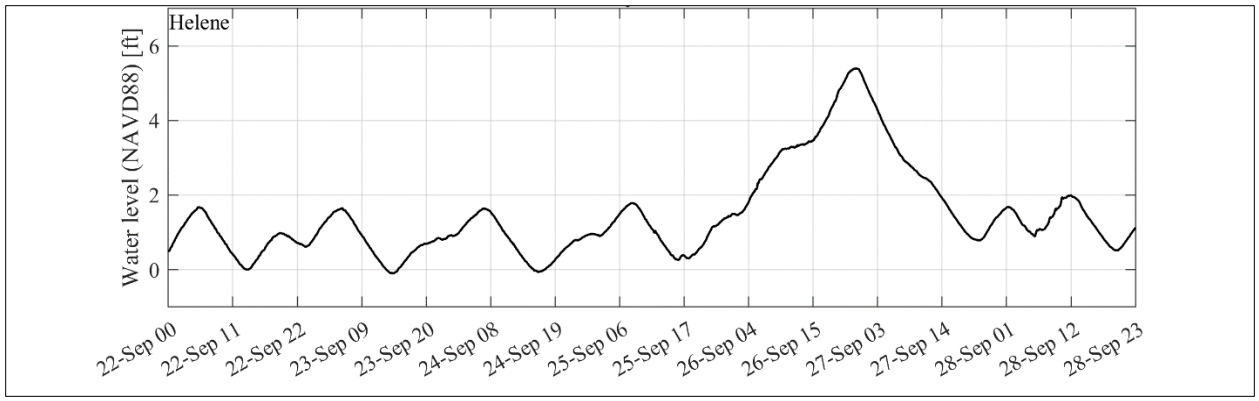

Figure 4. Water levels at Fort Myers, FL.

Immediate post-storm visual observations were conducted by the CEPD and APTIM. Overall, visually, the northern portion of the island experienced greater beach and dune erosion than the southern portion. Overwash was observed, with sand being transported from the beach into upland properties and roads. Figures 5 through 9 represent typical conditions observed during the post-storm inspection.

Figure 5. Reattachment bar forming after Hurricane Helene.

Figure 6. Erosion near South Seas Resort from Hurricane Helene.

Figure 7. Erosion south of Alison Hagerup Park from Hurricane Helene.

Figure 8. Overwash on Captiva Island from Hurricane Helene (CEPD 2024).

Figure 9. Erosion near Jensen's Curve from Hurricane Helene.

V. HURRICANE MILTON

Hurricane Milton was a powerful and destructive Category 3 hurricane that caused significant damage across parts of the southeastern United States, especially in North and Central Florida, in October 2024. The thirteenth named storm, ninth hurricane, and fifth major hurricane of the 2024 Atlantic hurricane season; Milton made landfall as a Category 3 hurricane on October 10, 2024, in Siesta Key, Florida, approximately 2 weeks after Hurricane Helene moved north along the Gulf Coast. When the storm made landfall, there were recorded sustained winds of 120 mph (195 km/h). The storm path for Milton is shown in Figure 10.

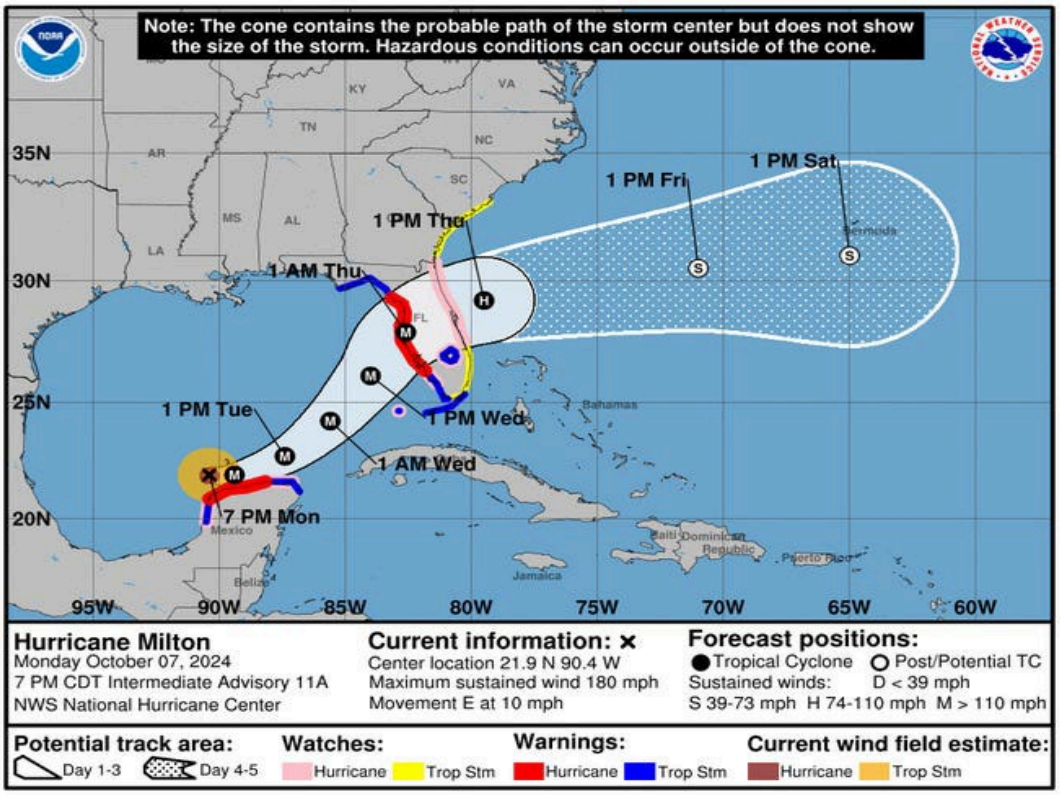

Figure 10. Hurricane Milton Path (NOAA 2024).

Associated water levels at the nearest NOAA tide gauge at Ft. Myers are shown in Figure 11. Post-storm images illustrating Hurricane Milton's impact to Captiva are provided in Figures 12 through Figure 15. As the northern half of Captiva Island was already in a vulnerable state due to the passage of Hurricane Helene, Milton's high surf and storm surge exacerbated already eroded beach and dune conditions. In general, an almost total loss of the dune was observed along the northern half of Captiva Island. Along the southern portion of the island, beach erosion was observed; however, the dune increased in height south of Tween Waters due to waves transferring sand onto the upper portion of the beach profile. A partial loss of Captiva Drive (Figure 12) also occurred due to lack of protective beach and dune in front of the road. Structural damage to homes and businesses were also reported in the wake of Hurricane Milton.

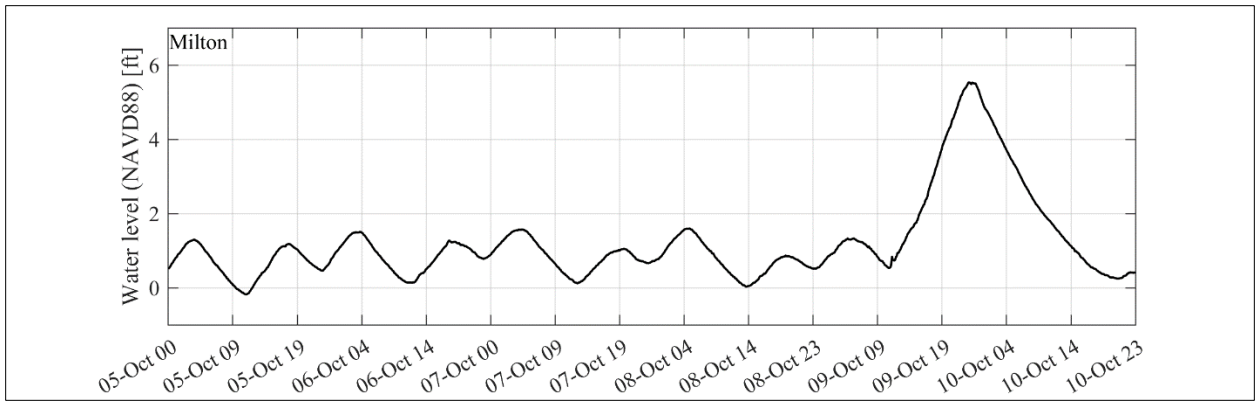

Figure 11. Water levels at Fort Myers, FL.

Figure 12. Impacts to Captiva Drive from Hurricane Milton (CEPD 2024).

Figure 13. Deflation of the beach following Hurricane Milton.

Figure 14. Erosion of beach south of Alison Hagerup Park from Hurricane Milton.

Figure 15. Erosion of beach south of Andy Rosse Lane from Hurricane Milton.

VI. SURVEYS

Topographic and bathymetric profile surveys of the beach and offshore were conducted by APTIM in June 2024 to satisfy annual physical monitoring requirements. After Hurricane Helene and Hurricane Milton passed, APTIM surveyors collected a post-storm survey of Captiva Island between October 21 and October 24, 2024. The monitoring area included profile surveys at each of the published Florida Department of Environmental Protection (FDEP) reference monuments between R-83 and R-109. Profile surveys were collected along the published azimuth and extended a minimum of 2,000 feet offshore of the FDEP monument or beyond the depth of closure.

All work for the beach profile surveys were conducted according to FDEP control in compliance with the USACE specifications for Class I Hydrographic Surveys and the FDEP Regional Data Collection and Processing Plan. This work was conducted under the supervision and responsible charge of a Professional Surveyor and Mapper registered in the State of Florida. All surveys were collected relative to the North American Vertical Datum (NAVD) 1988, Florida State Plane Coordinate System, West Zone, North American Datum (NAD83). Plots of the comparative profile surveys used in engineering calculations are provided in Appendix A.

VII. VOLUME CHANGES

Volume changes discussed in this report represent the change in the quantity of sediment measured through comparison of beach profile surveys. This report presents the measured changes between surveys that were collected prior to and following the storms (June 2024 and October 2024, respectively) and adjustments made to isolate storm-induced changes to the Captiva Island Beach project by removing background changes. Additionally, the report quantifies volume lost under the project template. The Captiva Island shoreline extends from R-83 to R-109; however, no fill was placed from R-83 to R-84, and the 2021 project area extends from R-84 to R-109.

The volumes are shown in cubic yards presented from the back of the beach to both above the Mean High Water (+0.28 feet-NAVD and above the depth of closure (-13 feet-NAVD). The depth of closure is defined as the seaward limit of the active beach profile and is based on comparisons of individual profiles and review of historical data for Captiva Island. The depth of closure for Captiva Island is estimated to be -13 feet NAVD. The Mean High Water (MHW) elevation measured at each profile is used to represent the typical shoreline position at each profile along the beach.

a. Pre- to Post-Storm Survey Volume Changes

The total volume changes in the Captiva Island project area between June 2024 (pre-storm) and October 2024 (post-storm) surveys are presented in Table 1 and Figure 16. The Captiva Island project area lost approximately -273,857 cubic yards above the mean high water (0.28 feet-NAVD) and -247,590 cubic yards above the depth of closure (-13 feet-NAVD).

Overall, when examining volume losses, the greatest impact to the beach profile occurred on the dry beach. Some cross-shore transfer of sand did occur, which resulted in a gain of 26,268 cubic yards between the MHW out to the depth of closure. The largest loss of volume occurred between R-93 and R-94, which is located near Alison Hagerup Park. Approximately -32,149 cubic yards of sand was lost from the dry portion of the beach above MHW, and along the total beach profile (from the landward edge of dune to the depth of closure), approximately -24,402 cubic yards of sand was lost. Minimal volume losses or gains above MHW were observed from R-100 to R-107, which is reflective upon the growth of the dune shown in Appendix A within this region.

Table 1. Volume Changes between Pre- and Post-Storm Surveys

PROFILE AREA			DISTANCE (FT)	JUNE 2024 TO OCT 2024 VOLUMETRIC CHANGES ABOVE: 0.28 FT NAVD (MHW)	-13 FT NAVD (DOC)
R-84	to	R-84.6	505	-6,204	-9,912
R-84.6	to	R-85	702	-7,995	-8,796
R-85	to	R-86	779	-9,495	-6,470
R-86	to	R-87	1021	-15,561	-4,639
R-87	to	R-88	950	-17,809	-8,585
R-88	to	R-89	998	-14,226	-4,649
R-89	to	R-90	898	-12,787	-2,492
R-90	to	R-91	971	-20,809	-12,563
R-91	to	R-92	1113	-26,100	-18,391
R-92	to	R-93	899	-18,417	-12,223
R-93	to	R-94	1547	-32,149	-24,402
R-94	to	R-95	909	-21,860	-16,120
R-95	to	R-96	1023	-24,303	-18,237
R-96		R-96+326	319	-5,606	-4,011
R-96+326	to	R-97	575	-7,513	-2,690
R-97	to	R-98	1083	-12,166	-6,084
R-98	to	R-99	952	-8,213	-10,600
R-99	to	R-100	1044	-4,441	-8,088
R-100	to	R-101	988	-241	305
R-101	to	R-102	1190	2,198	911
R-102	to	R-103	832	930	-4,682
R-103	to	R-104	1023	803	-12,956
R-104	to	R-105	1118	2,846	-18,434
R-105	to	R-106	958	-1,256	-14,845
R-106	to	R-107	1070	-1,923	-1,392
R-107	to	R-108	1281	-8,090	-5,611
R-108	to	R-109	838	-3,286	-11,300
R-109	to	Blind Pass	47	-184	-634
PROJECT AREA (R-84 to Blind Pass)			**25,633**	**-273,857**	**-247,590**

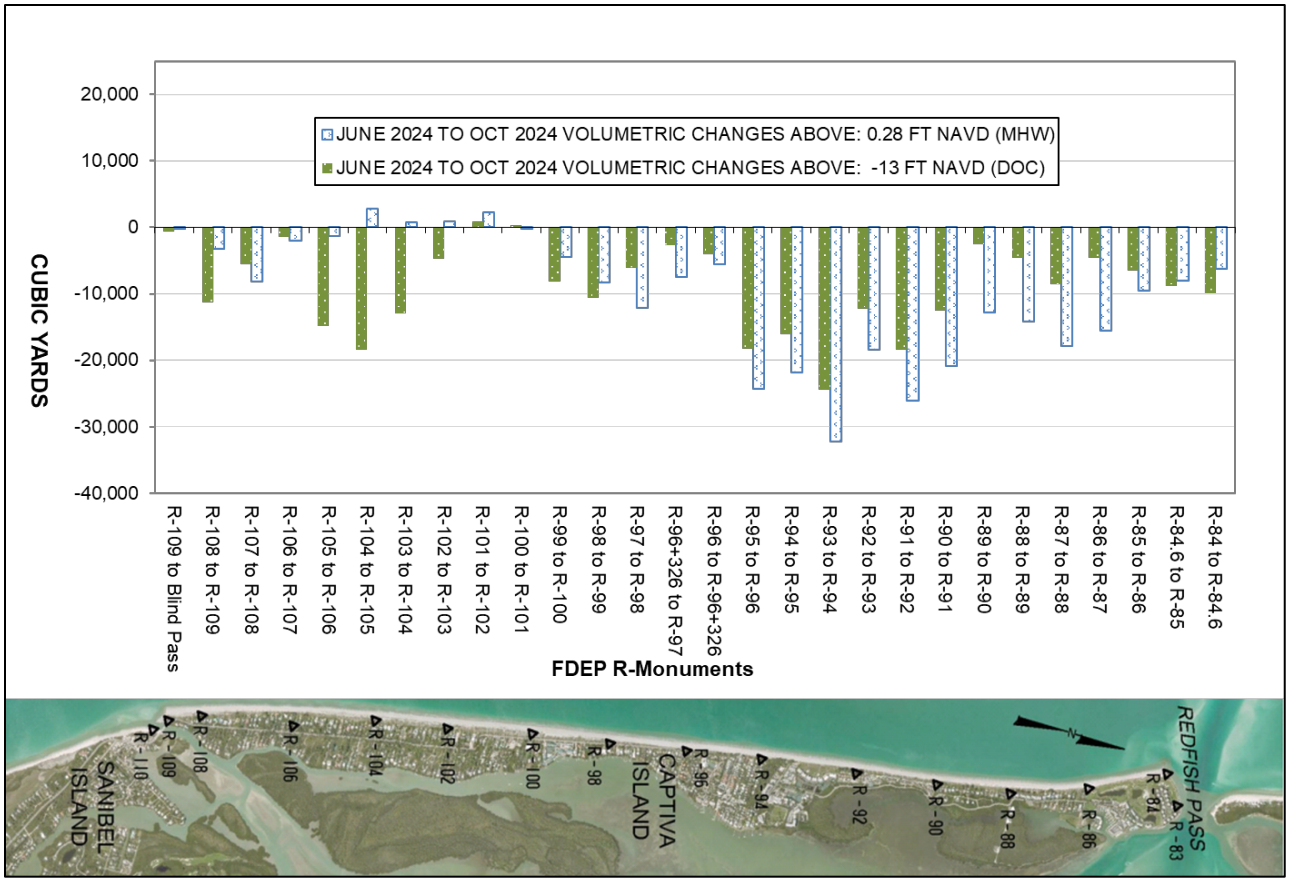

Figure 16. Volume Changes between Pre- and Post-Storm Surveys.

b. Background Volume Changes

The background change in the Captiva Island project area (R-84 to R-109) from June 2023 to June 2024 was -25,400 cubic yards above the depth of closure. The approximate length of time between the June 2024 and October 2024 surveys is 4 months. The proportional volume change for the time between the pre- and post-storm surveys is a background change of -2,117 cubic yards from R-84 to R-109, presented in Table 2.

Table 2. Captiva Island Background Changes

Total Volume Changes June 2023 to June 2024	-25,400
Volume Changes Per Month	-2,117
Total Background Changes June 2024 and October 2024	**-8,468**

For the purposes of this report, the measured change between pre- and post-storm surveys is -247,590 cubic yards above the DOC. The estimated background changes are removed from the measured changes between surveys to isolate the storm-induced volume changes (Table 3).

Table 3. Captiva Island Volume Changes Summary

Measured Changes between Pre- and Post-Storm Surveys (CY)	-247,590
Adjustment for Background Changes (CY)	**-8,468**
Total Storm-Induced Change (CY)	**-239,122**

c. Pre- to Post-Storm Survey Volume Change Under the Design Template

The total volume changes in the Captiva Island project area between the June 2024 (pre-storm) and October 2024 (post-storm) surveys as calculated under the permitted template was -381,409 cubic yards. This indicates a significant loss of sand from the intended design template, especially with respect to the dry portion of the profile.

VIII. SHORELINE CHANGES

Shoreline changes discussed in this report compare the beach width remaining from the pre- to post-storm (June 2024 – October 2024). The Mean High Water (MHW) elevation measured at each profile is used to represent the typical shoreline position at each profile along the beach. The MHW elevation for Captiva Island is +0.28 feet NAVD. The shoreline changes and beach widths are determined by comparing the MHW shoreline positions between surveys.

The Captiva Island shoreline extends from R-83 to R-109; however, no fill was placed from R-83 to R-84. The project area extends from R-84 to R-109. The shoreline changes are listed in Table 4 and Figure 18.

On average, the shoreline retreated approximately 27.0 feet in the Captiva Island project area. The shoreline retreated primarily between R-90 and R-106 with the greatest recession occurring at R-91 (-90.1 feet). Although the area from R-84.6 to R-88 indicates a gain of shoreline, this is due to large losses and deflation of the upper, dry beach which deposited sand at/near the MHW line. This phenomenon is depicted in the beach and dune erosion conditions graphic below under Condition IV: Major Dune Erosion (Figure 17).

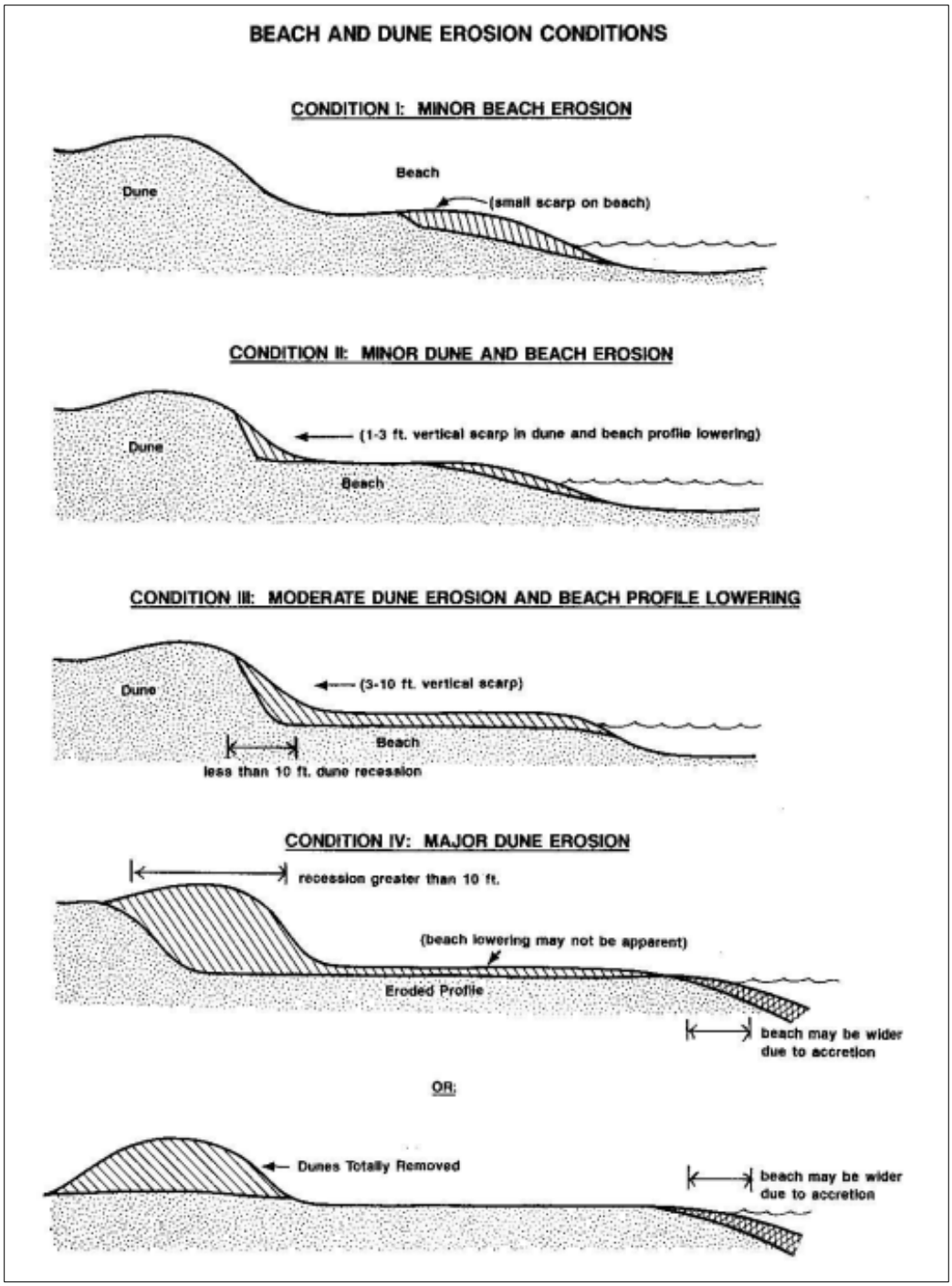

Figure 17. FDEP Beach and Dune Erosion Conditions (Clark, 1980).

Table 4. Shoreline Changes between Pre- and Post-Storm Surveys

PROFILE	June 2024 to October 2024 MHW Shoreline Change (ft)
R-84	-66.4
R-84.6	43.7
R-85	89.8
R-86	75.3
R-87	32.7
R-88	10.3
R-89	-4.1
R-90	-79.1
R-91	-90.1
R-92	-77.0
R-93	-87.5
R-94	-66.1
R-95	-65.0
R-96	-44.1
R-97	-15.0
R-98	-39.6
R-99	-54.5
R-100	-39.2
R-101	-34.3
R-102	-33.1
R-103	-58.5
R-104	-33.2
R-105	-34.2
R-106	-38.7
R-107	9.6
R-108	-69.6
R-109	39.0
PROJECT AREA R-84 TO Blind Pass	**-27.0**

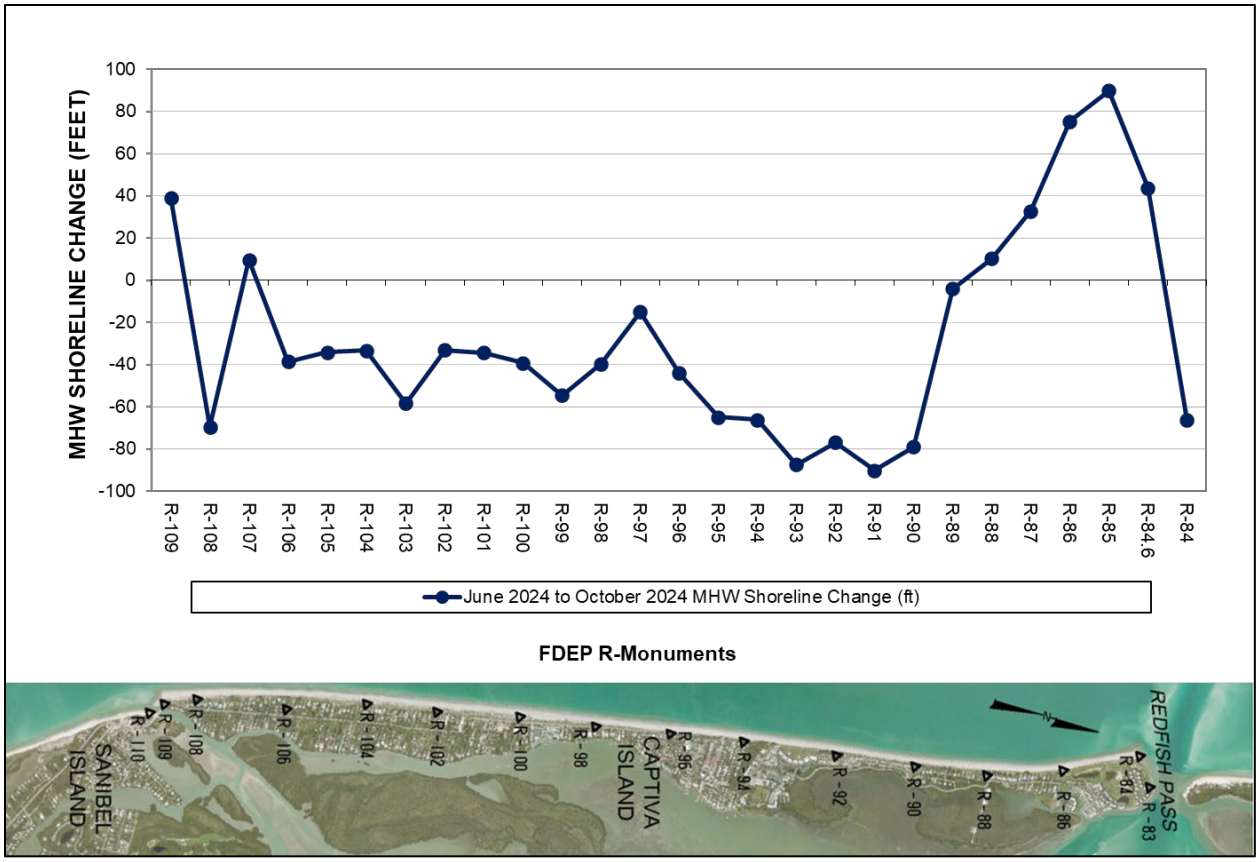

Figure 18. Shoreline Changes between Pre- and Post-Storm Surveys.

IX. DUNE VEGETATION

The CEPD has proactively managed Captiva's dune system since the first island-wide nourishment event in 1988-89. As part of this project, dunes were constructed from R-96.5 near Jensen's curve to R-108, just north of Turner Beach. The most recent 2021 renourishment project constructed a dune from approximately R-84 to R-109 with a maximum dune crest width of 25 feet. Dune elevations ranged from +6.5 feet-NAVD to +8.5 feet-NAVD, which varied due to existing dune heights along the island. For each dune restoration event, dune vegetation was installed along the newly created habitat.

Both the dune vegetation and the dune substrate along Captiva Island is in need of rehabilitation due to impacts from Hurricanes Helene and Milton. The island's dune system provides valuable protection to coastal infrastructure in addition to serving as habitat. The sand lost from the dune system was approximately 295,550 cubic yards based on profile comparisons above +6.5 feet-NAVD. Based upon an analysis of the pre- and post-storm landward vegetation extents, there was an average overall cross-shore loss of vegetation of 37.6 feet. Utilizing dune retreat at each profile within the project area, the average loss of vegetated dune area was 964,888 square feet, which would require approximately 643,259 dune plants to restore to District and State standards.

X. POTENTIAL SAND SOURCES AND ASSOCIATED PERMITS

The potential sand sources for repairing damages include the offshore Borrow Area VI-E, Borrow Area III-B, and four upland sand mines (Figure 19). Borrow Area VI-E has been used historically (2005-06, 2013, and 2021), and it contains sand with the proper quality for successful beach nourishment. The method for construction is anticipated to use a hopper or cutterhead dredge due to the logistics of truck hauling sand onto the island. All the sand sources are currently permitted for CEPD's beach management program.

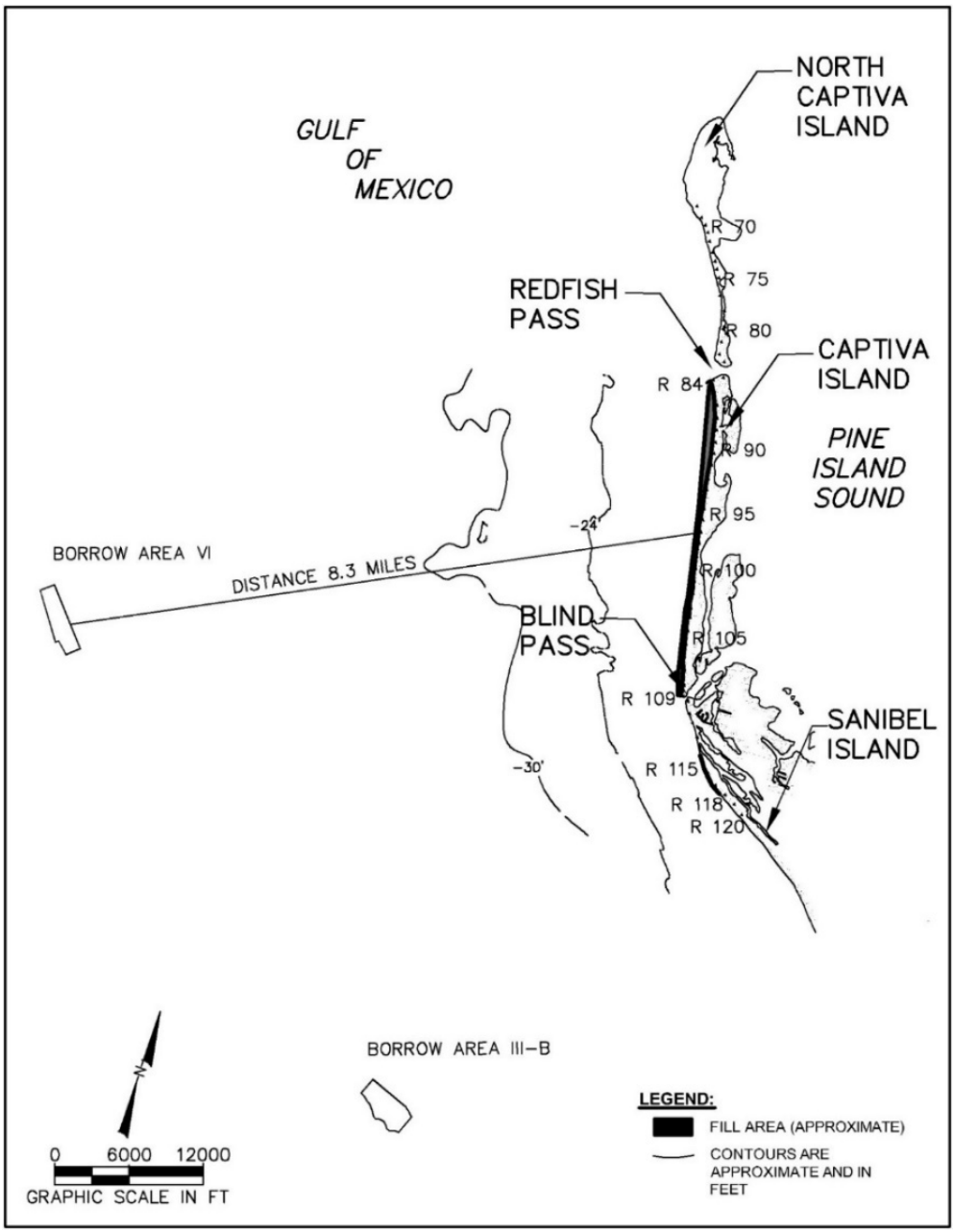

Figure 19. Borrow Area Location Map.

Borrow Area VI was dredged during construction of the 2005-06 and 2008 renourishment projects and was redesigned prior to being dredged for construction of the 2013 renourishment project. The redesigned borrow area included a larger footprint and revised sediment characteristics, and thus, was renamed Borrow Area VI-E. It is located approximately 8.3 nautical miles offshore from the center of the island and is characterized by medium to fine grained gray sand, which contains relatively low silt (< 5%) and high shell hash concentrations. The average grain sizes, based on computer composite distribution of 65 sub-samples, is 0.40 mm. Areas of possible hardbottom, rubble, or shell were excluded from the borrow area. Based on the redesigned borrow area limits and the post-construction dredge surveys of the borrow area following construction of the 2021 project, it was estimated that approximately 2,600,000 cubic yards of beach quality material remains in the borrow area (APTIM, 2021).

Borrow Area III-B was identified as a sand source for construction of renourishment projects but has not been utilized. It is located approximately 8.7 nautical miles offshore from the center of the island and is characterized by gray to light gray, fine grained sand with varying amounts of shell hash, shells, and silt. In general, silt content increases with depth. The average grain size within the borrow area is 0.38 mm. A predominantly flush/buried platform with numerous scattered sponges and soft corals is located outside the borrow area, approximately 600 feet away. Approximately 723,000 cubic yards of sand is estimated to be available within the borrow area.

XI. COST ESTIMATE

The cost estimate to replace sand lost due to Hurricanes Helene and Milton is based upon the recent bid received by Great Lakes Dredge & Dock for the upcoming beach renourishment project planned for spring/summer 2025. The estimate assumes that the storm losses under the template will be fully restored to the design intent. Currently, losses to the planned construction template are 381,409 cubic yards. Using the recent bid received by Great Lakes at a unit cost of $33.34, total additional costs due to impacts from Helene and Milton are $12,716,199.90.

XII. FUNDING COORDINATION

To implement an emergency repair project, it is recommended that the CEPD continue funding coordination to offset local costs. The following summarizes coordination to date.

a. Federal

The Federal government has determined that neither FEMA nor USACE are the responsible entity to assist in project rehabilitation. Due to a policy change, FEMA is in the position that it is the USACE's responsibility to repair the beach as it was previously nourished by the USACE prior to 2008, although local funds were solely used for the 2013 and 2021 projects. As such, CEPD has coordinated with the USACE for rehabilitation assistance under Public Law 84-99. The project has determined to not be eligible for Federal funding from the USACE due to the beach being limited to private interests. The USACE noted that the public access situation in the project area has not changed since the 2013 Renourishment Project USACE determination. CEPD will need to acquire adequate parking and access points along with Perpetual Beach Storm Damage Reduction

Easements before the USACE can participate in any future nourishments or provide rehabilitation assistance.

b. State

Since the impact of Hurricanes Helene and Milton, coordination with the FDEP has been ongoing. Based upon discussions to date, the FDEP anticipates providing 100% non-federal funds for nourishment of Captiva Island following the impacts of Hurricanes Helene and Milton due to the Federal funding uncertainties. Initial funding requests were provided to the State in late November, with the same cost estimate provided herein.

XIII. SUMMARY

Hurricanes Helene and Milton severely impacted Captiva Island causing shoreline retreat, beach deflation, and loss of dune along the northern portion of the island. Due to the previous impacts from Hurricane Ian and the back-to-back impacts from Hurricanes Helene and Milton, the beach remains in an exacerbated eroded condition. The Captiva Island project area lost approximately 381,409 cubic yards due to the storm under the construction template and -237,007 cubic yards between the pre- and post- storm surveys. The estimated cost to repair damages from Hurricanes Helene and Milton, is $12,716,199.90.

XIV. REFERENCES

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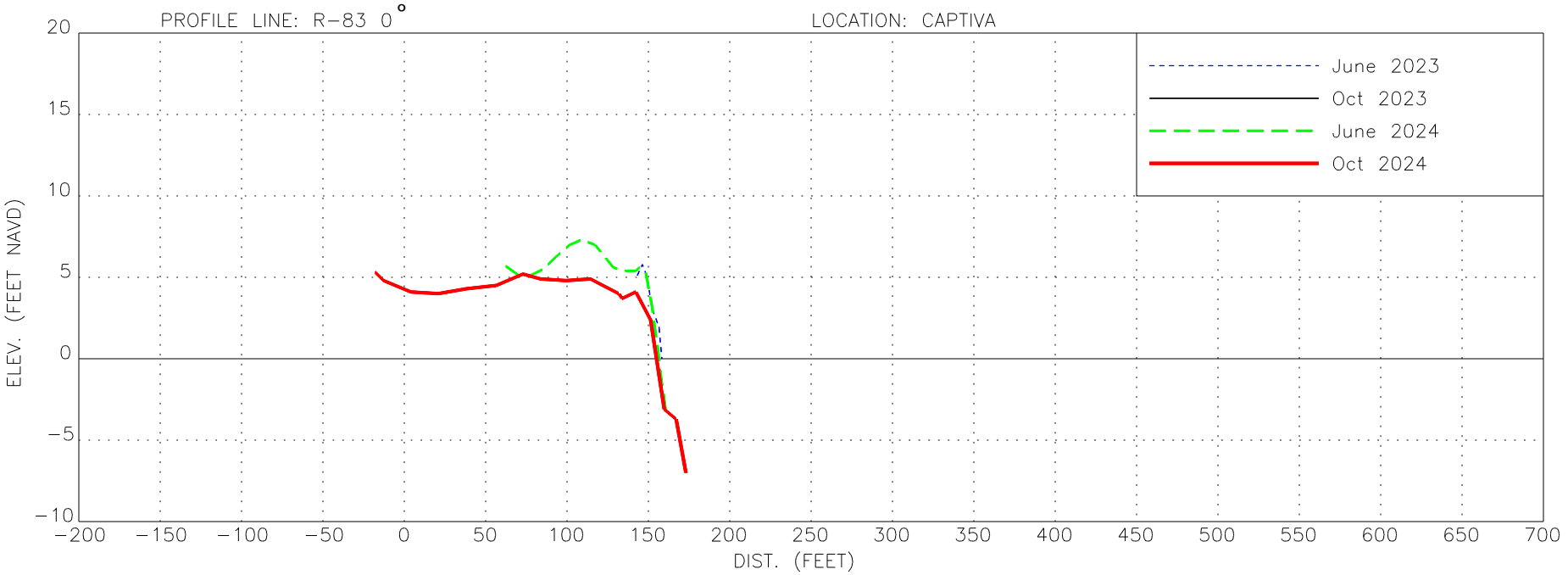
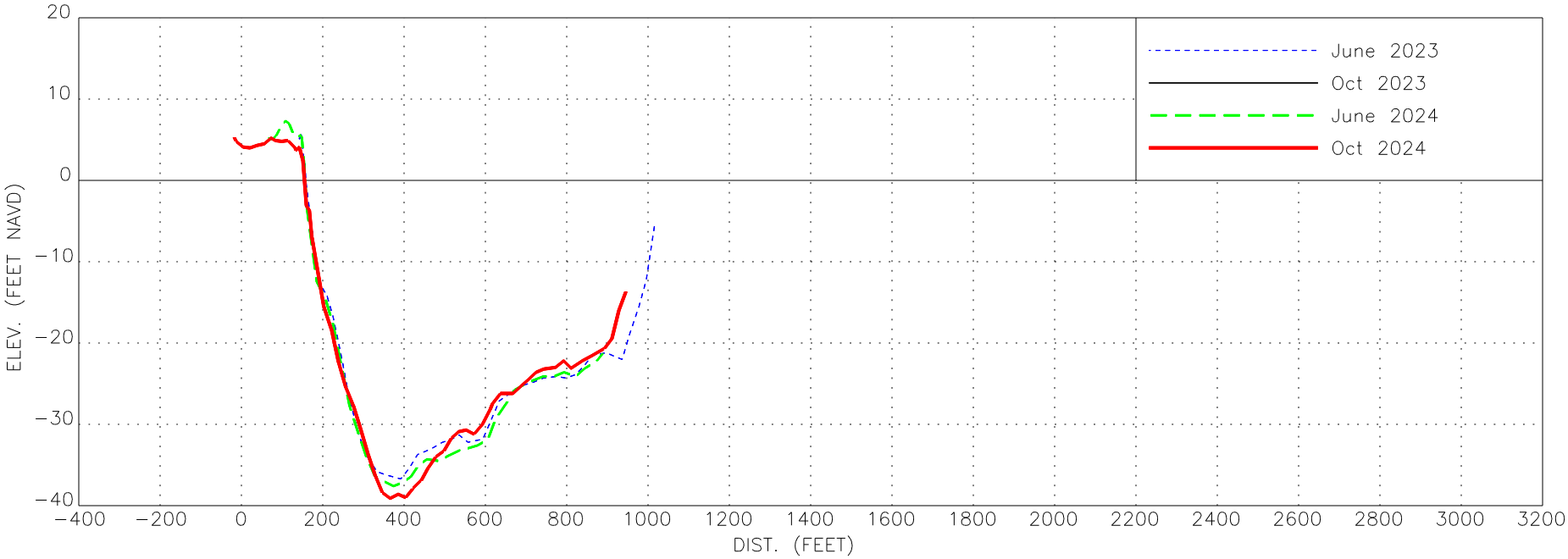
APPENDIX A

CAPTIVA ISLAND PROFILES


PROFILE LINE: R-83 0°
LOCATION: CAPTIVA
June 2023
Oct 2023
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
Oct 2023
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-83 325°
LOCATION: CAPTIVA
June 2023
Oct 2023
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)
20
15
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June 2023
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ELEV. (FEET NAVD)
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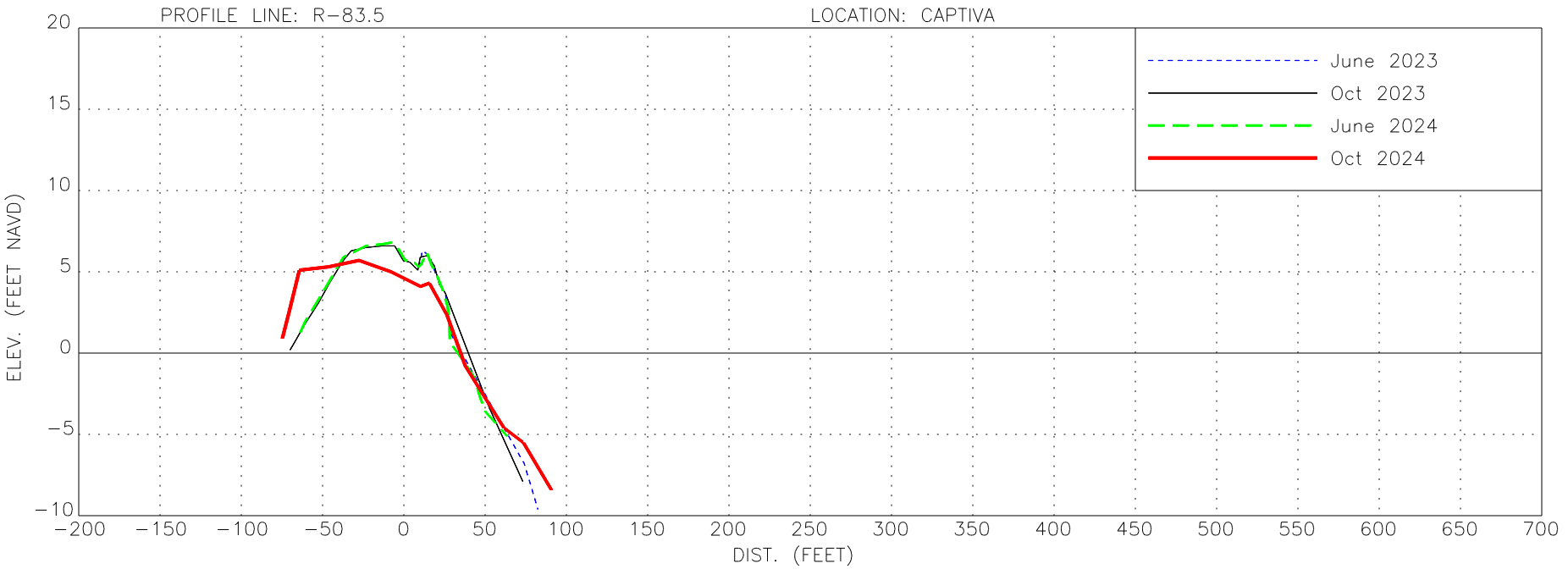
PROFILE LINE: R-83.5
LOCATION: CAPTIVA
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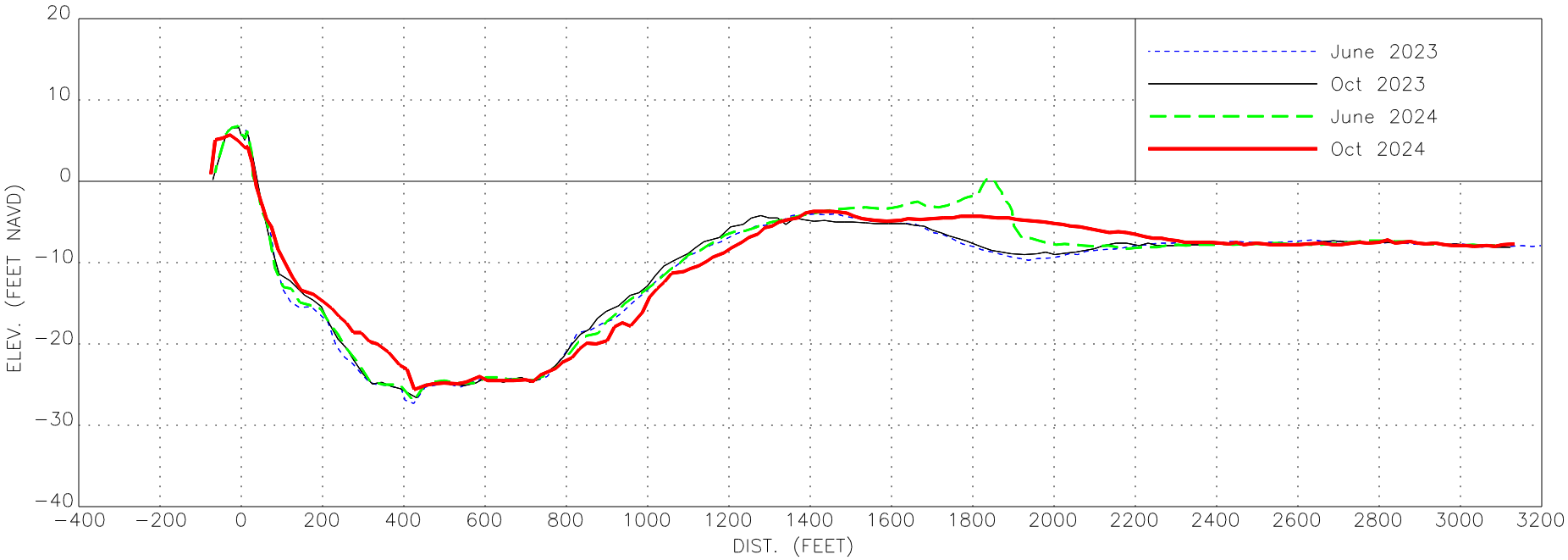
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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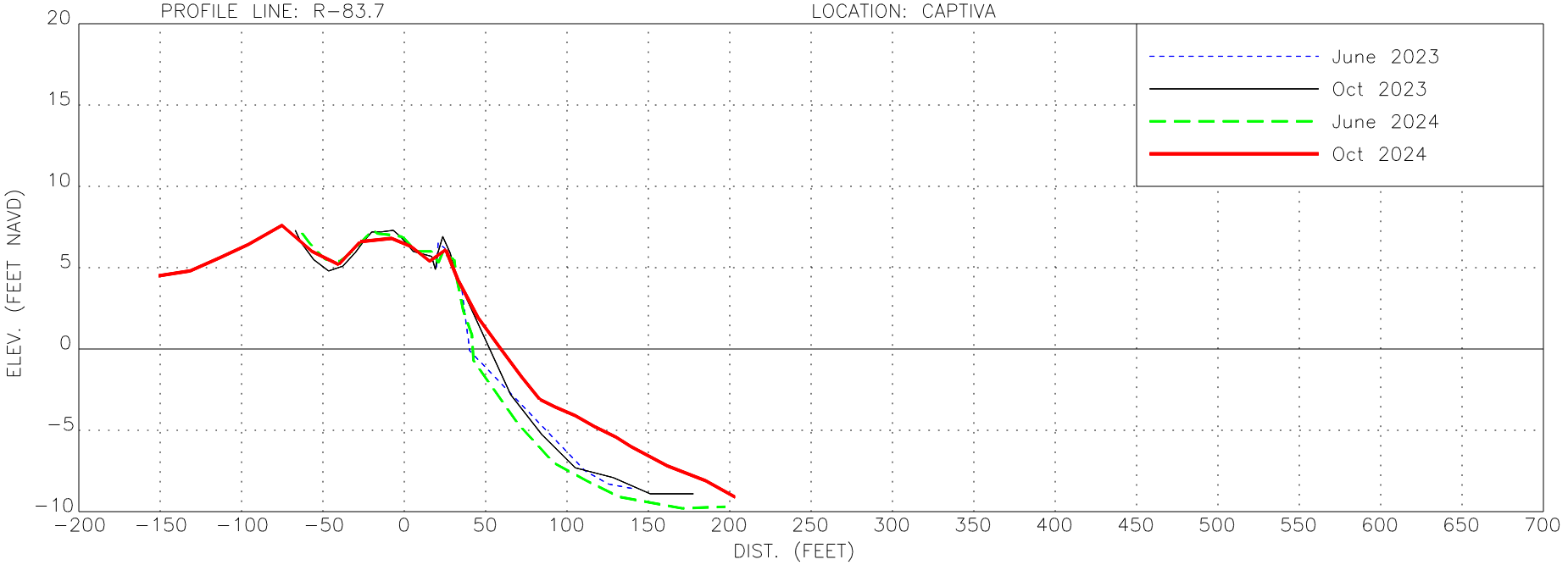
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-83.7
LOCATION: CAPTIVA
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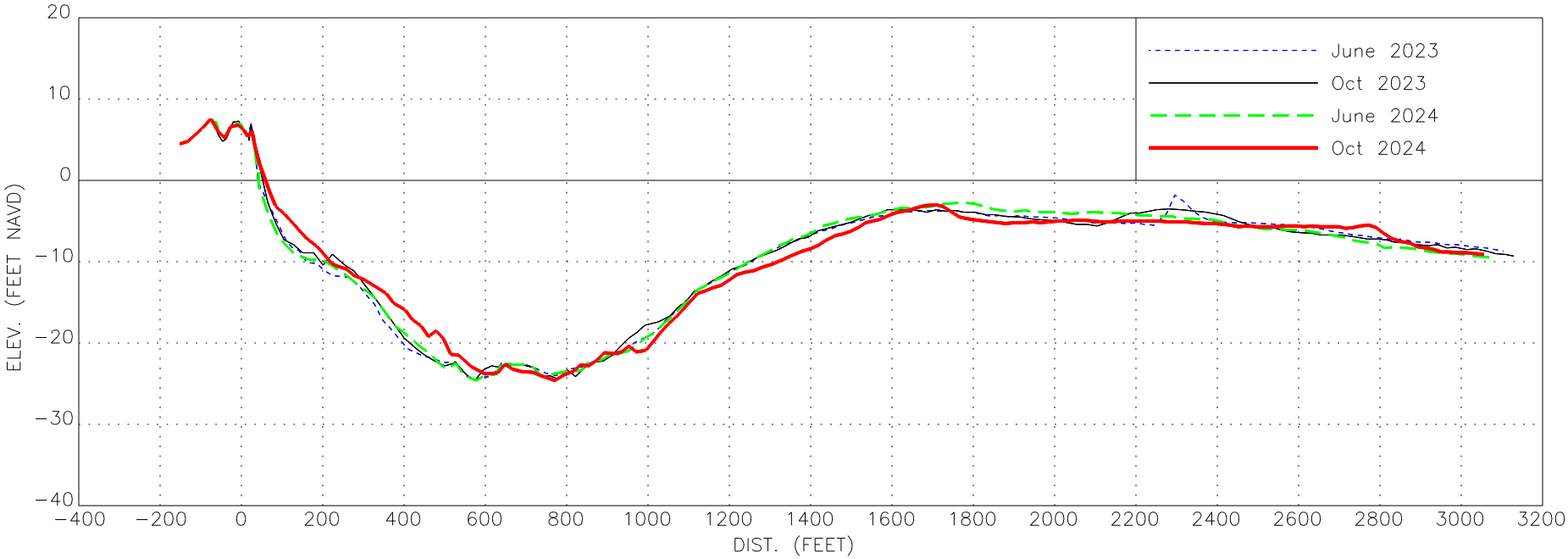
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)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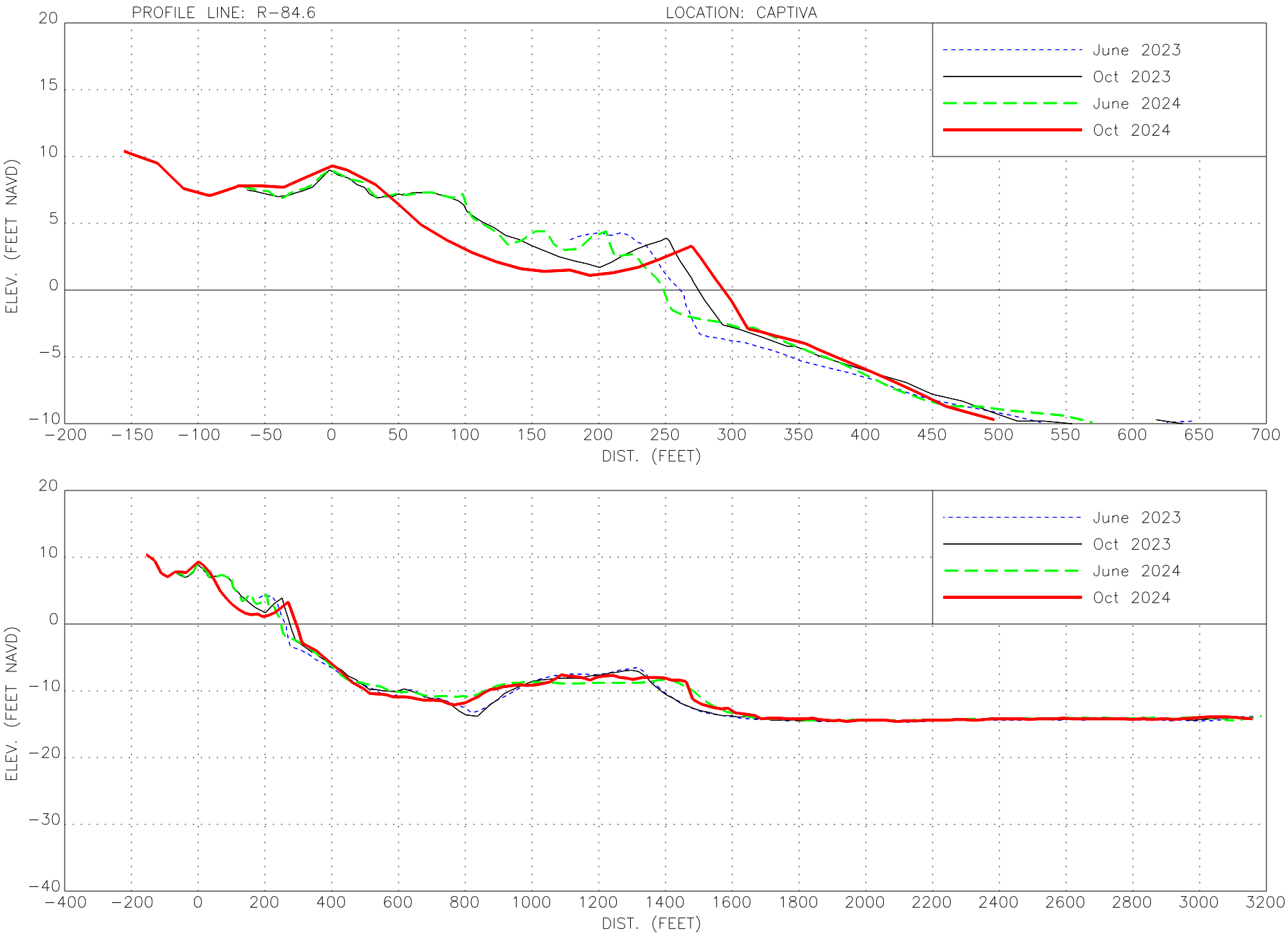
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-84.6
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
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June 2023
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ELEV. (FEET NAVD)
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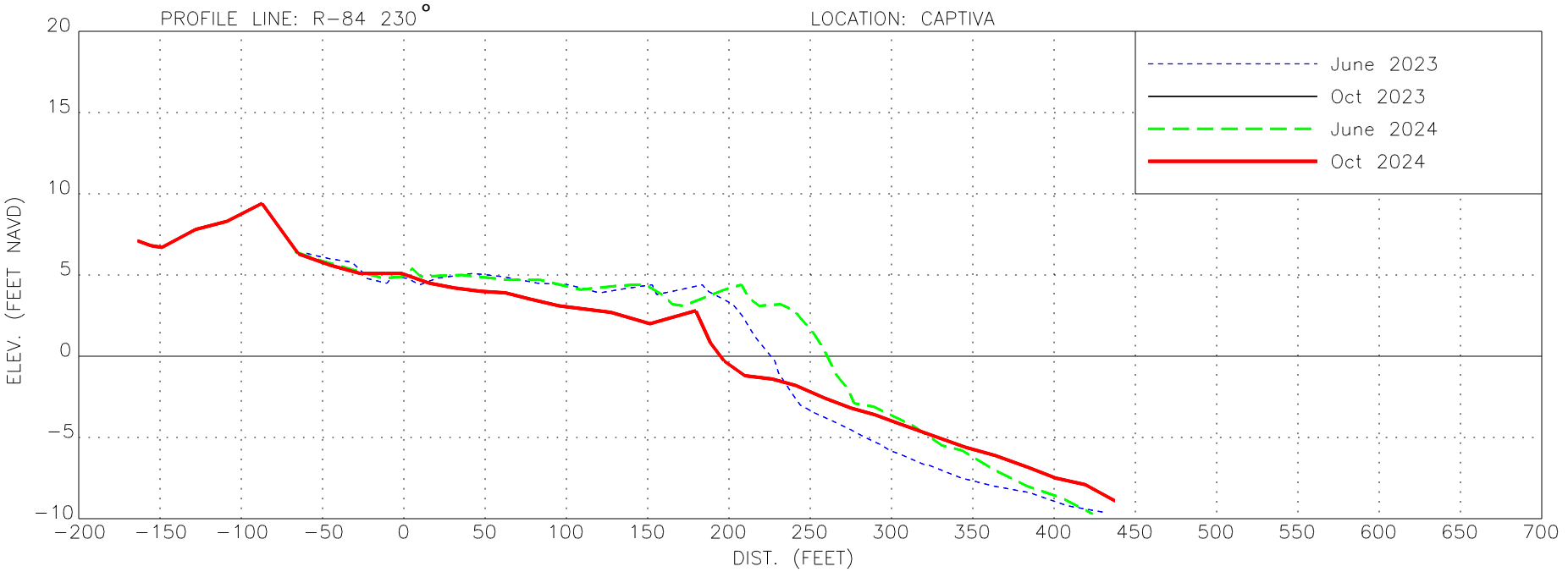
PROFILE LINE: R-84 230°
LOCATION: CAPTIVA
June 2023
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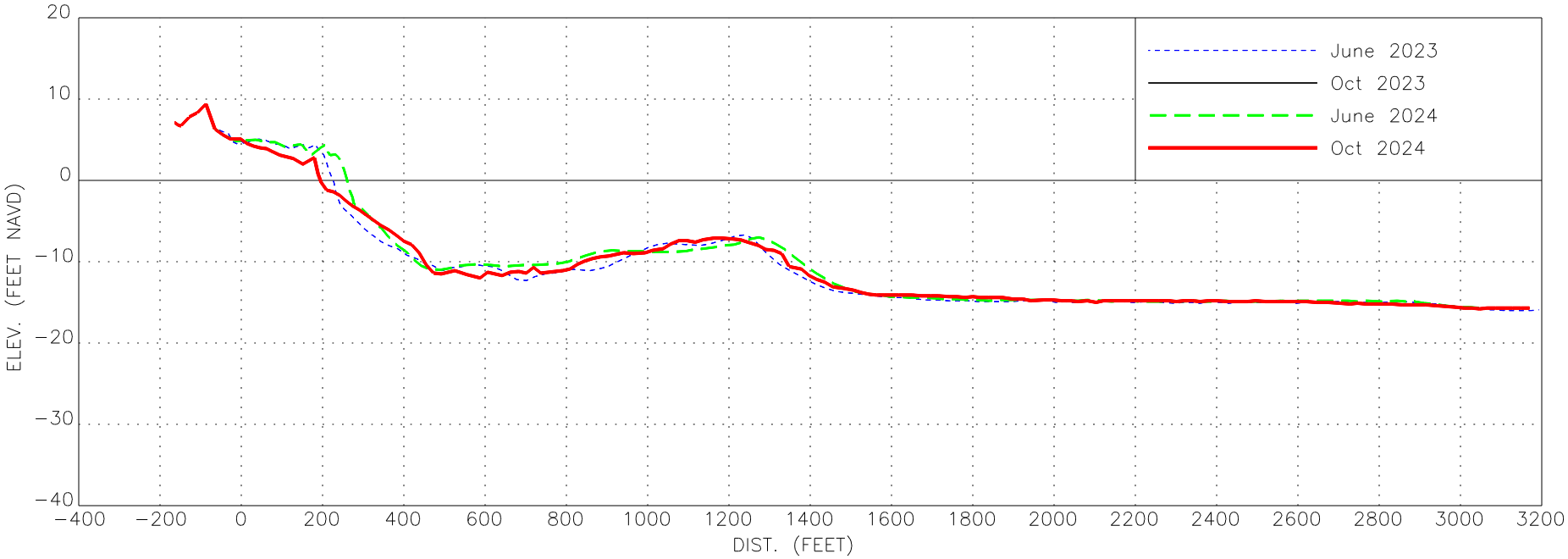
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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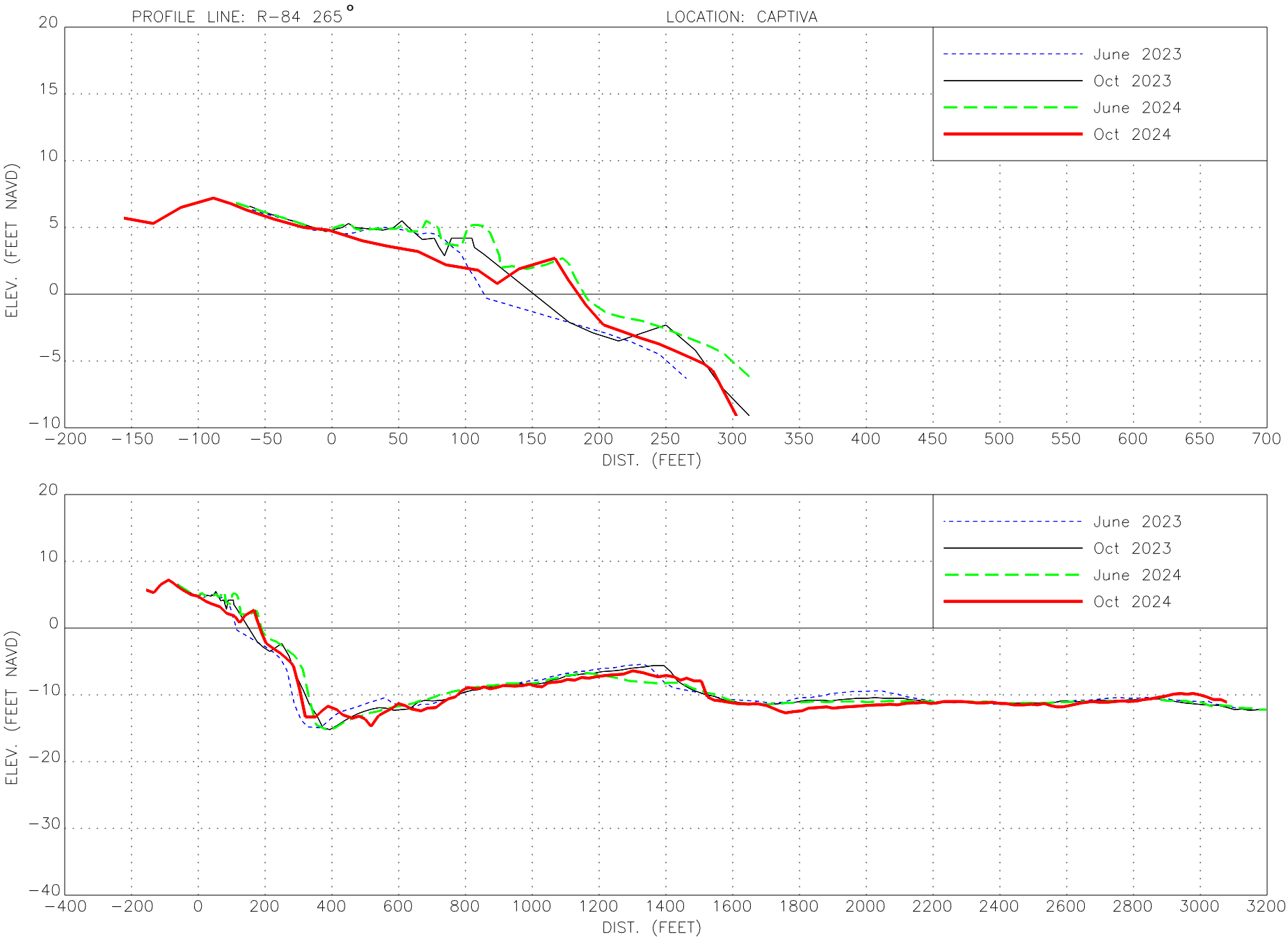
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-84 265°
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
DIST. (FEET)
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June 2023
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ELEV. (FEET NAVD)
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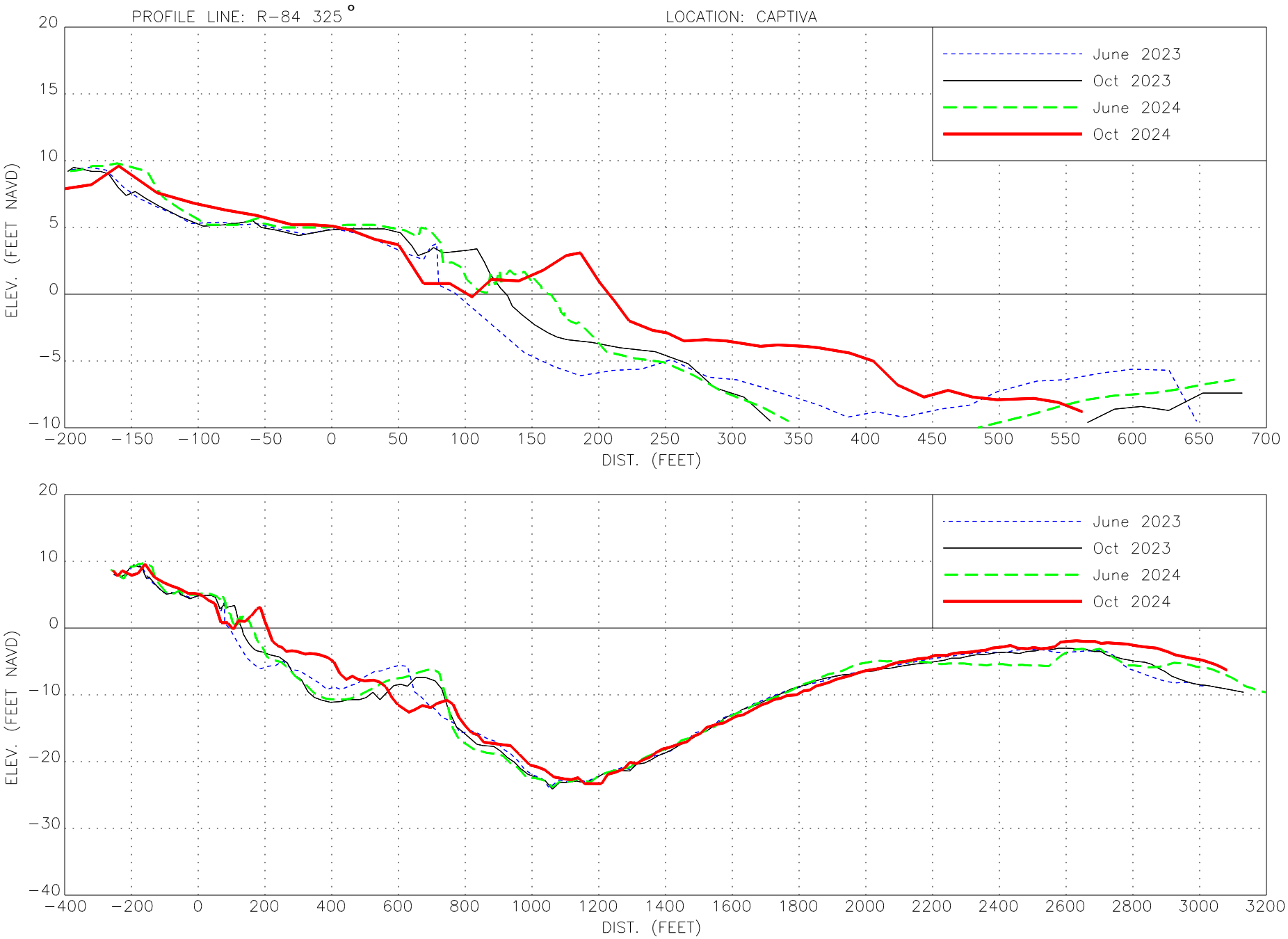
PROFILE LINE: R-84 325°
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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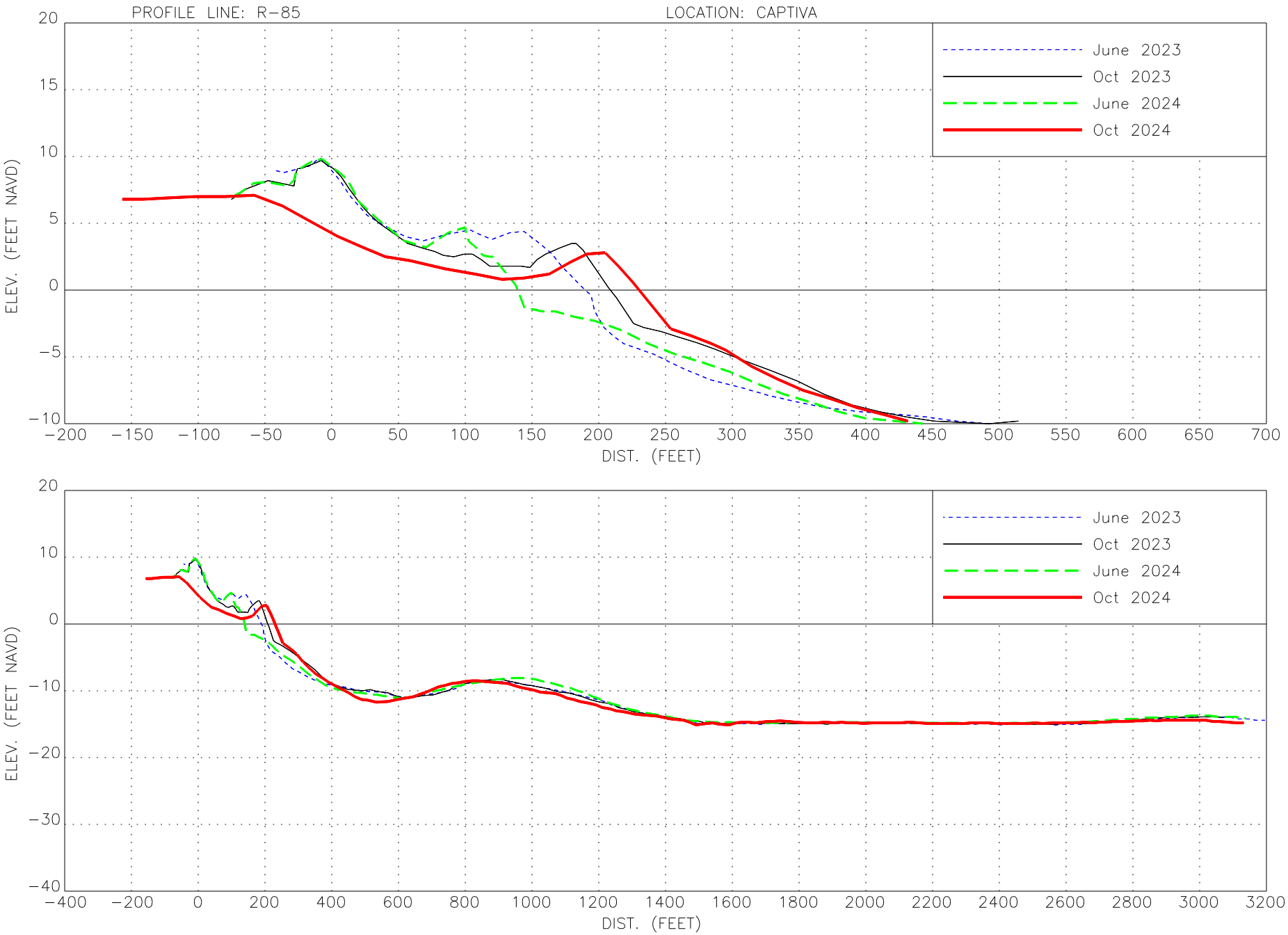
PROFILE LINE: R-85
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
DIST. (FEET)
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June 2023
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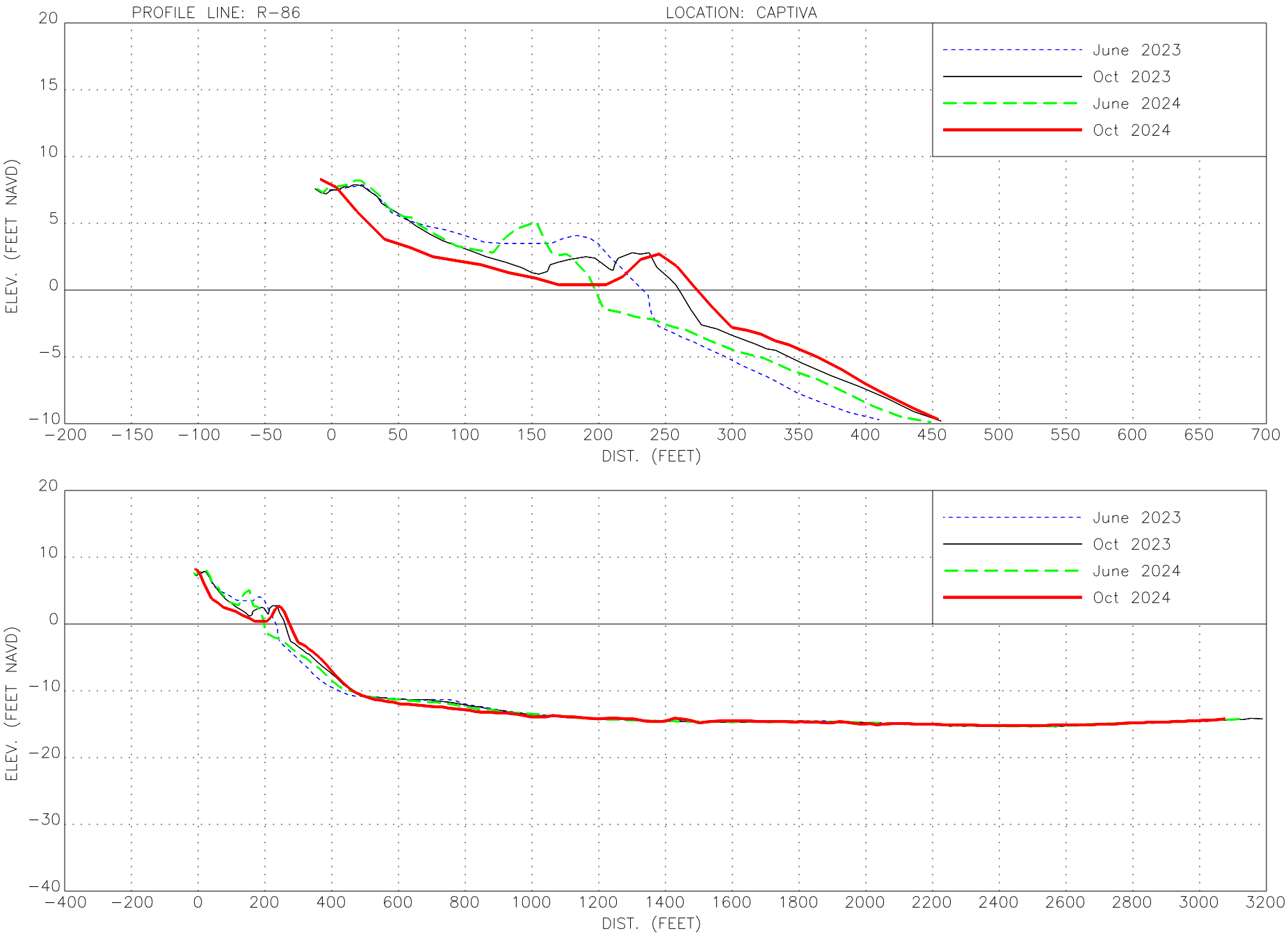
PROFILE LINE: R-86
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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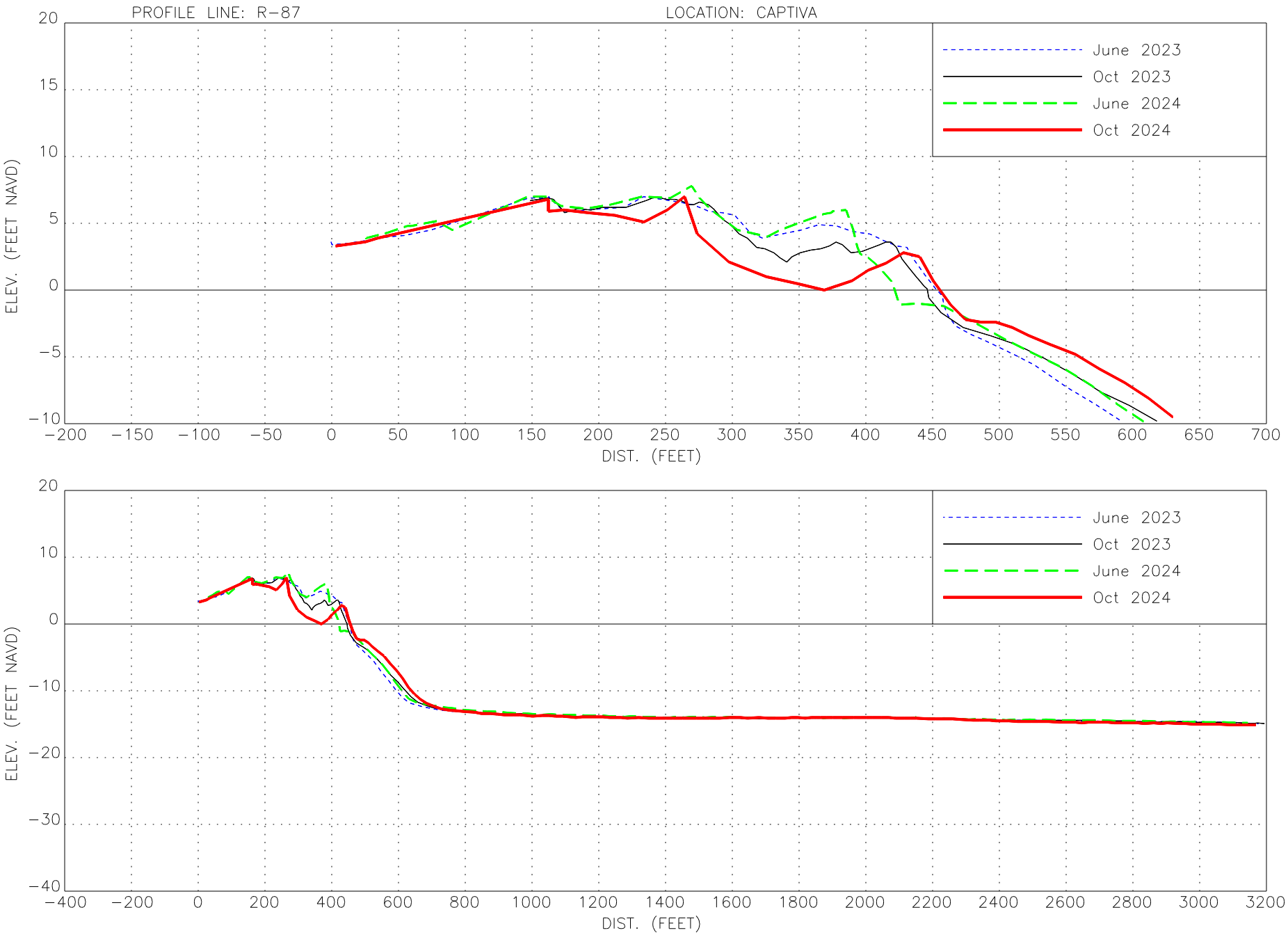
PROFILE LINE: R-87
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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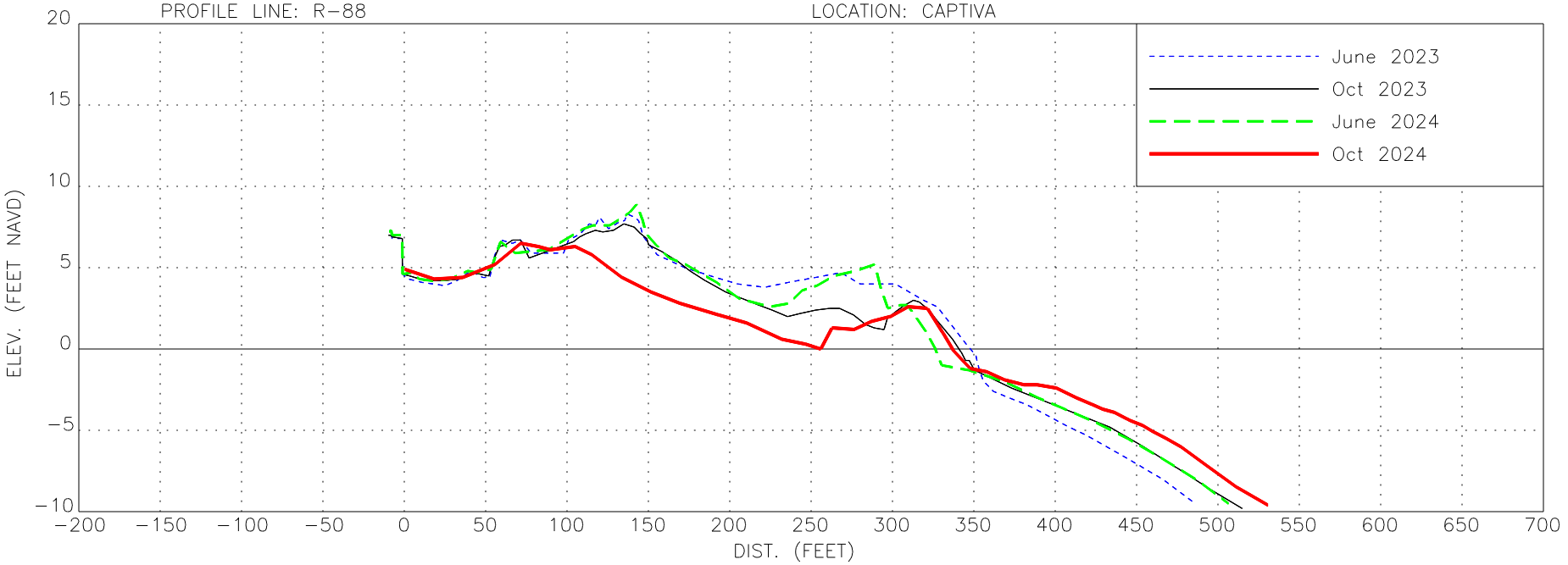
PROFILE LINE: R-88
LOCATION: CAPTIVA
June 2023
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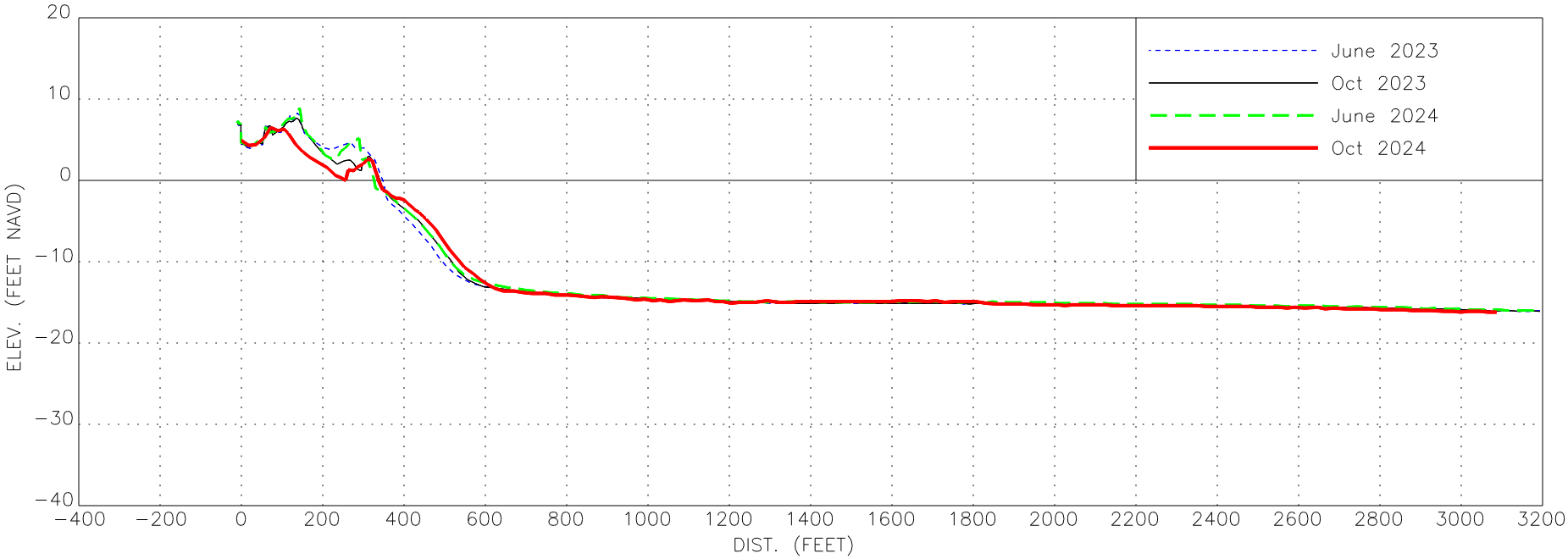
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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ELEV. (FEET NAVD)
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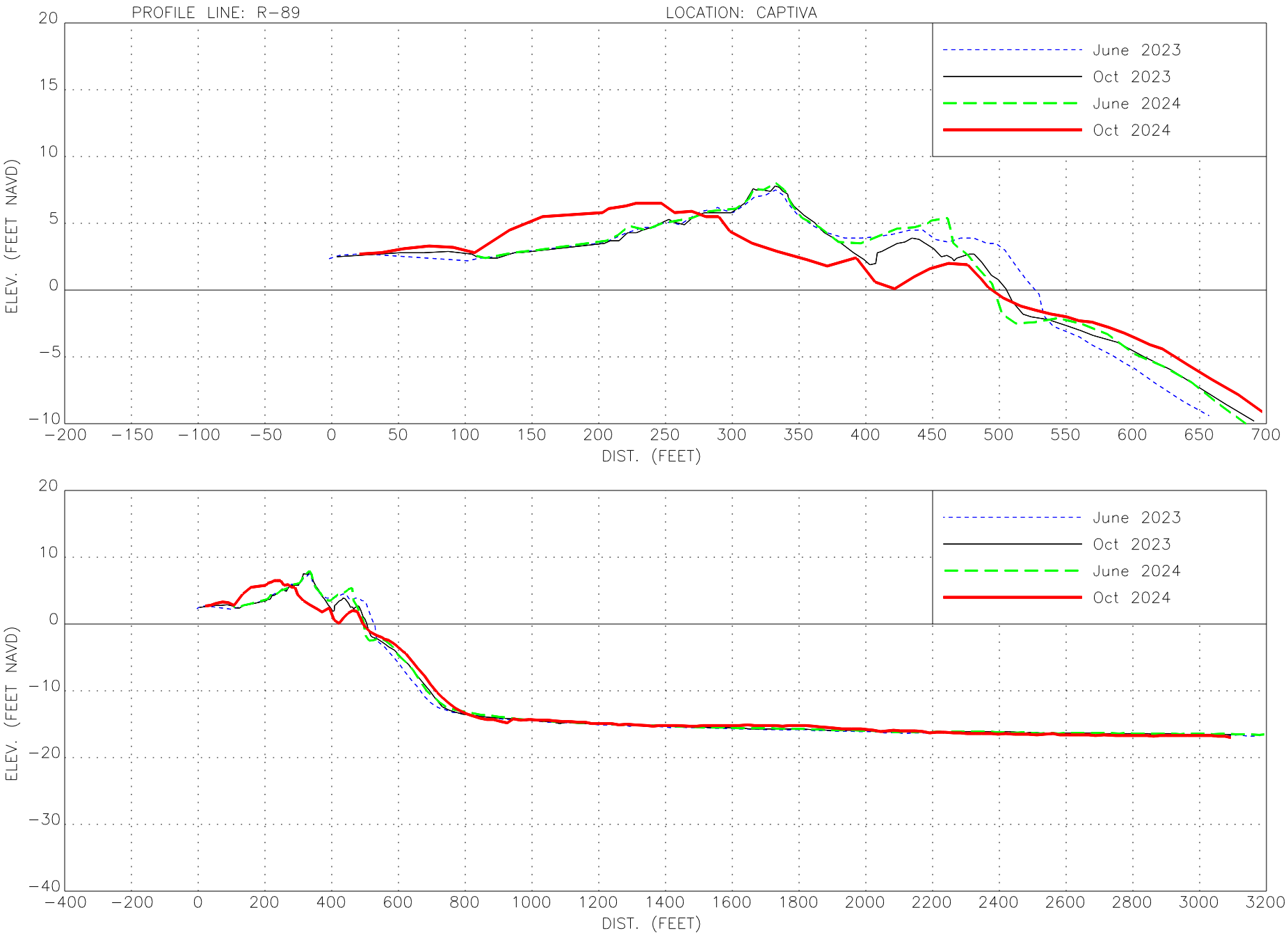
PROFILE LINE: R-89
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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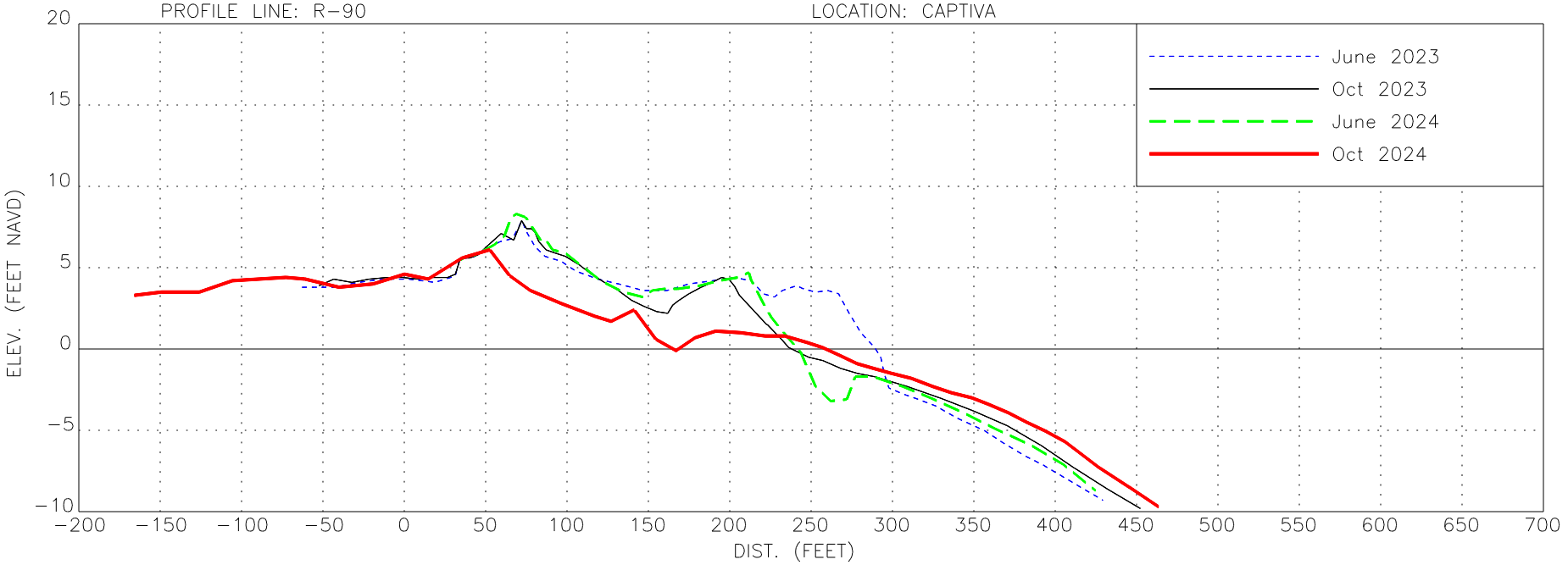
PROFILE LINE: R-90
LOCATION: CAPTIVA
June 2023
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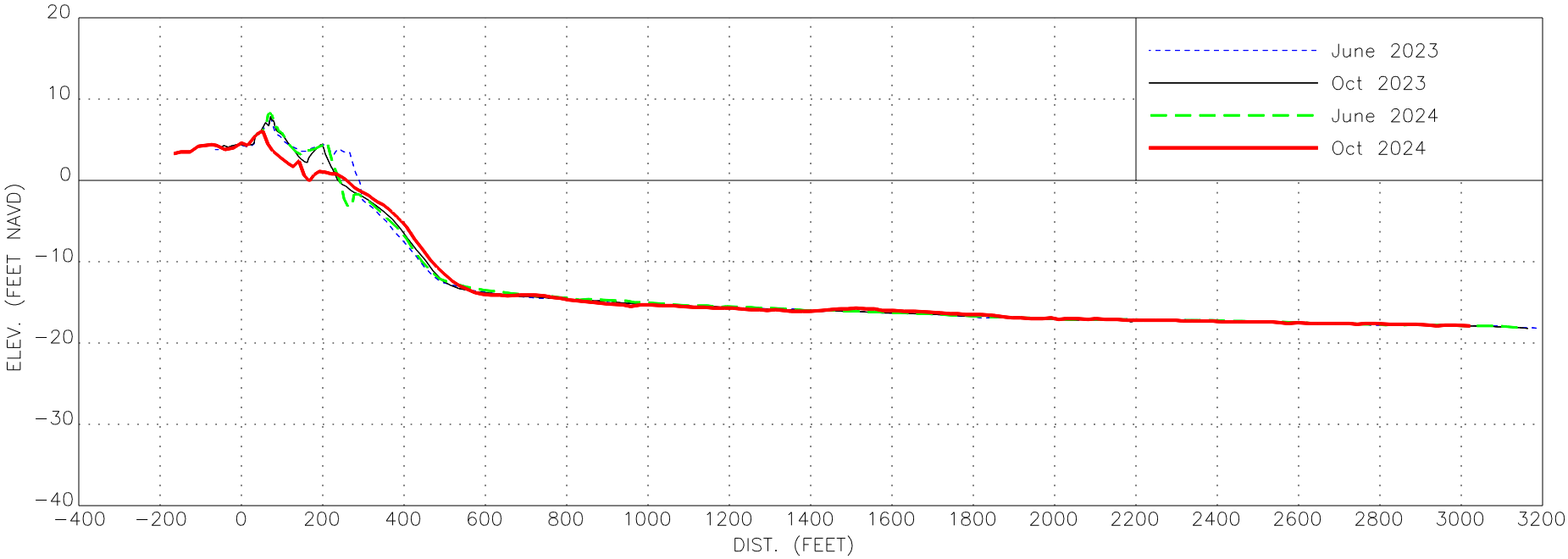
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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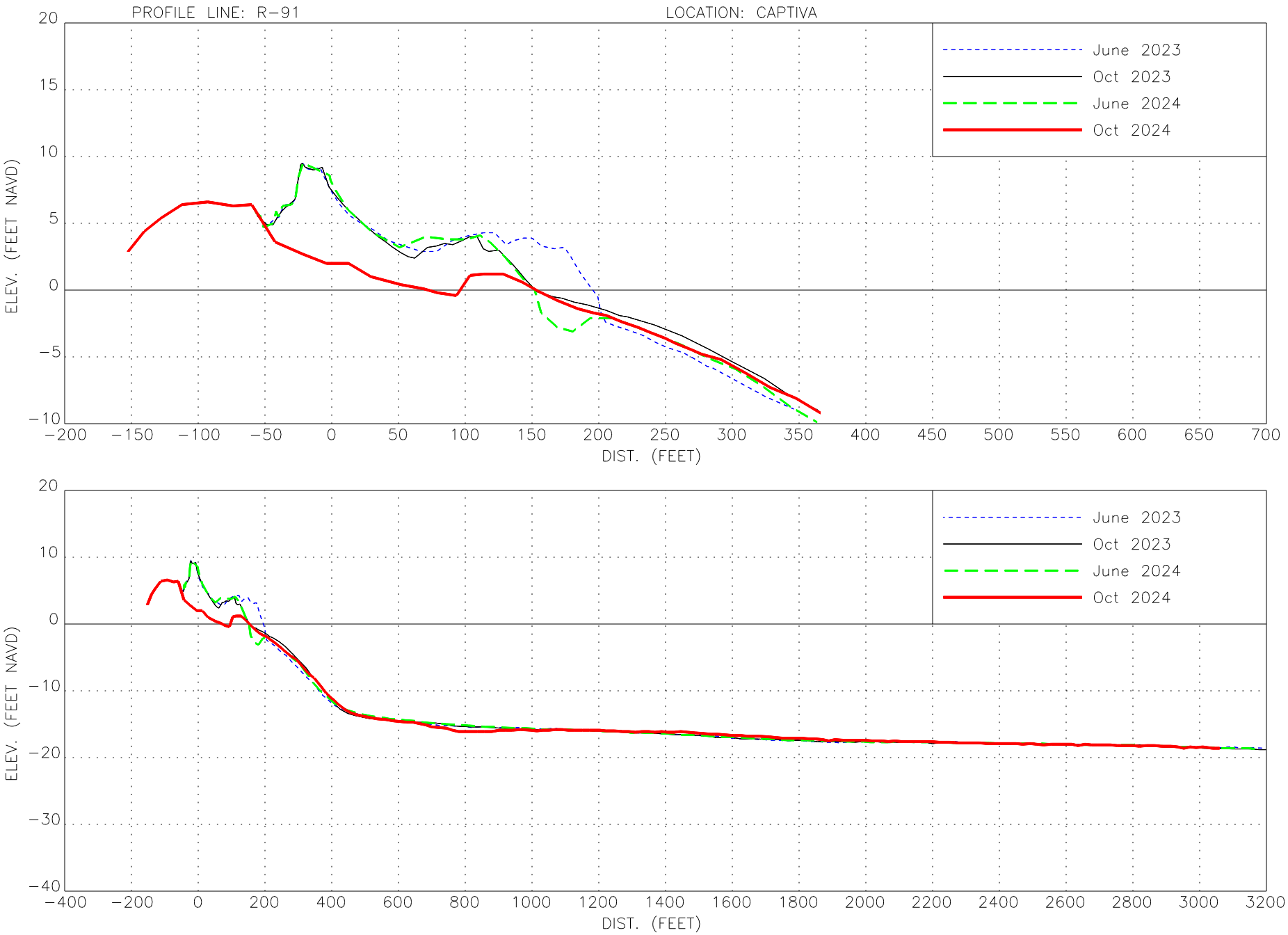
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-91
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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ELEV. (FEET NAVD)
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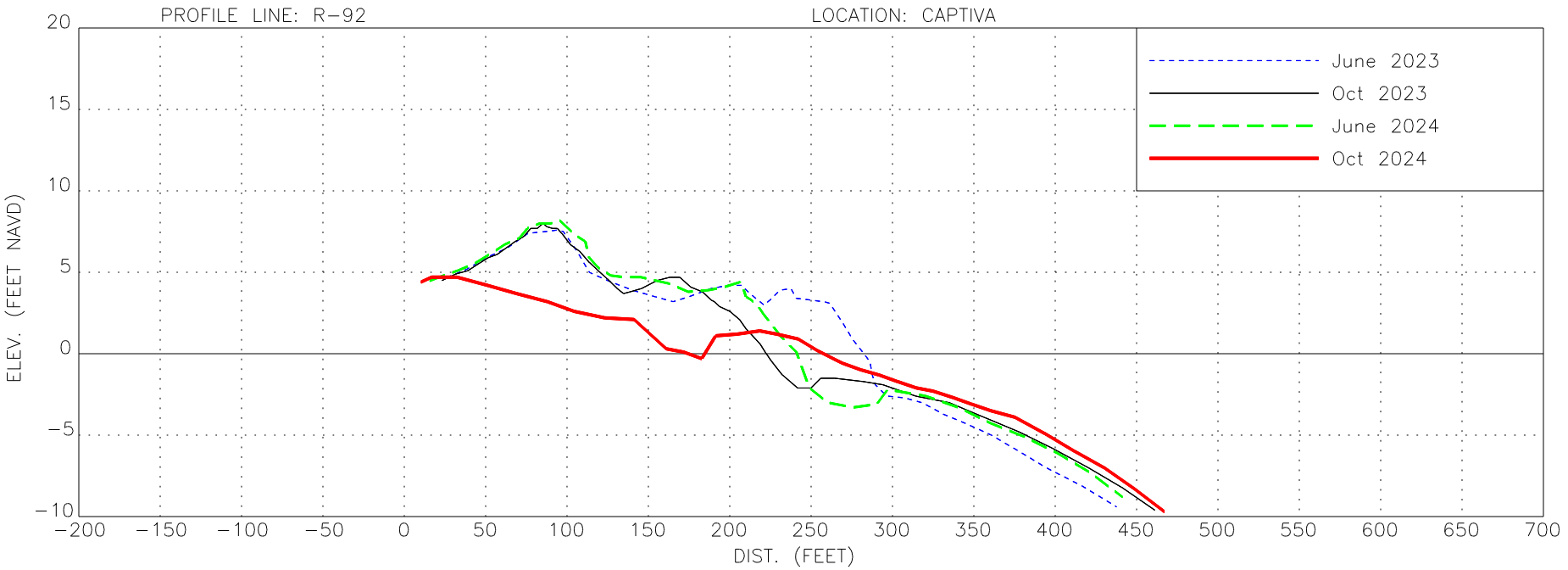
PROFILE LINE: R-92
LOCATION: CAPTIVA
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Oct 2023
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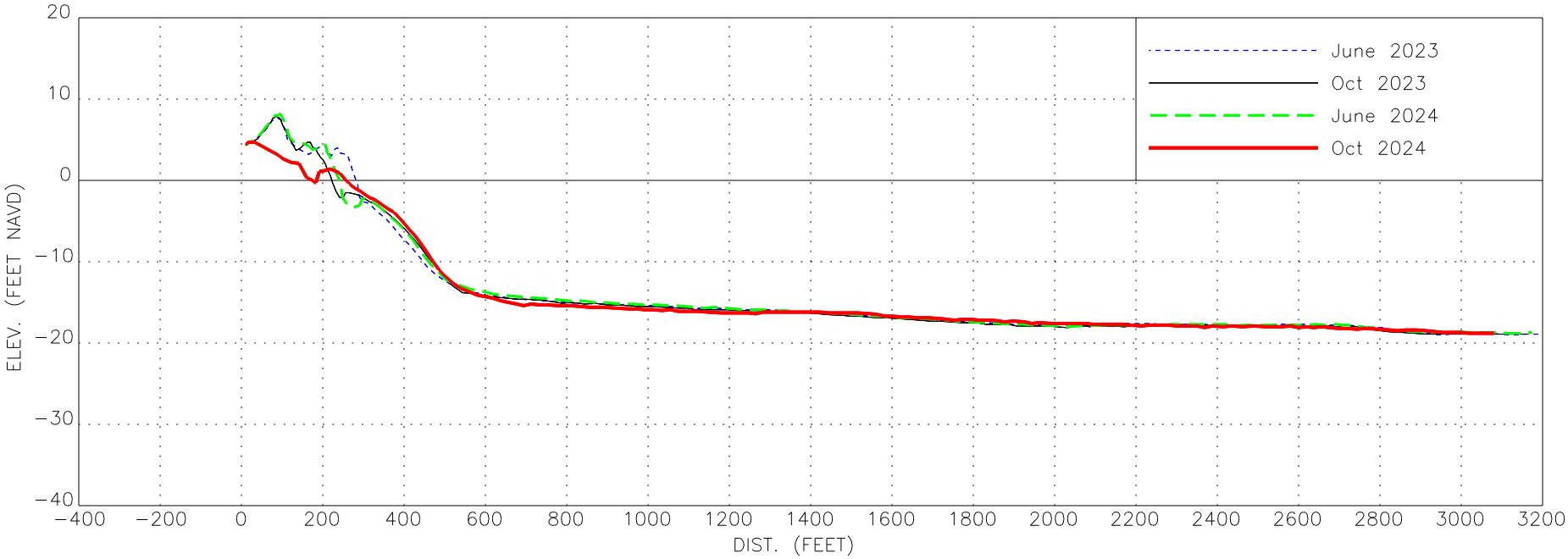
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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ELEV. (FEET NAVD)
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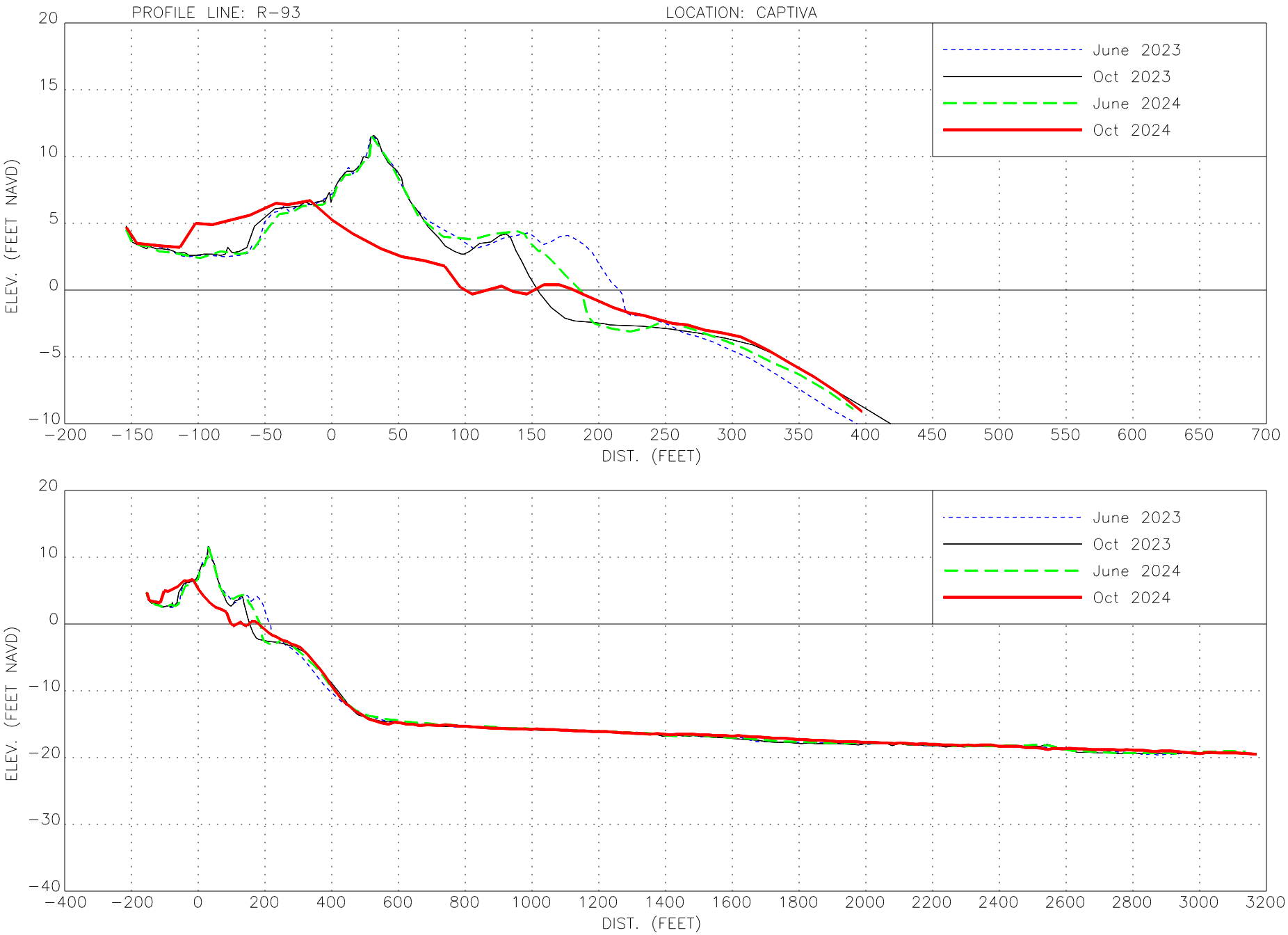
PROFILE LINE: R-93
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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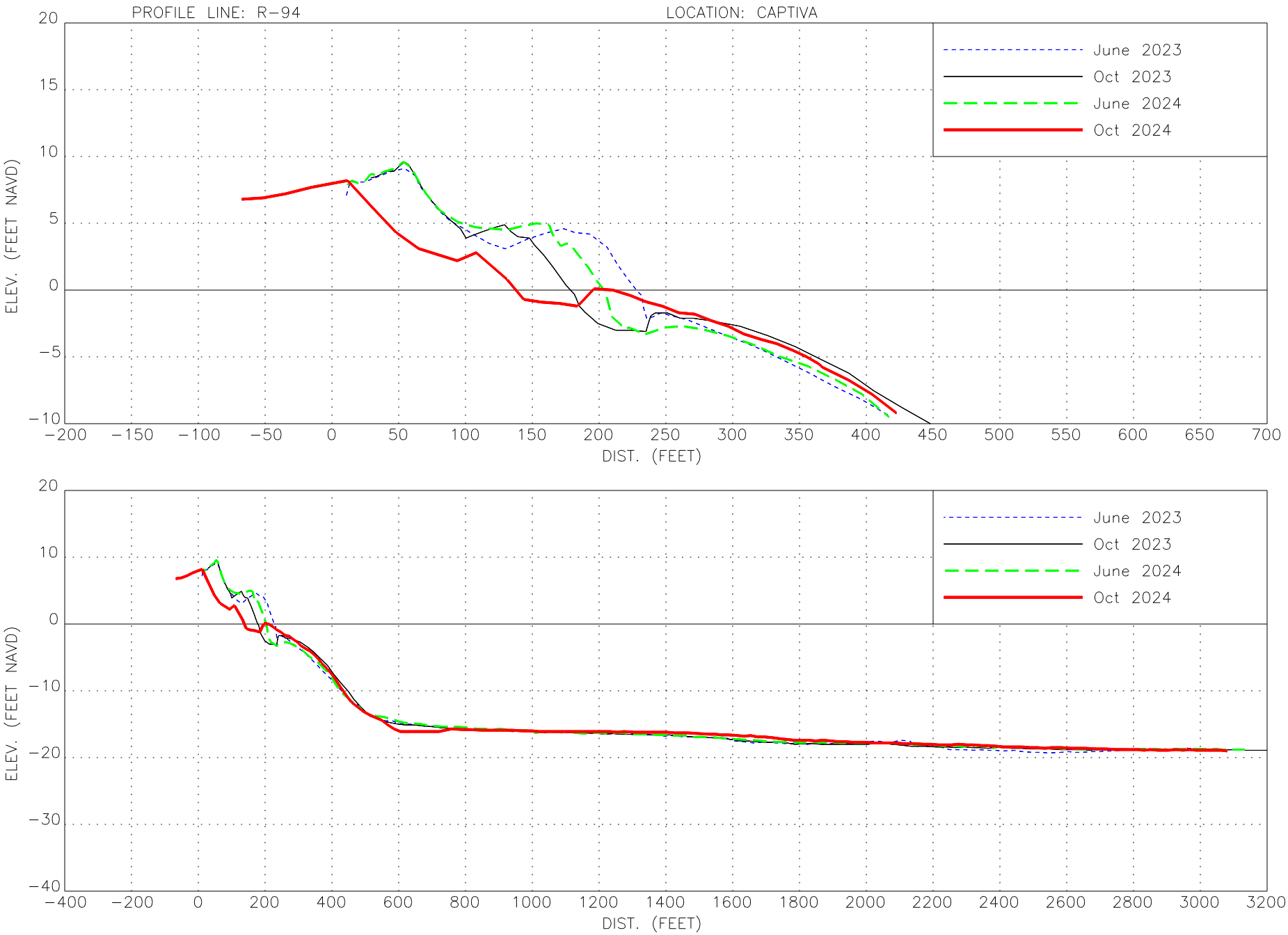
PROFILE LINE: R-94
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
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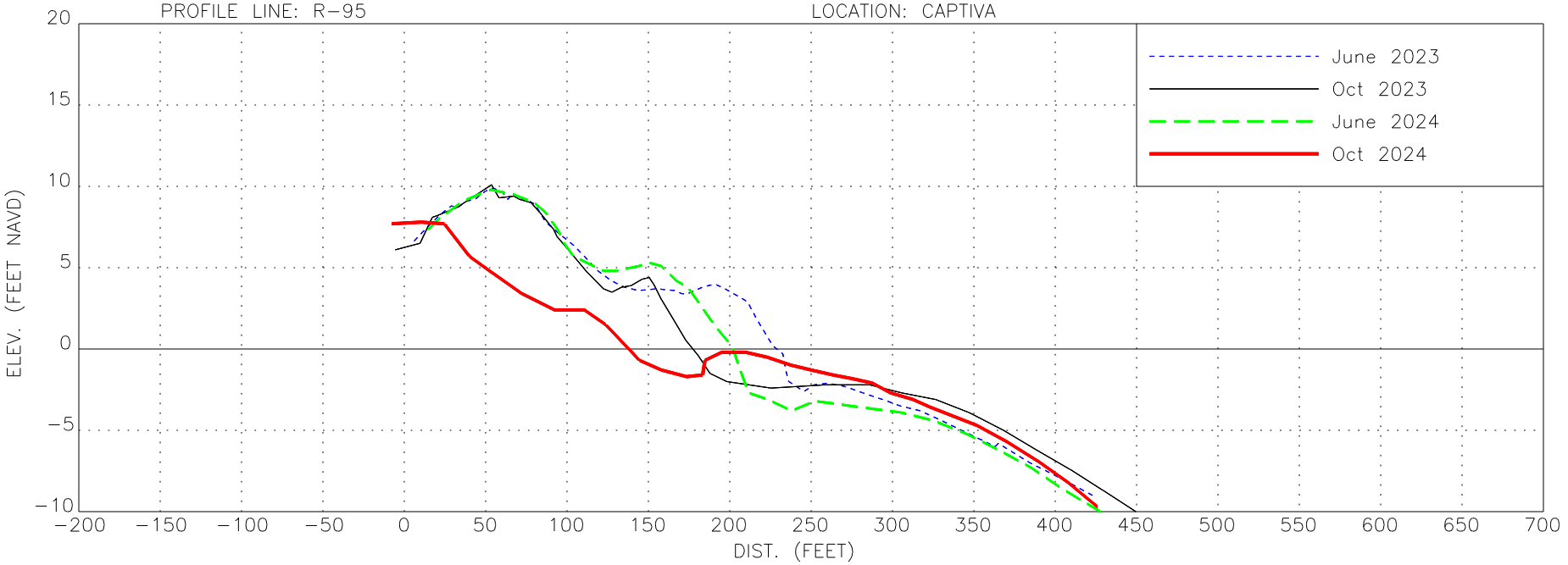
PROFILE LINE: R-95
LOCATION: CAPTIVA
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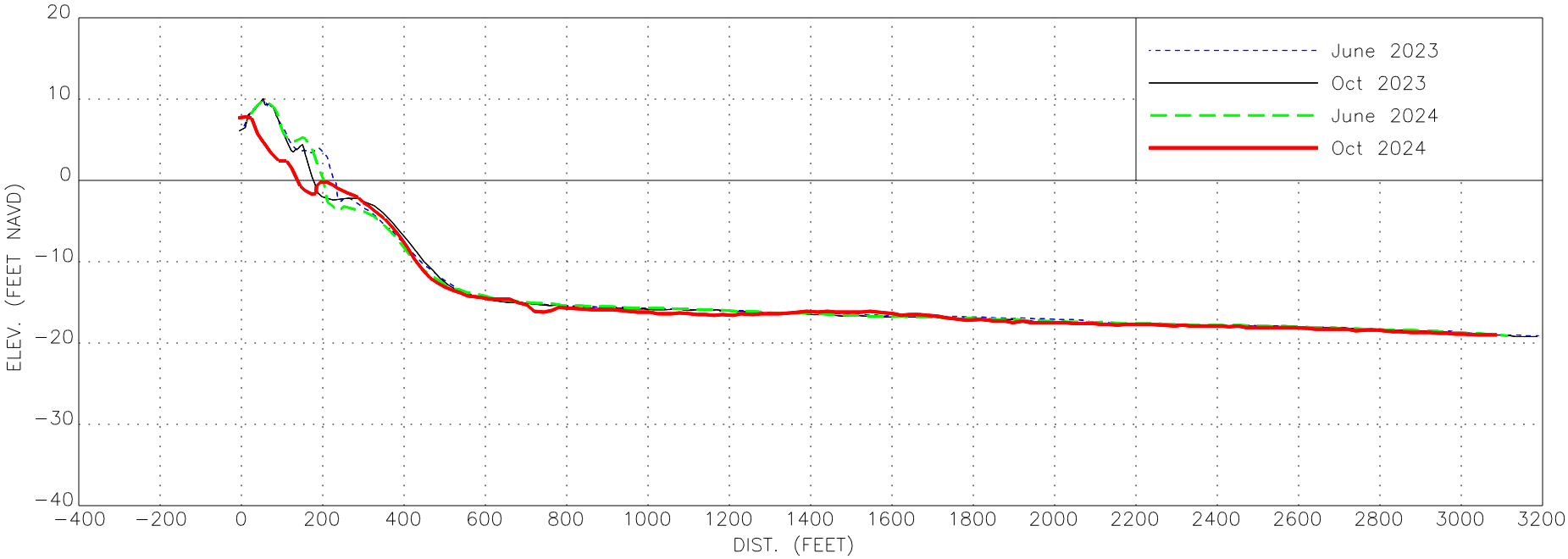
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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ELEV. (FEET NAVD)
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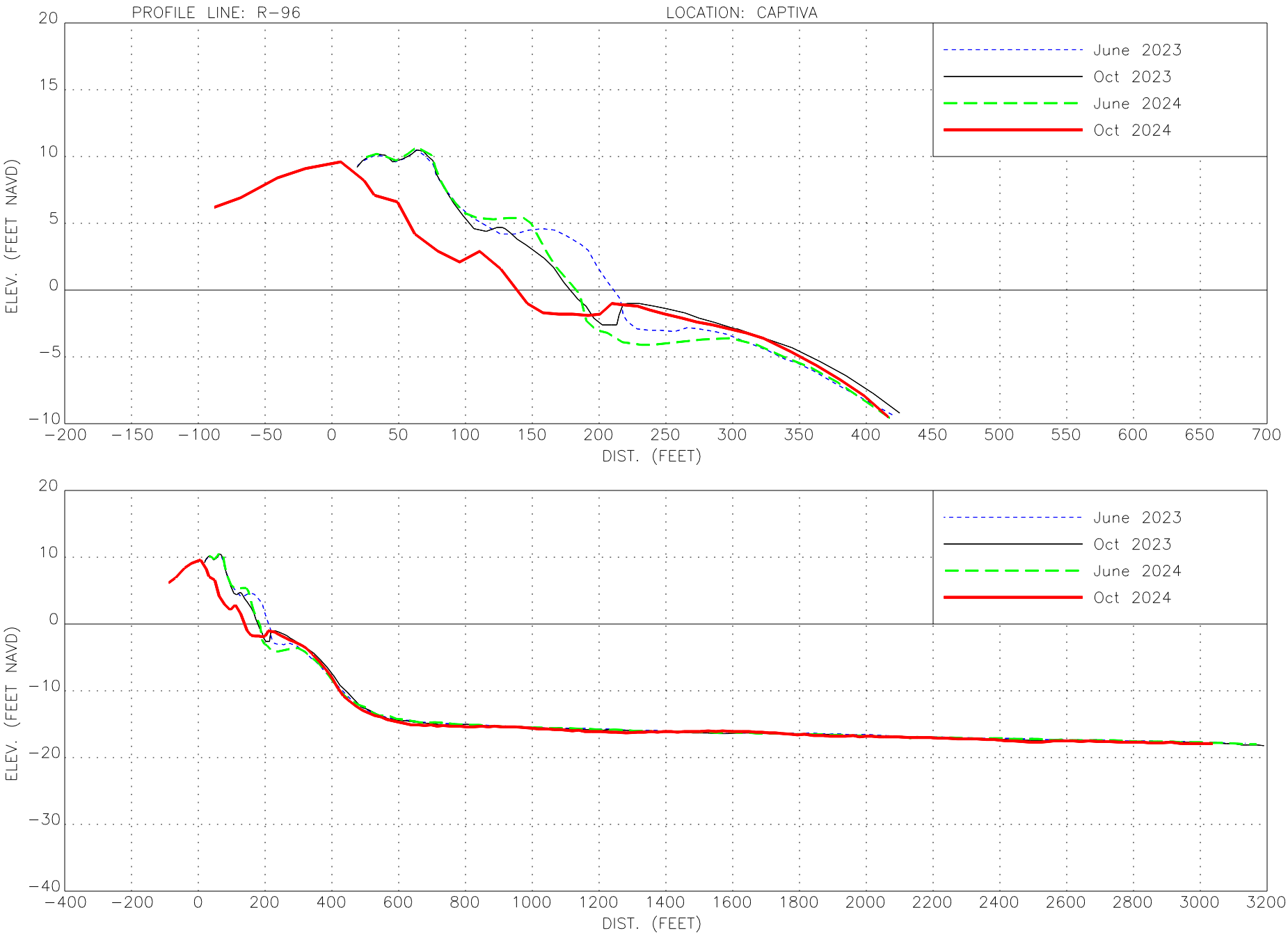
PROFILE LINE: R-96
LOCATION: CAPTIVA
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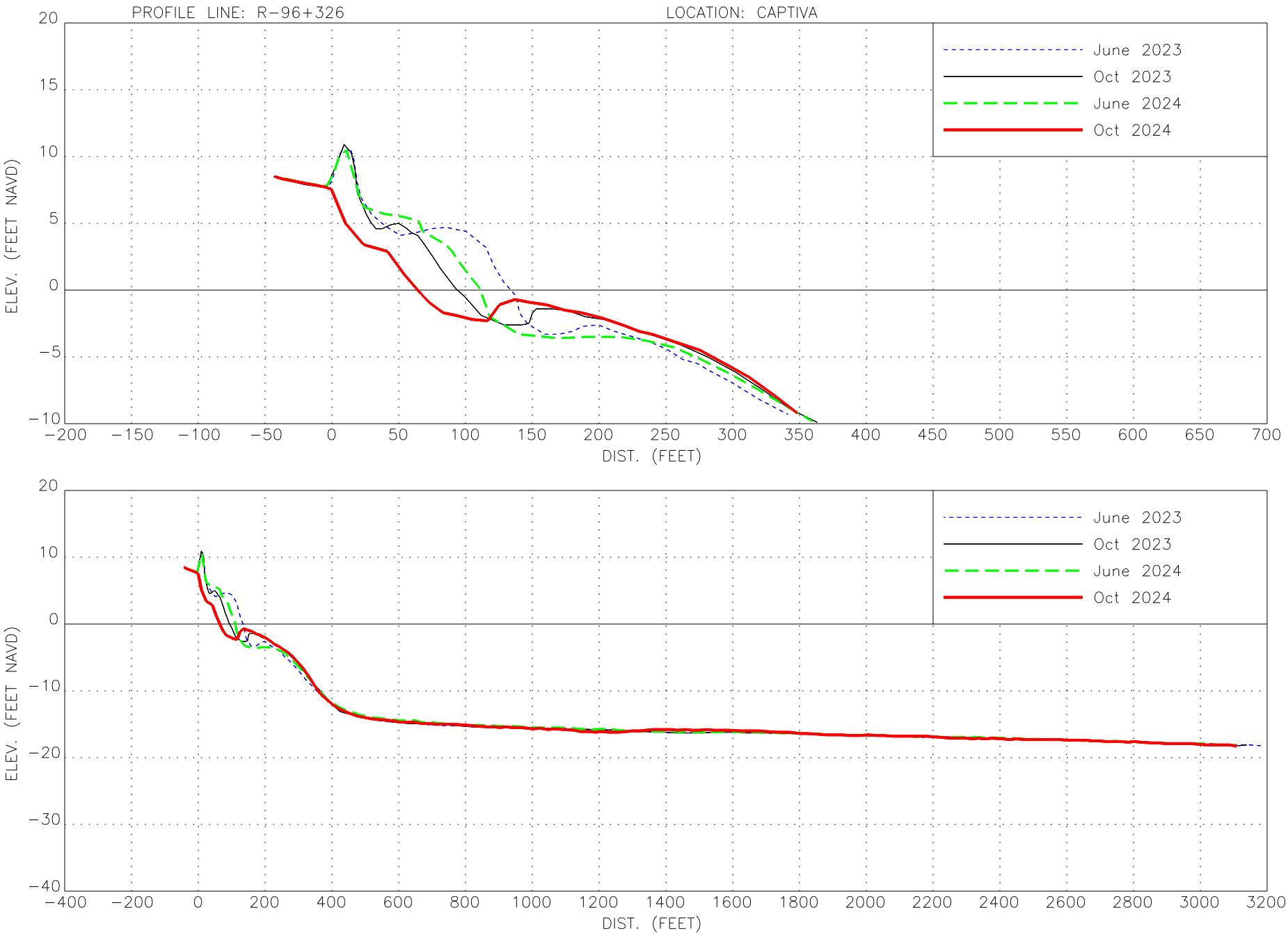
PROFILE LINE: R-96+326
LOCATION: CAPTIVA
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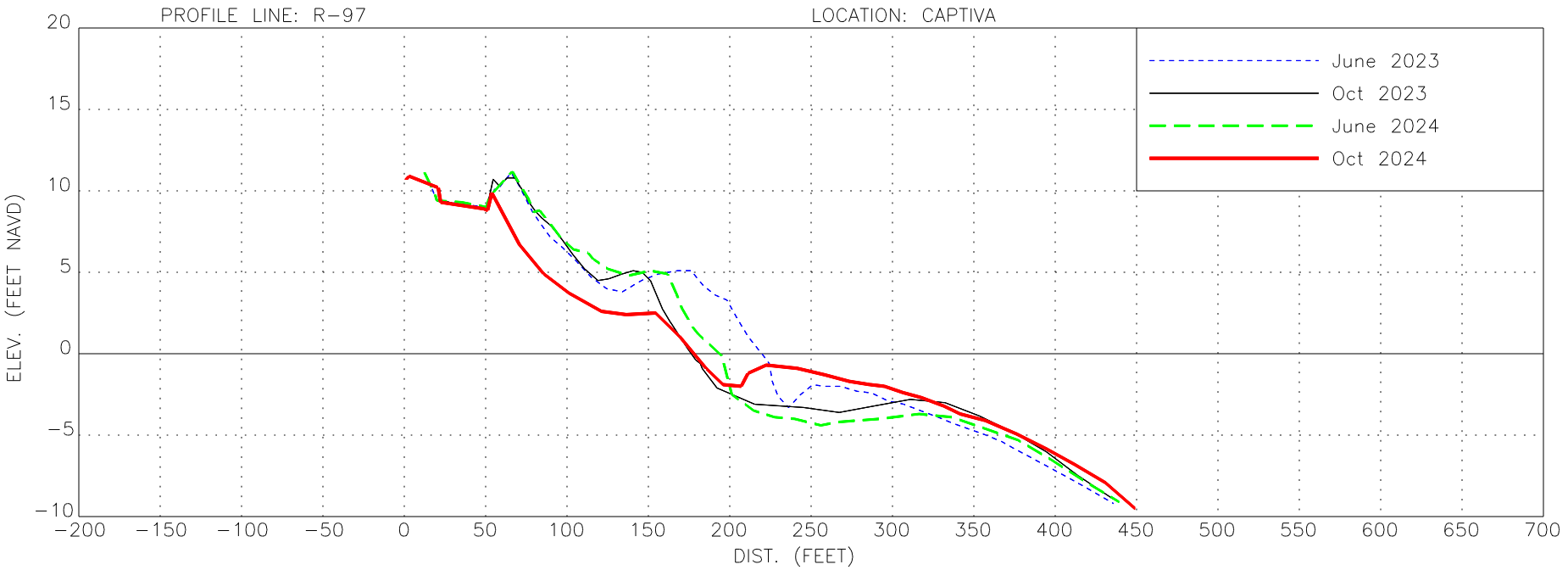
PROFILE LINE: R-97
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
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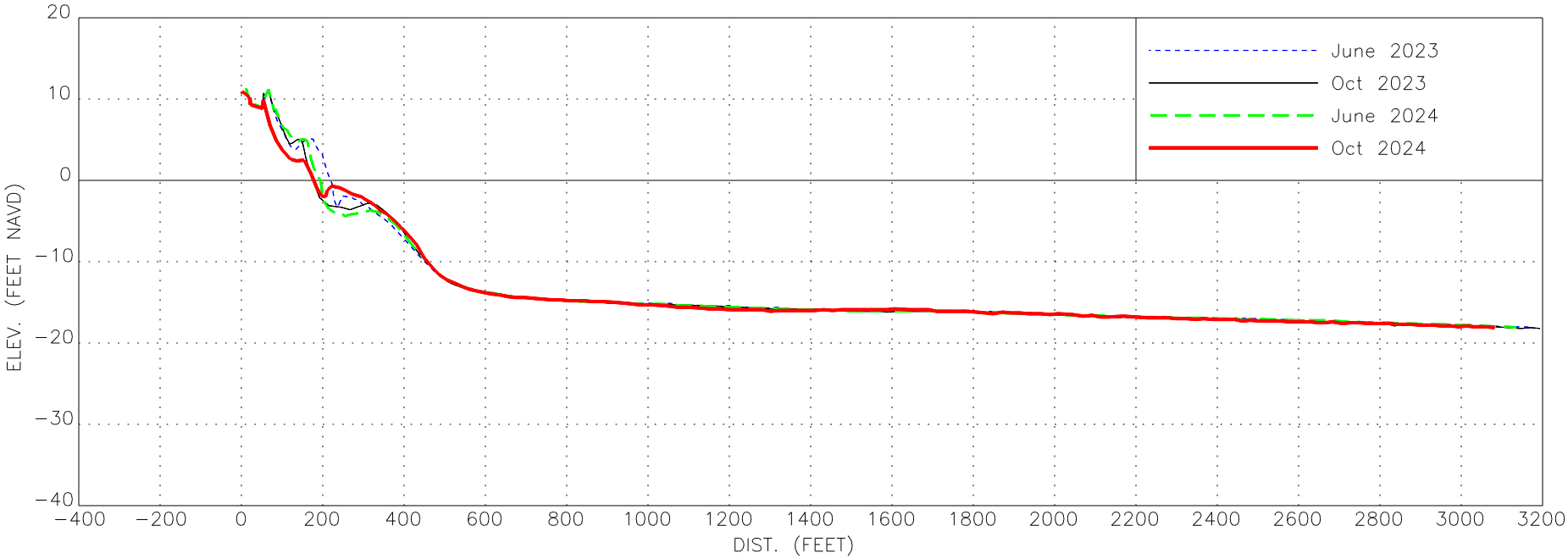
June 2023
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ELEV. (FEET NAVD)
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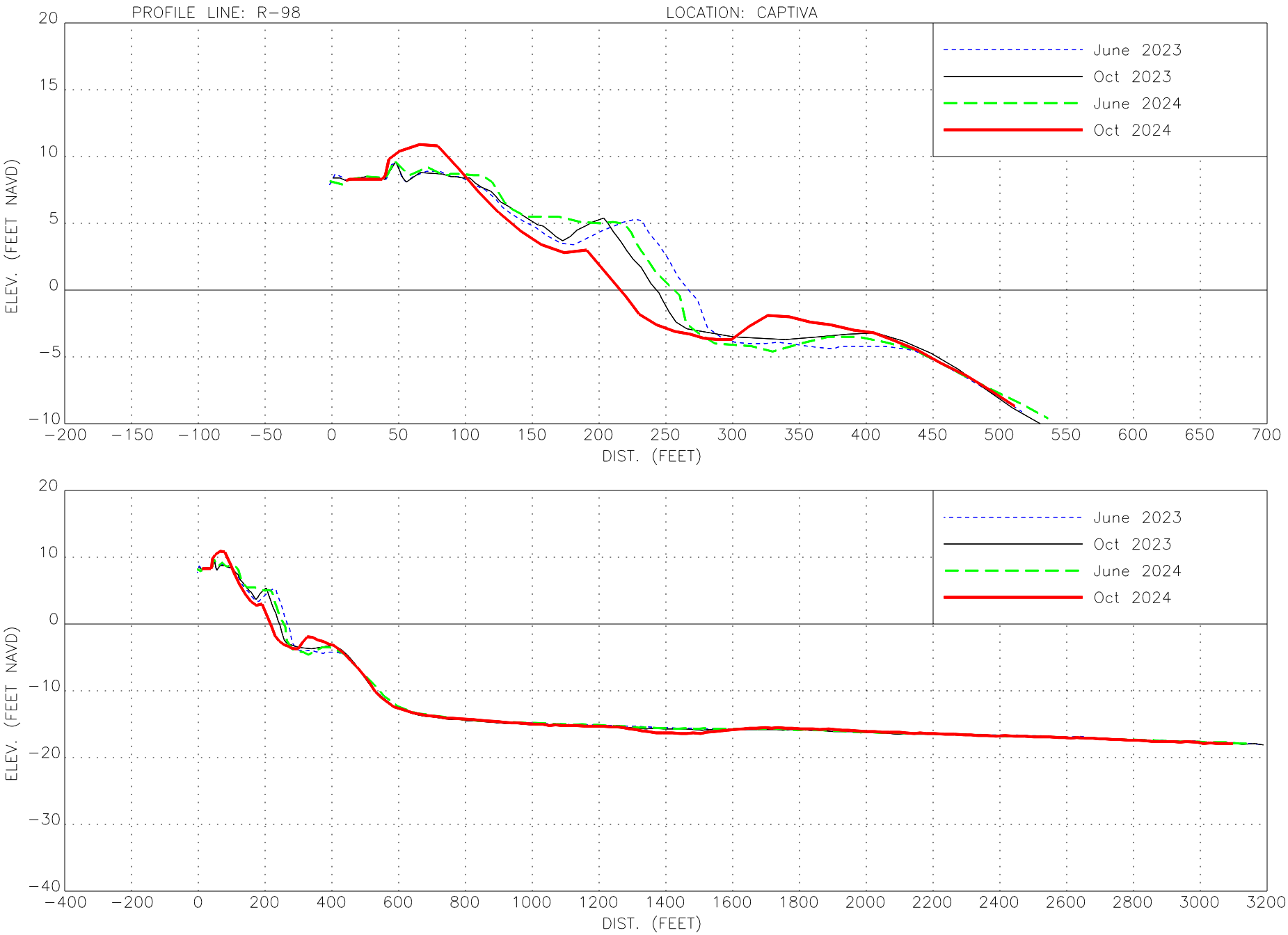
PROFILE LINE: R-98
LOCATION: CAPTIVA
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June 2023
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ELEV. (FEET NAVD)
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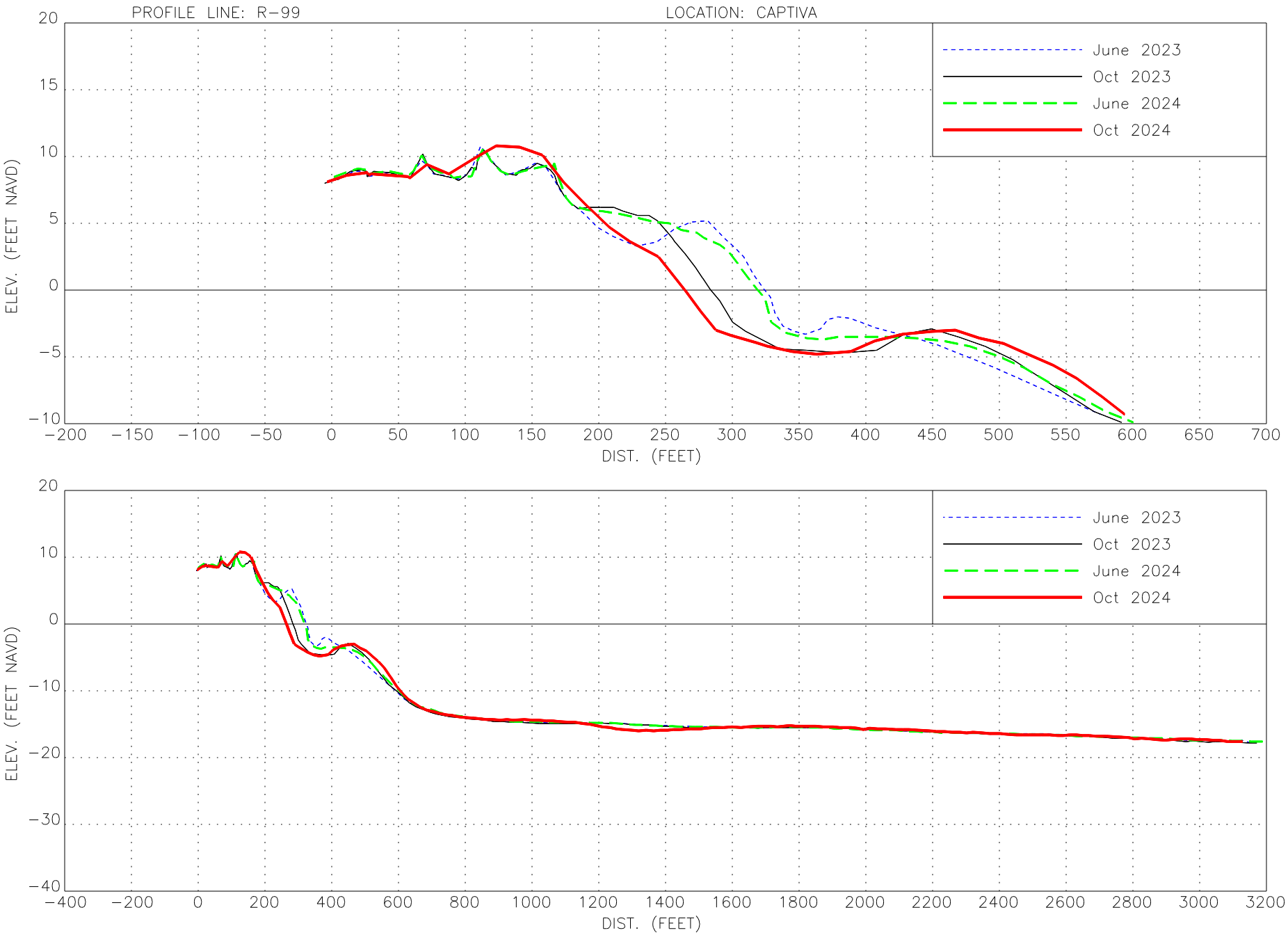
PROFILE LINE: R-99
LOCATION: CAPTIVA
June 2023
Oct 2023
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)
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June 2023
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Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)
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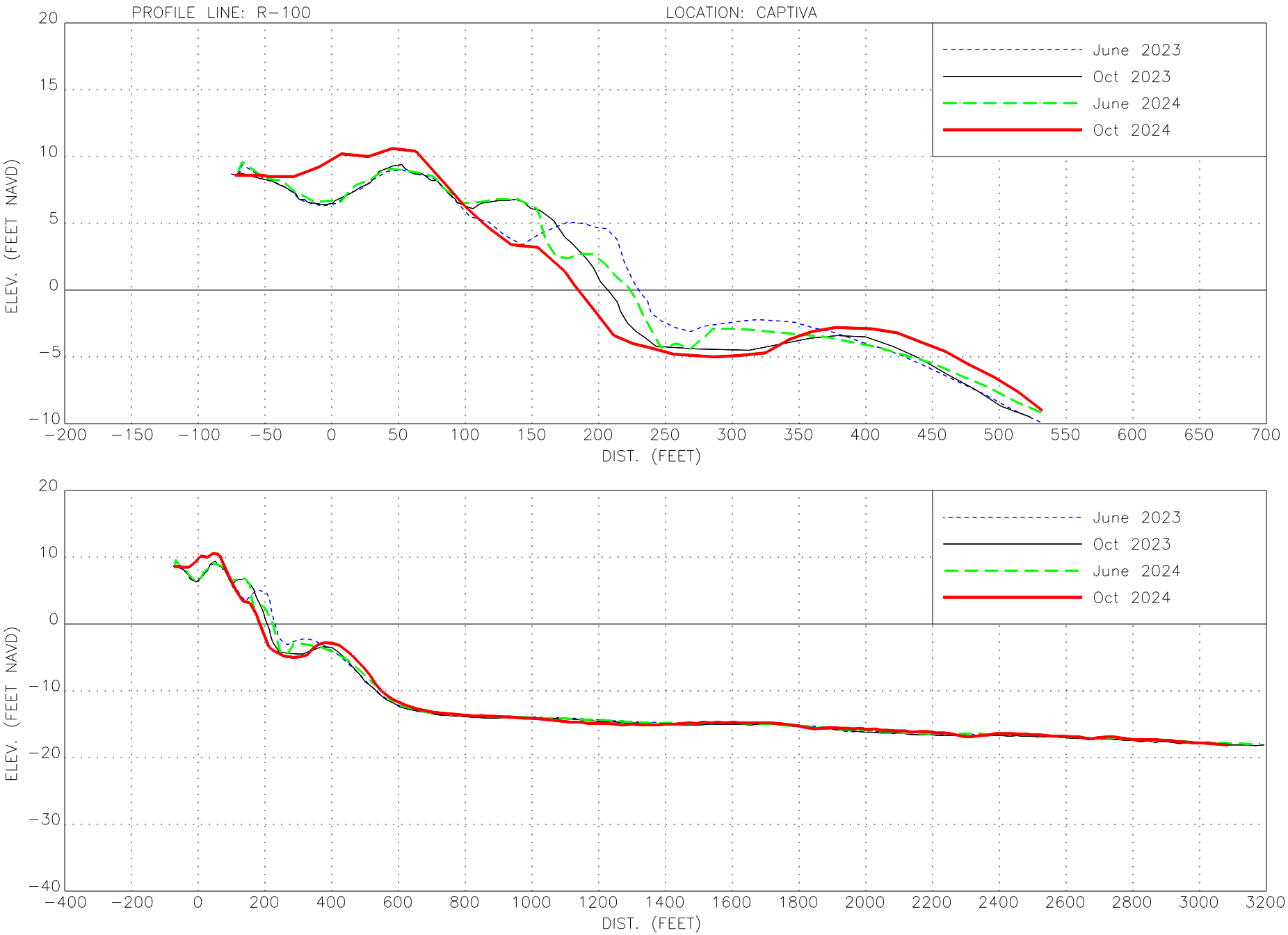
PROFILE LINE: R-100
LOCATION: CAPTIVA
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June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)
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June 2023
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ELEV. (FEET NAVD)
DIST. (FEET)
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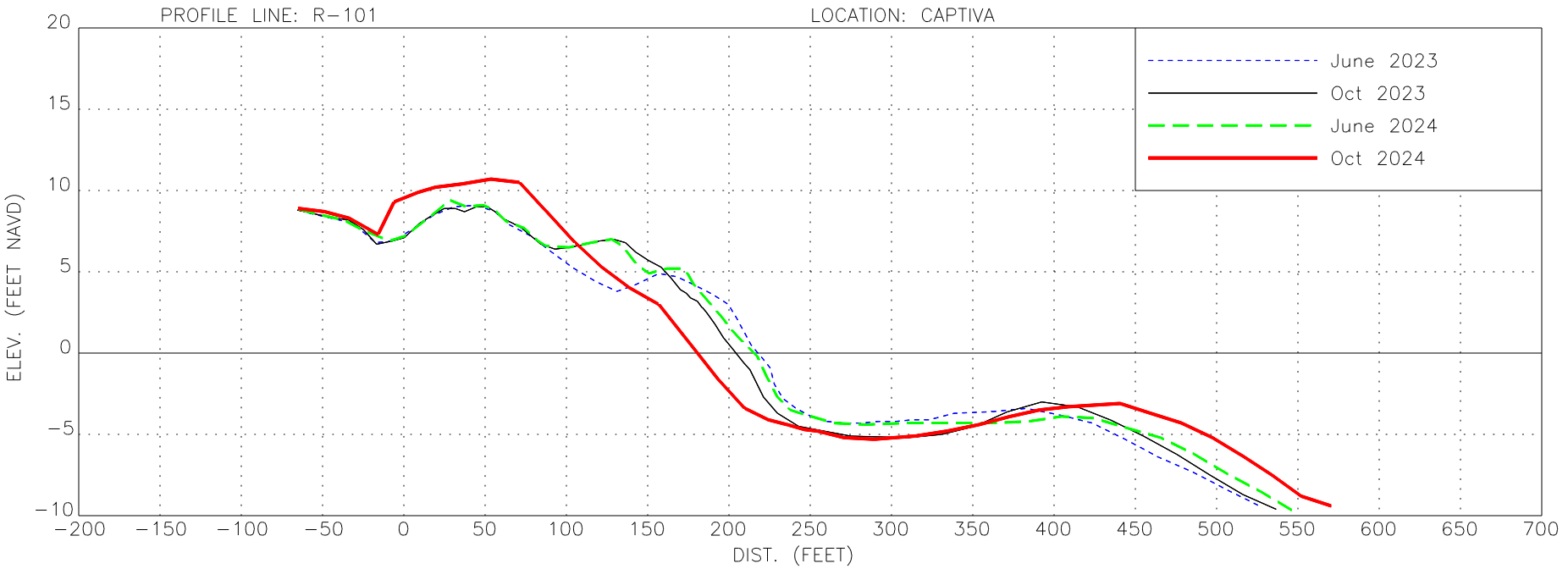
PROFILE LINE: R-101
LOCATION: CAPTIVA
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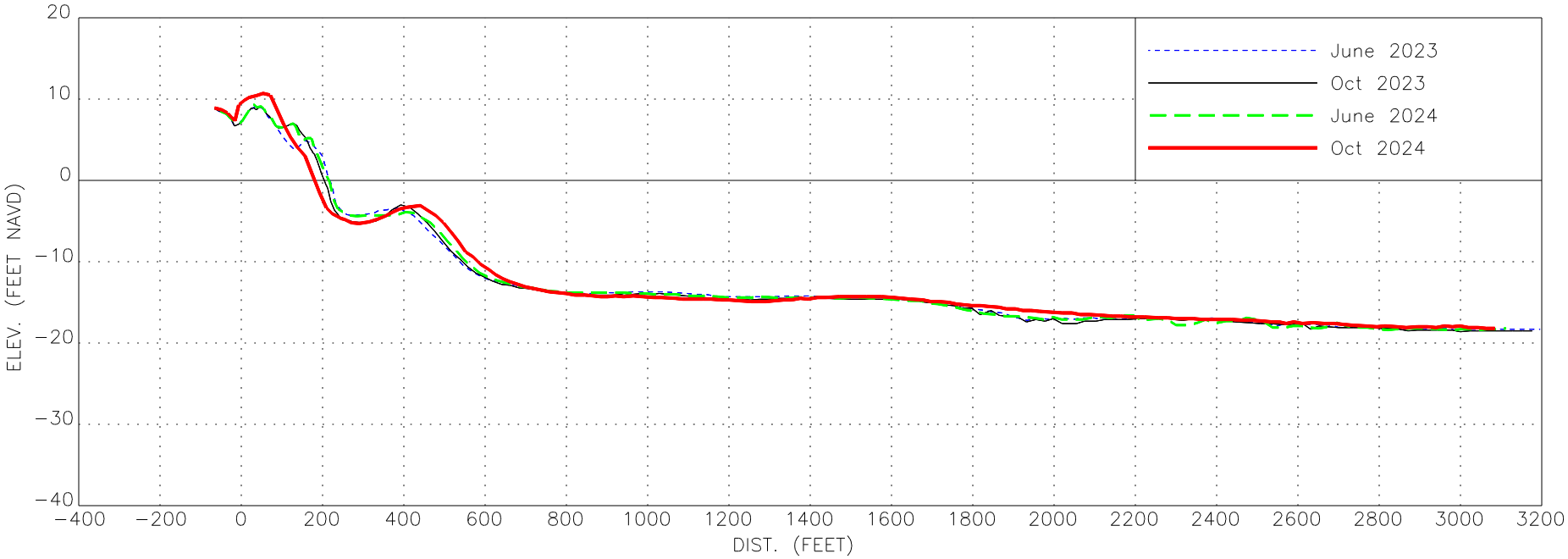
June 2024
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)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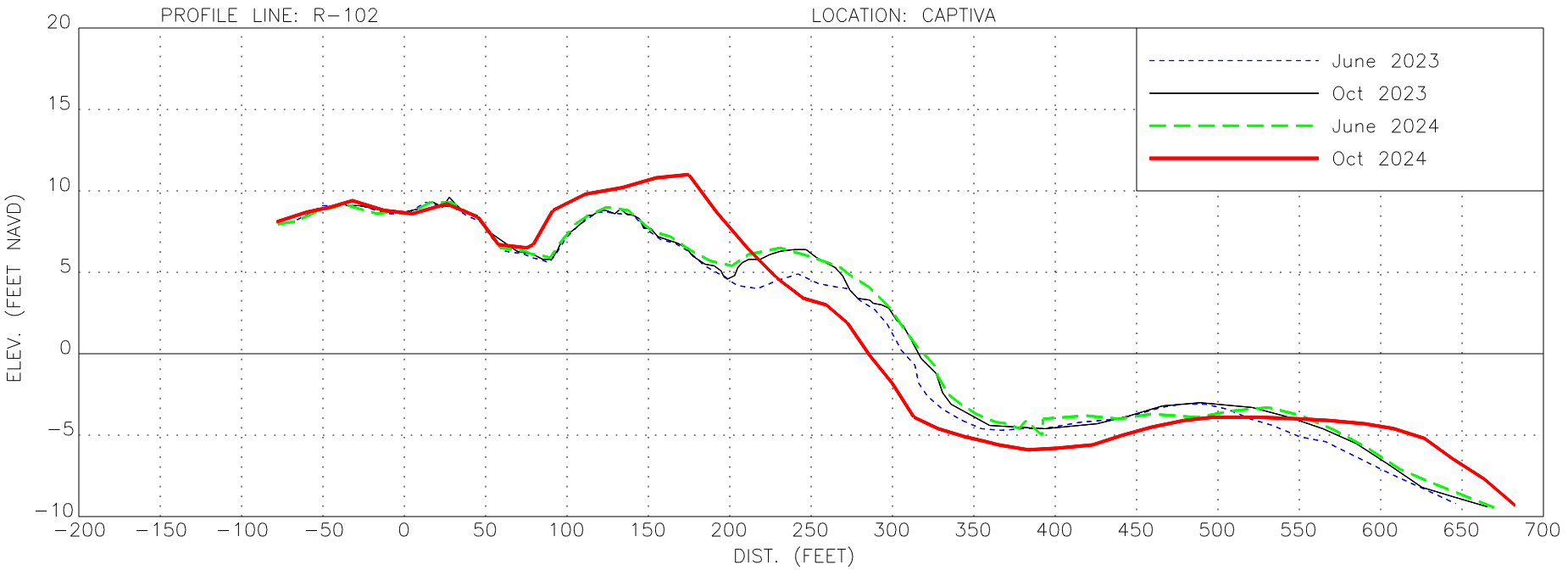
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-102
LOCATION: CAPTIVA
June 2023
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Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)
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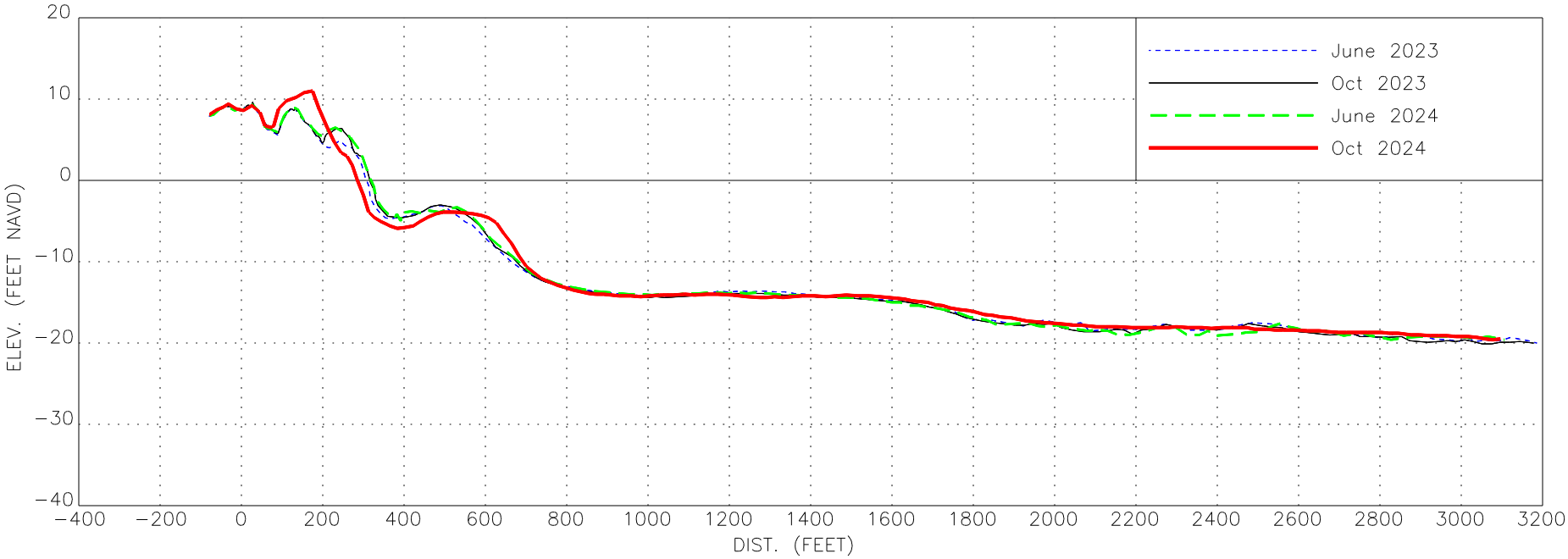
June 2023
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ELEV. (FEET NAVD)
DIST. (FEET)
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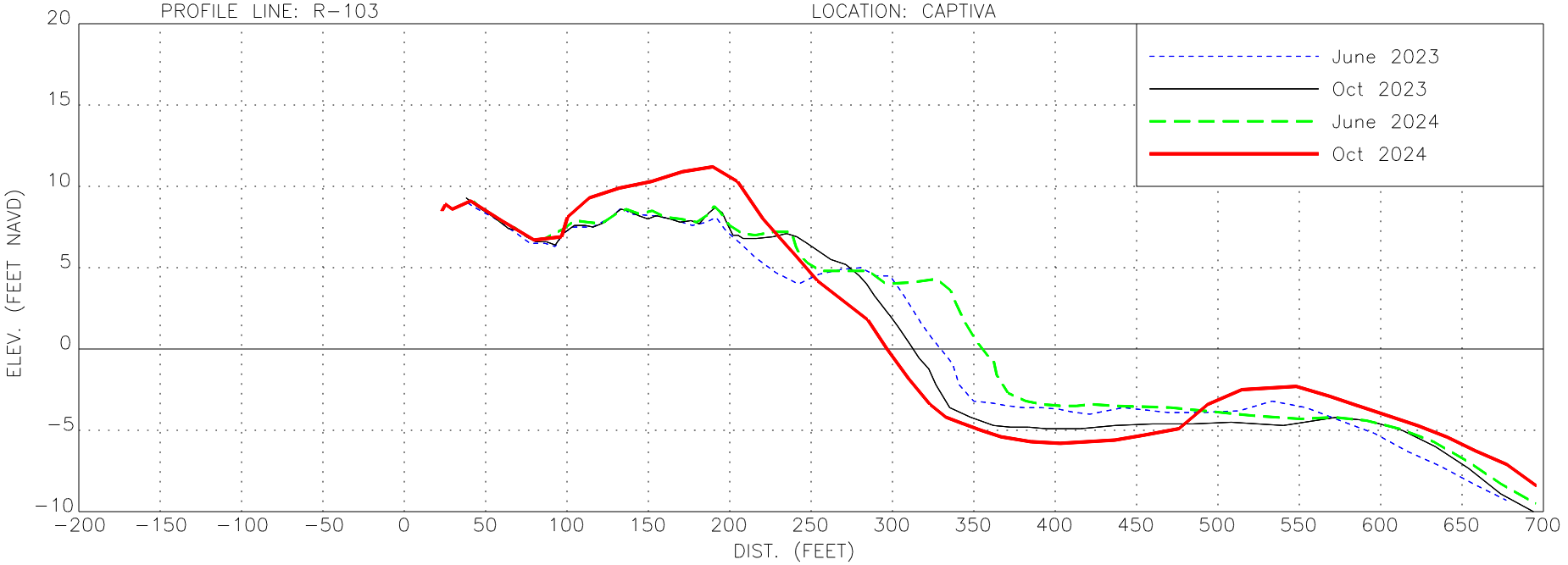
PROFILE LINE: R-103
LOCATION: CAPTIVA
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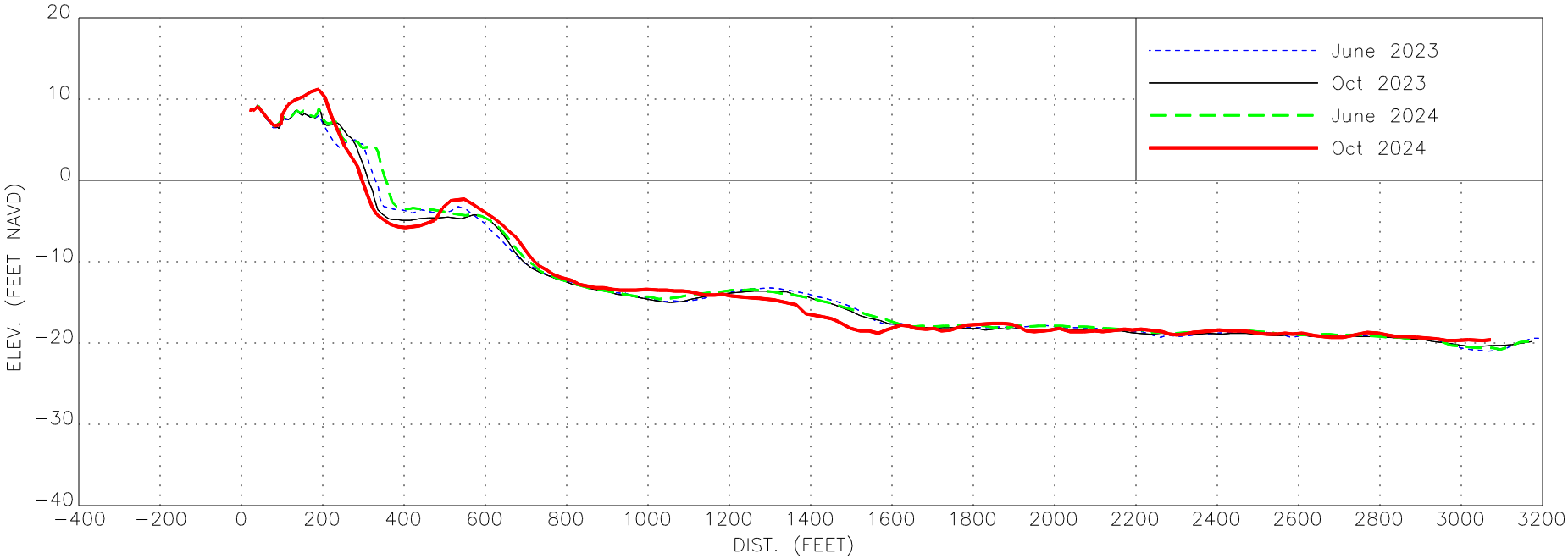
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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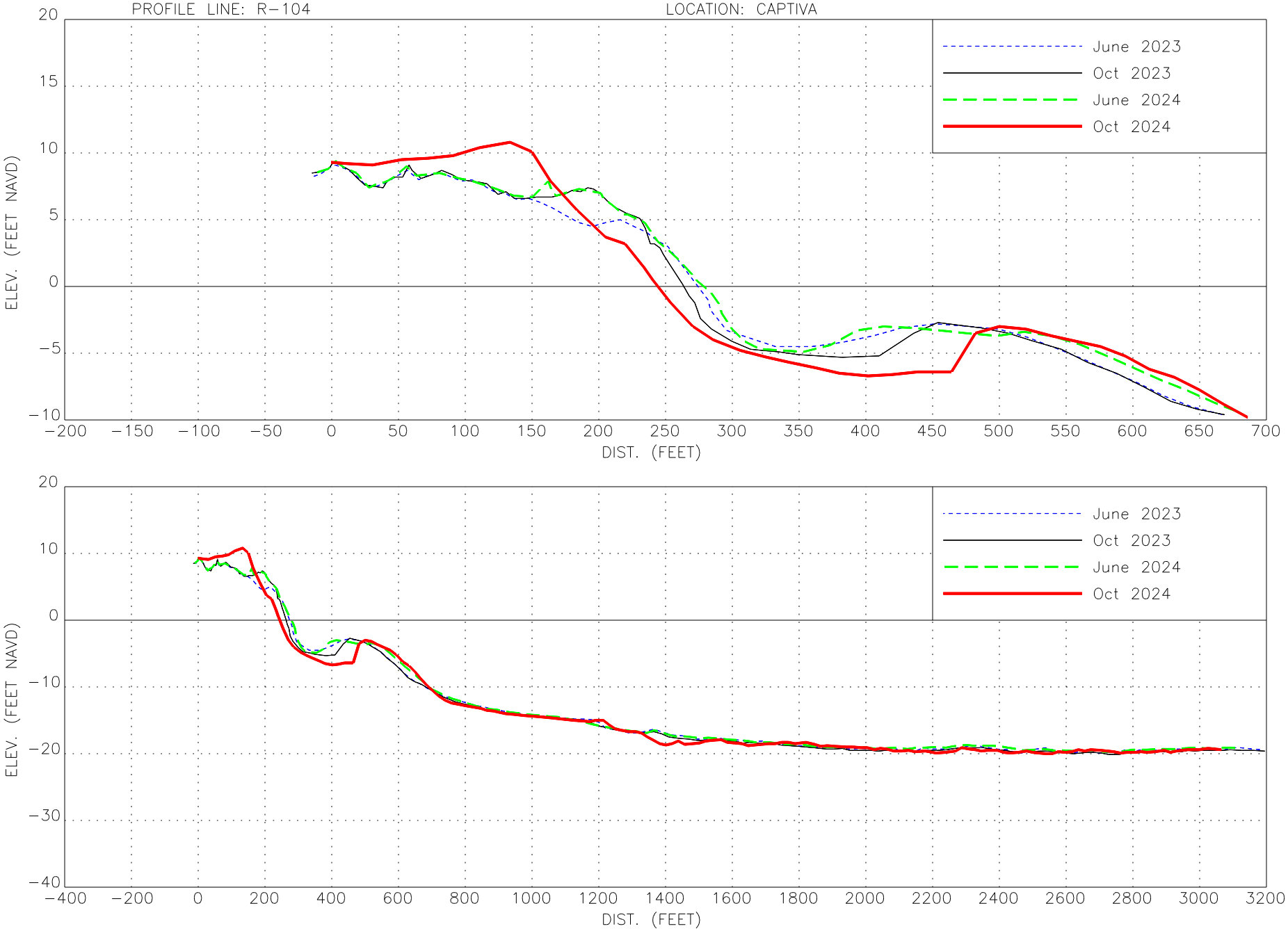
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


PROFILE LINE: R-104
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
DIST. (FEET)
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June 2023
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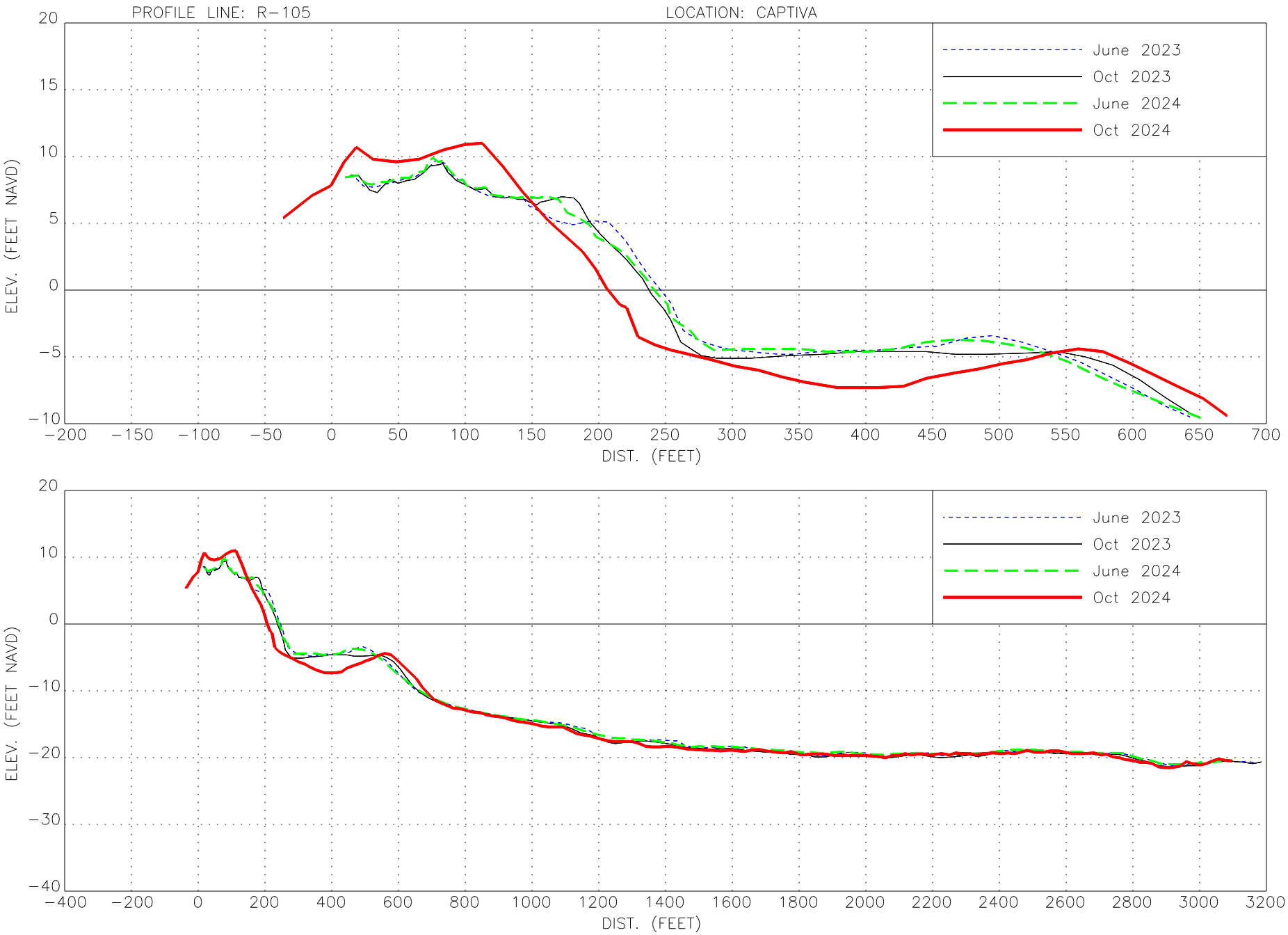
PROFILE LINE: R-105
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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June 2023
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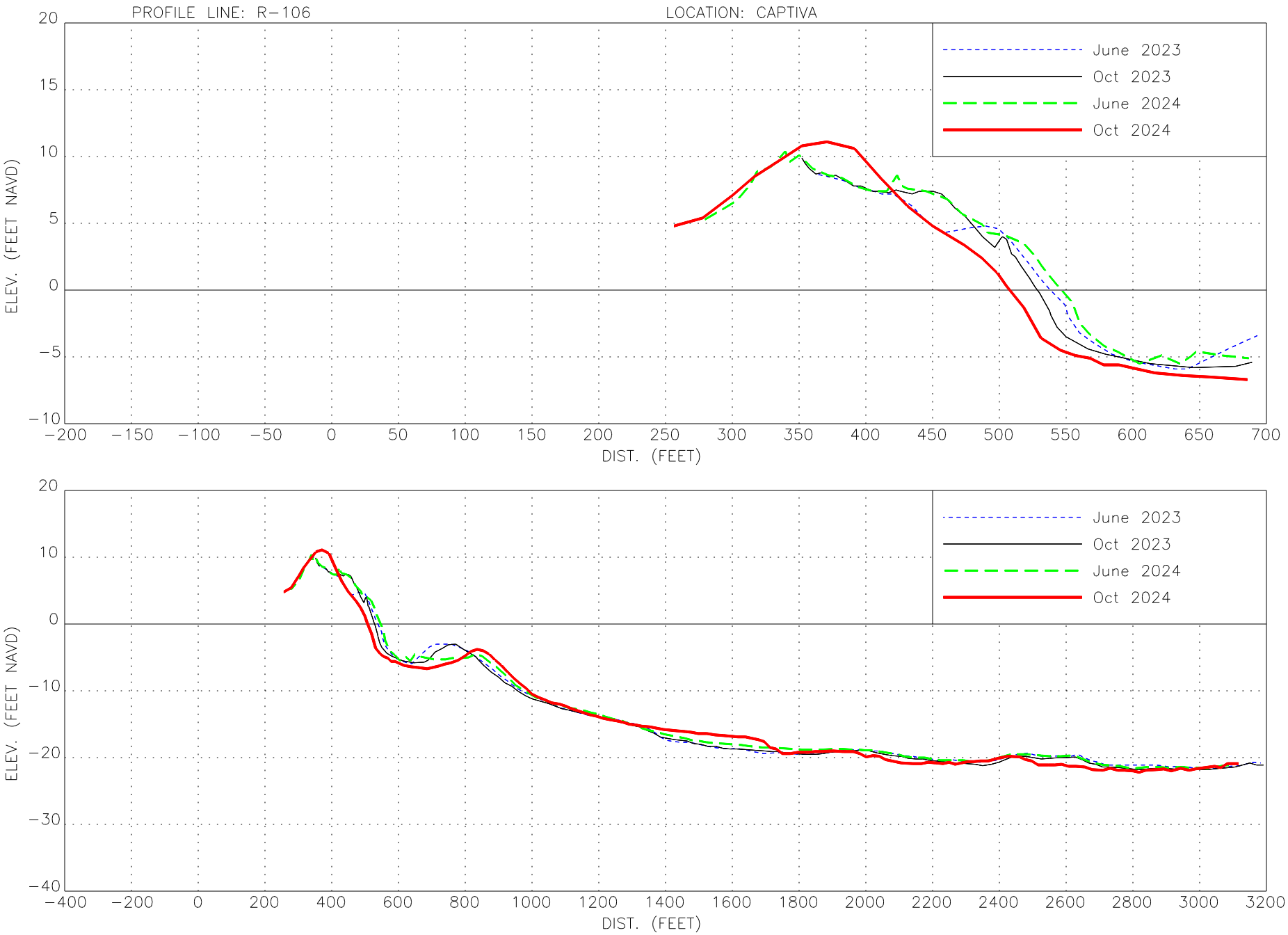
PROFILE LINE: R-106
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
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June 2023
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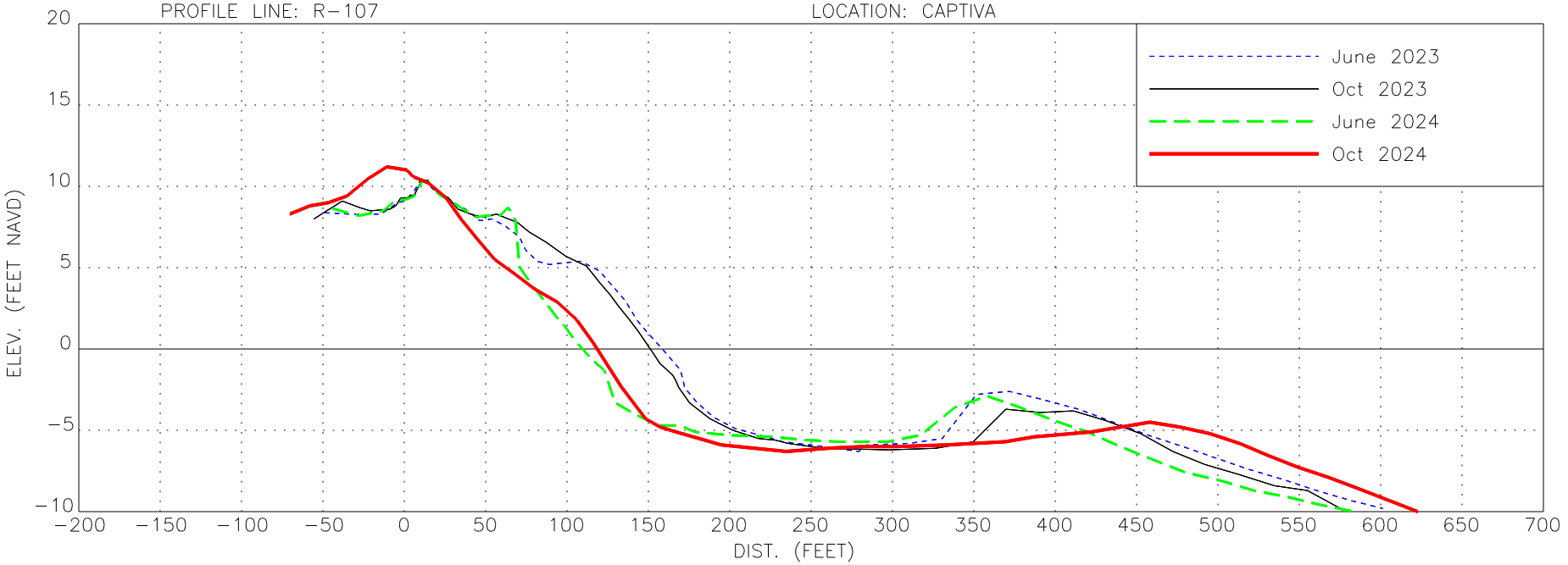
PROFILE LINE: R-107
LOCATION: CAPTIVA
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Oct 2023
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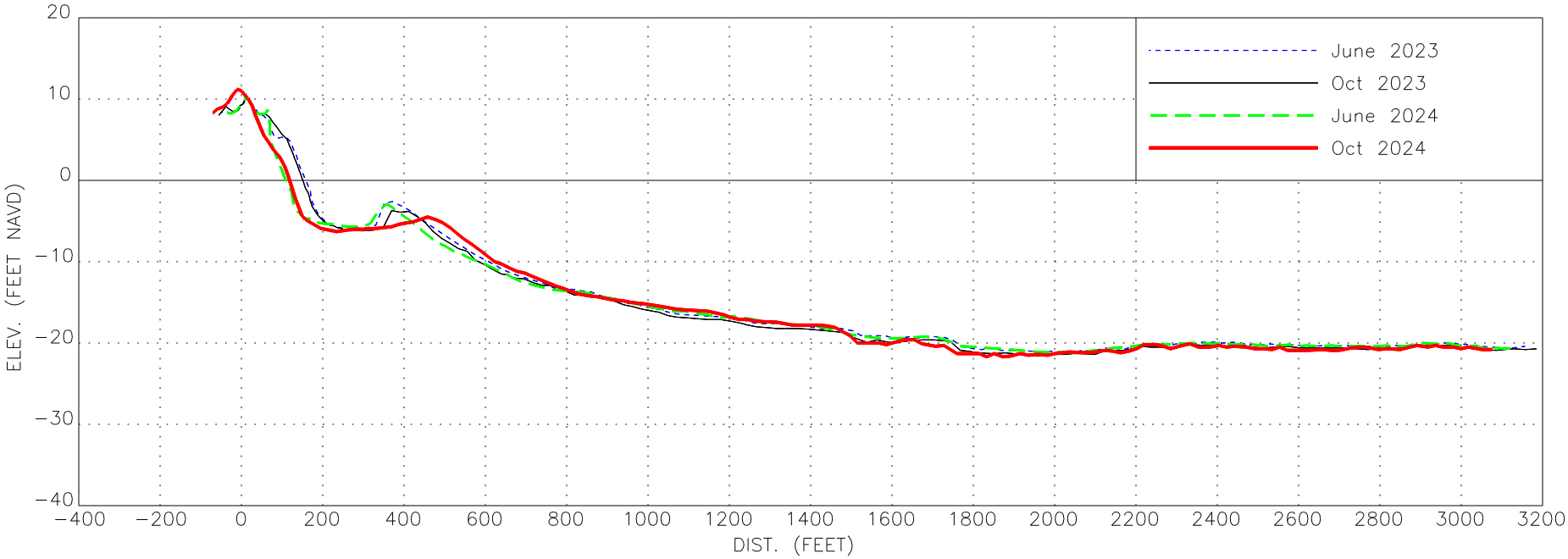
Oct 2024
ELEV. (FEET NAVD)
DIST. (FEET)


June 2023
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ELEV. (FEET NAVD)
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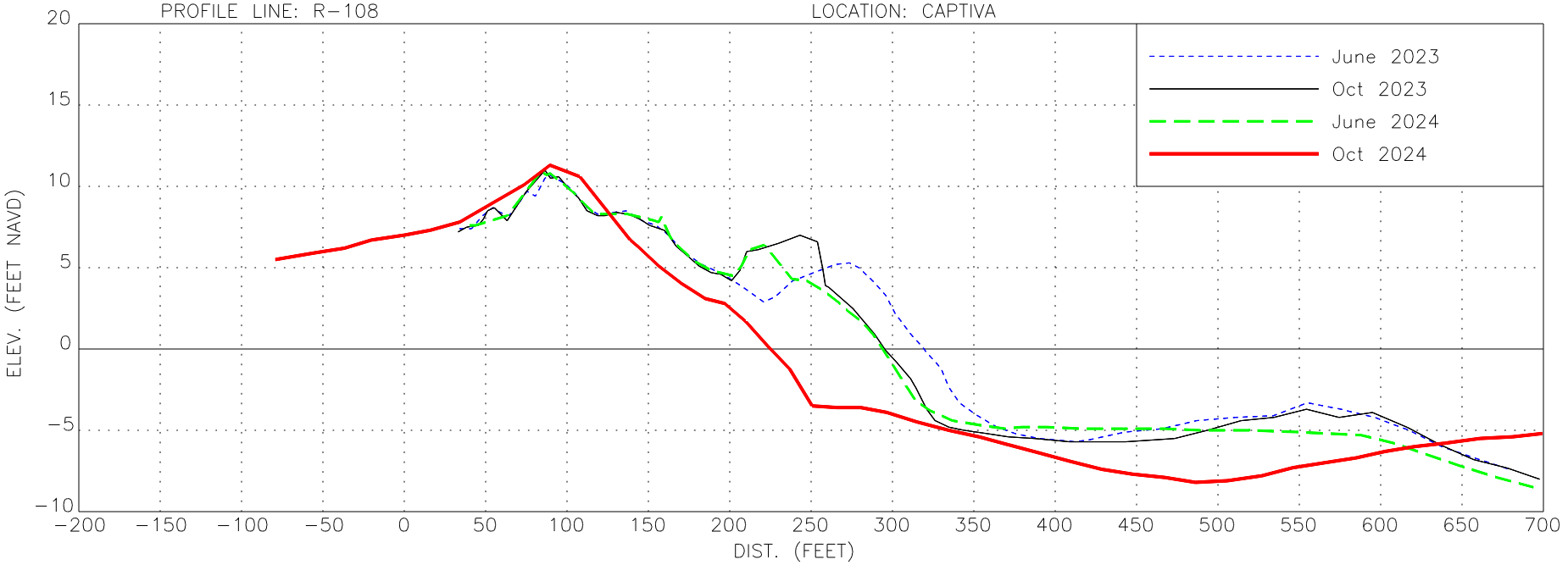
PROFILE LINE: R-108
LOCATION: CAPTIVA
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ELEV. (FEET NAVD)
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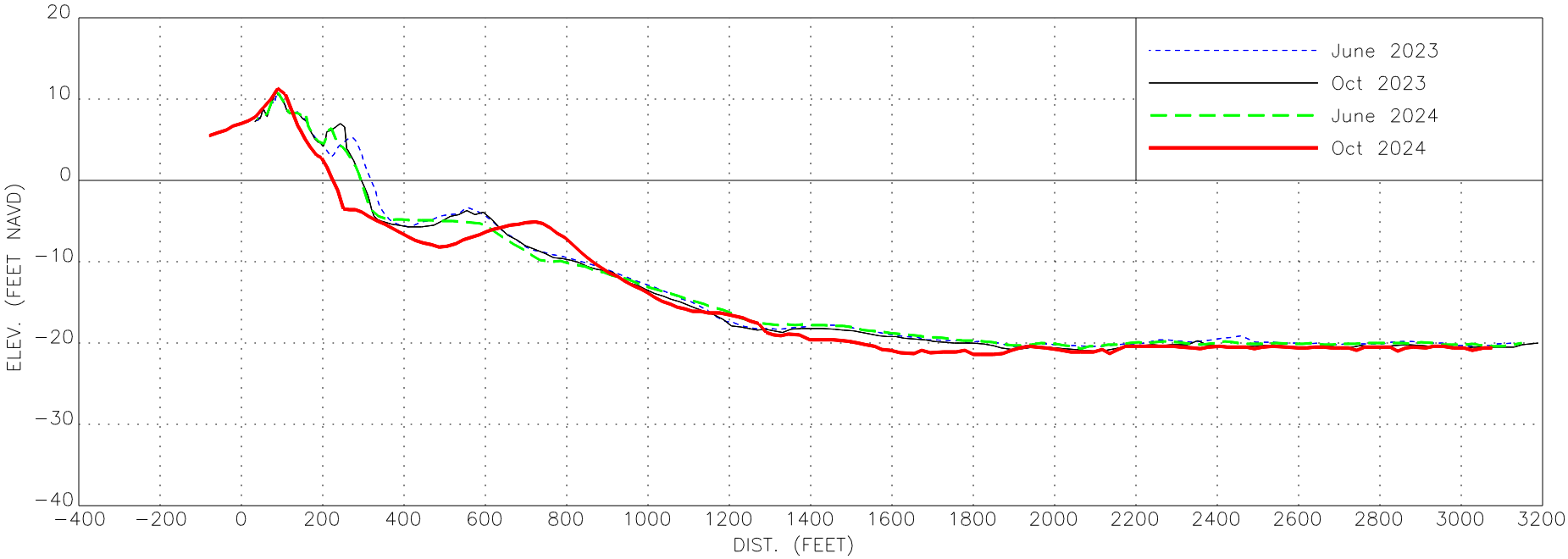
June 2023
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ELEV. (FEET NAVD)
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PROFILE LINE: R-109
LOCATION: CAPTIVA
June 2023
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ELEV. (FEET NAVD)
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