Texas High School Coastal Monitoring Program at Cunningham Middle School at South Park: 2023-2024

January 2025
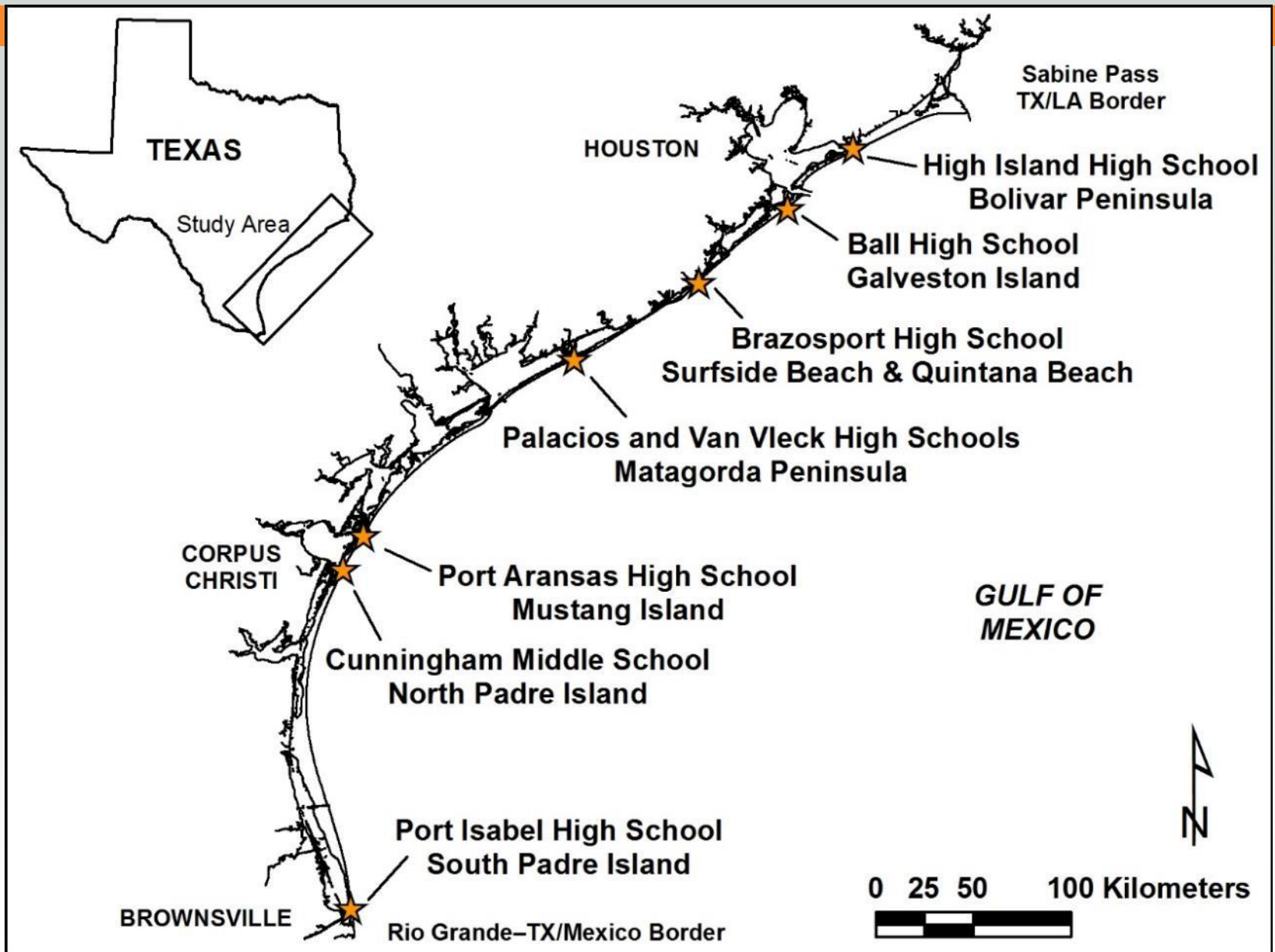
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Texas High School Coastal Monitoring Program

- Provide high school students with a real-world learning experience by monitoring the beach and dune environment.

- Obtain a better understanding of the relationship between coastal processes, beach morphology, and shoreline change

- Increase public awareness and understanding of coastal change, processes, and hazards by making data and findings available for coastal managers and scientists, students and teacher, and the general public.

Map of the Texas Gulf Coast study area showing field trip locations:
- High Island High School — Bolivar Peninsula (Sabine Pass TX/LA Border)
- Ball High School — Galveston Island
- Brazosport High School — Surfside Beach & Quintana Beach
- Palacios and Van Vleck High Schools — Matagorda Peninsula
- Port Aransas High School — Mustang Island
- Cunningham Middle School — North Padre Island
- Port Isabel High School — South Padre Island (Rio Grande–TX/Mexico Border)

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2023-2024: 23 field trips with ~230 students

1997-2024 421 field trips

Student Collected Data

- Topographic transect oriented perpendicular to the shoreline
  - measured from the same starting point landward of the foredune and oriented in the same direction.

- Estimates of processes acting on the beach
  - wind direction and speed; wave direction, height, and period; and longshore current direction and speed

- GPS survey of the vegetation line and shoreline
  - quantitative data on the position of the shoreline and vegetation line

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2023-2024 field trips

October 3, 2023

February 8, 2024

April 12, 2024

October 9, 2024

Northern Padre Island Study Sites
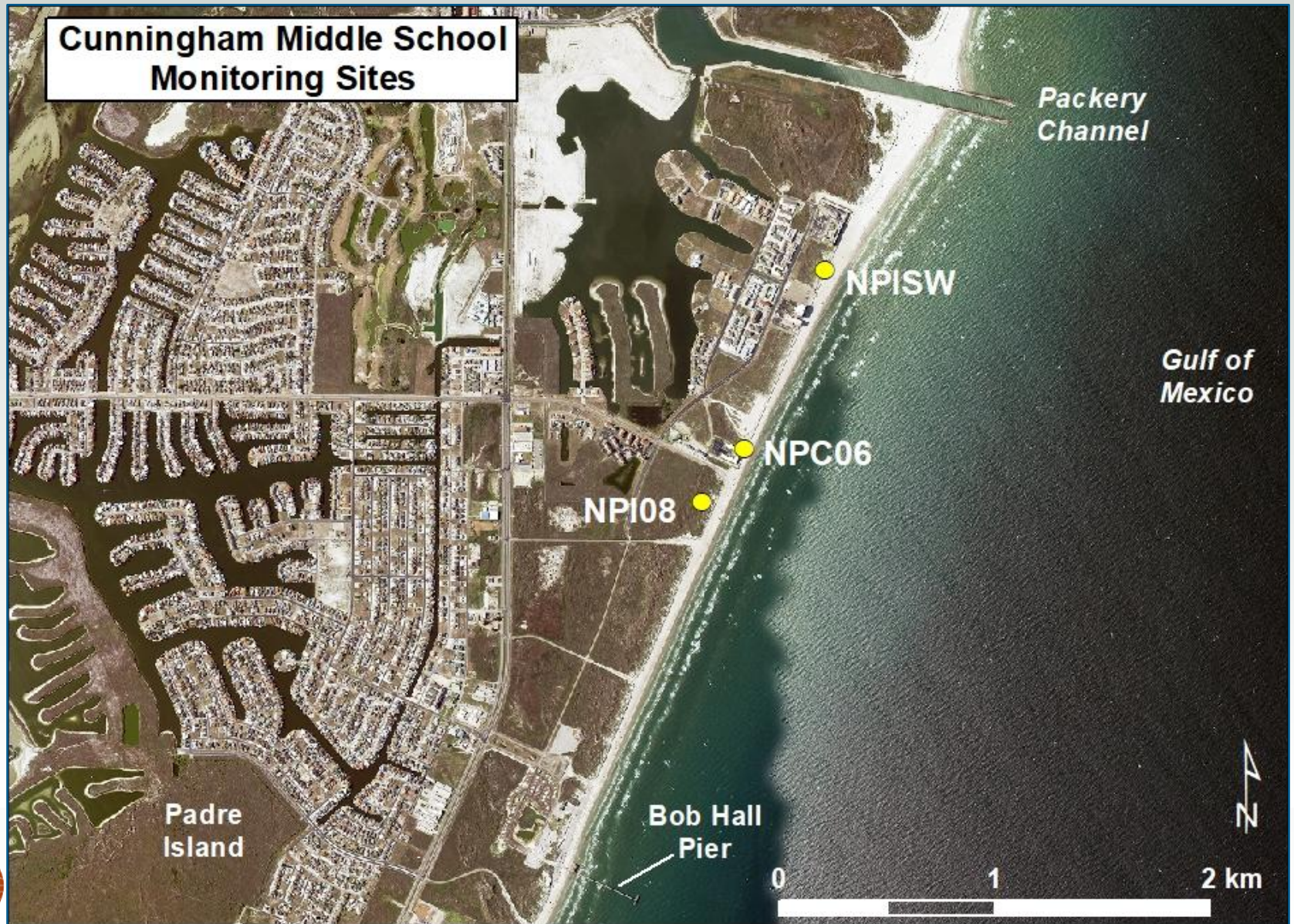
January 27, 2021

NPI08

October 9, 2024

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NPI08: fall 2018-winter 2020
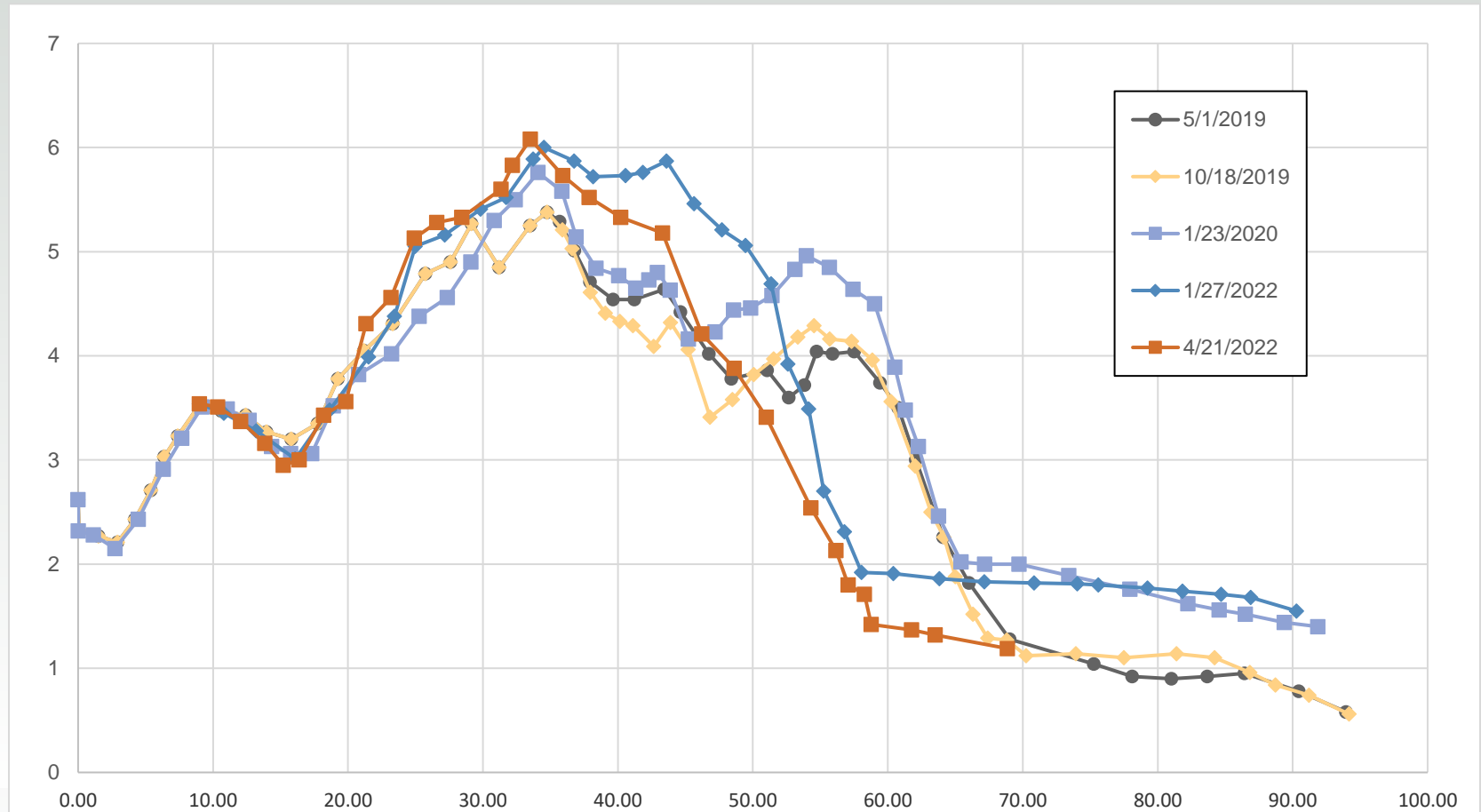
NPI08 shore and vegetation line positions

NPI08: shoreline, vegetation line, and volume changes

NPI08 (North Padre Island)
Volume, Shoreline, and Vegetation Line Change
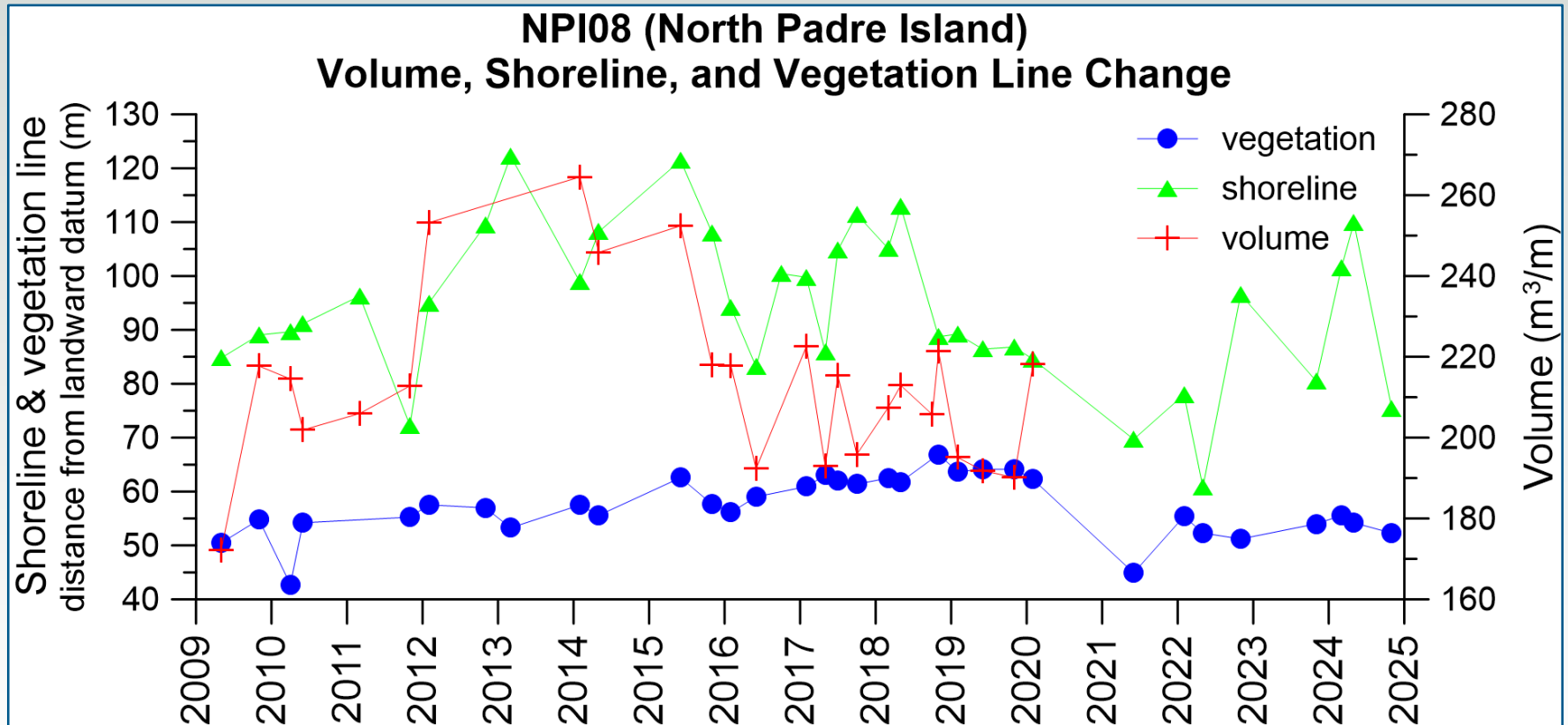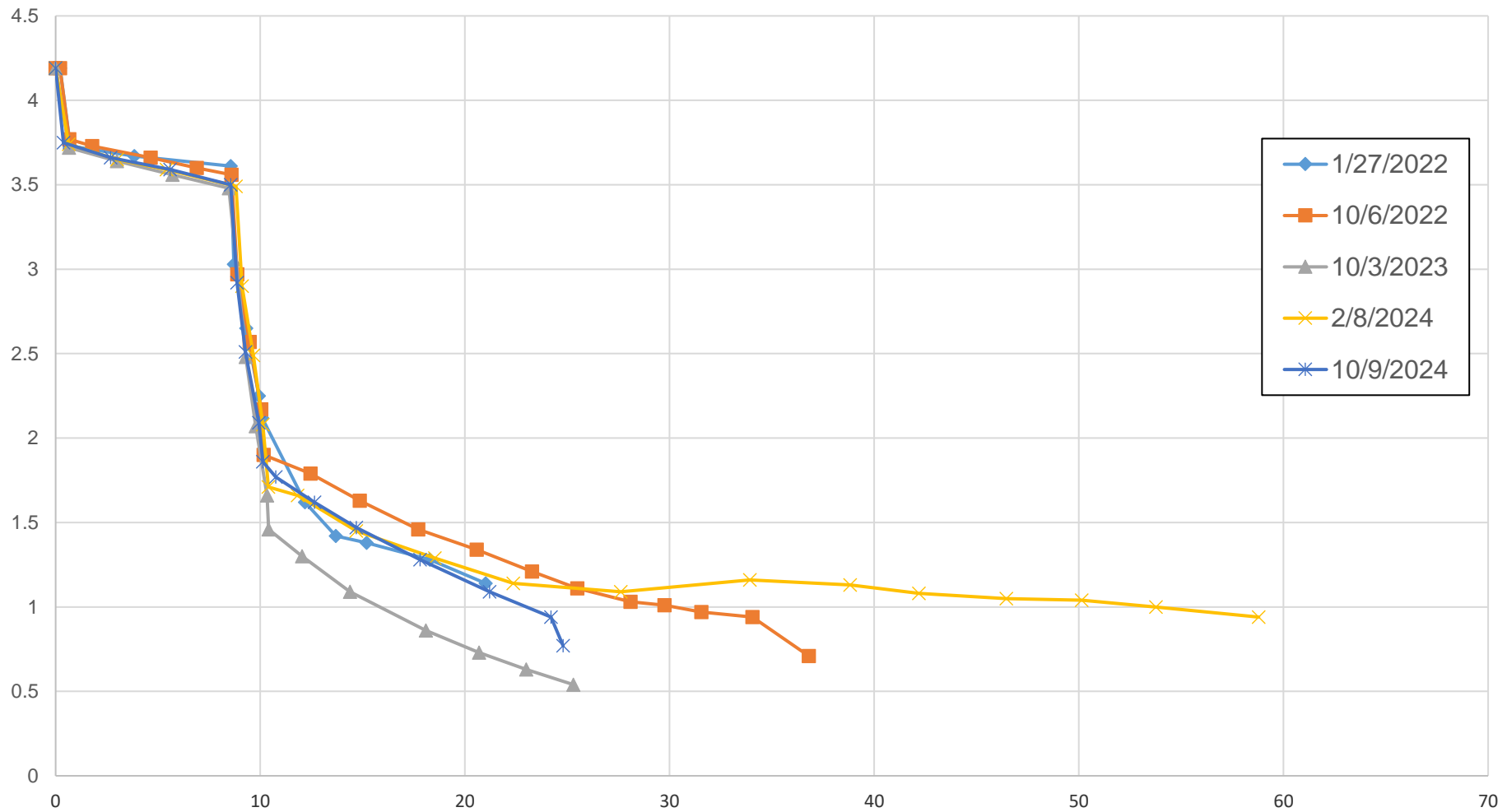
Sediment volume was calculated above 1-meter NAVD88.

NPC06

January 27, 2021

October 9, 2024

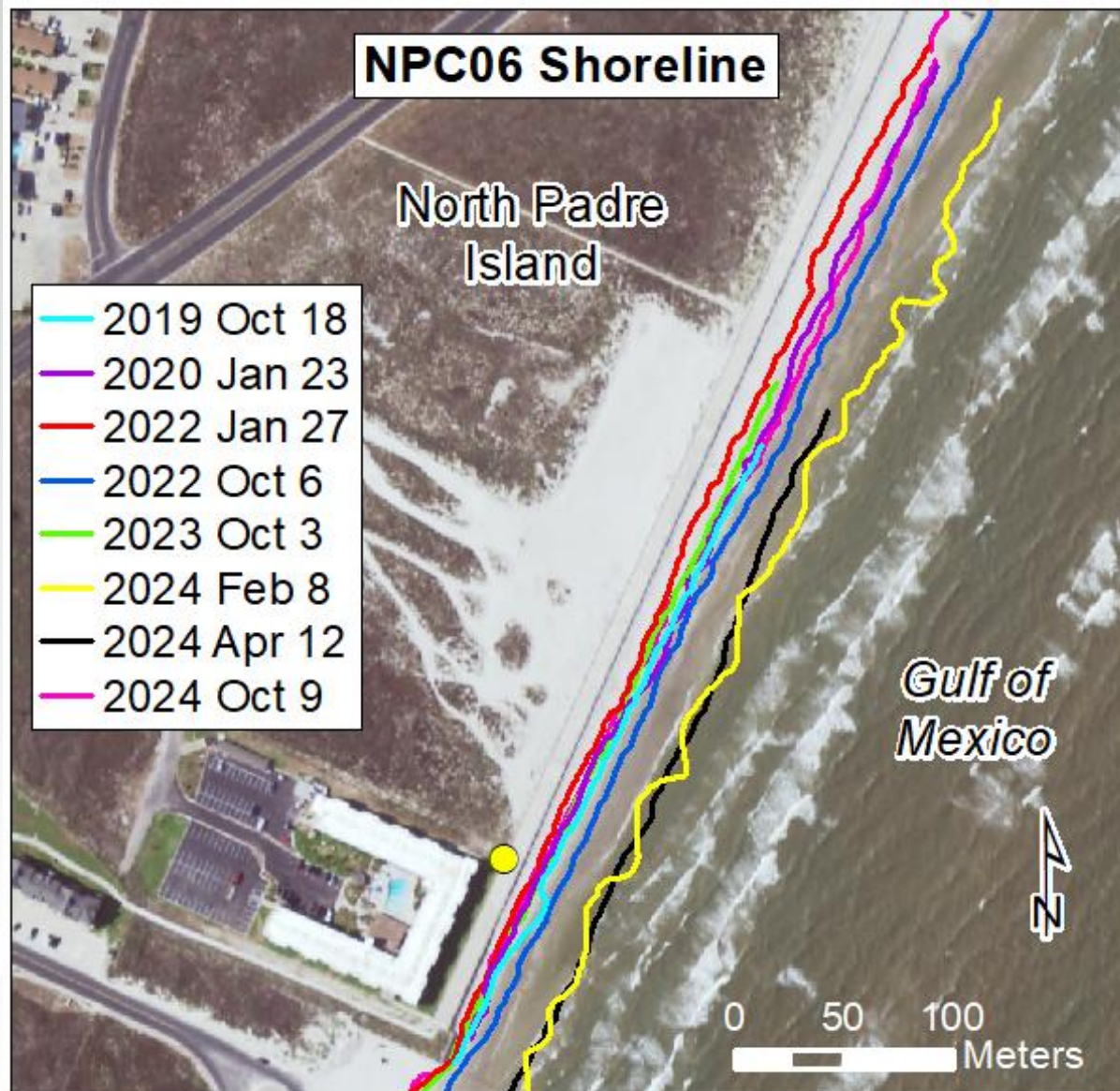# NPC06: winter 2022-fall 2024

NPC06: shoreline, vegetation line, and volume changes

NPC06 (North Padre Island Seawall)
Volume and Shoreline Change

Sediment volume was calculated above 1-meter NAVD88.
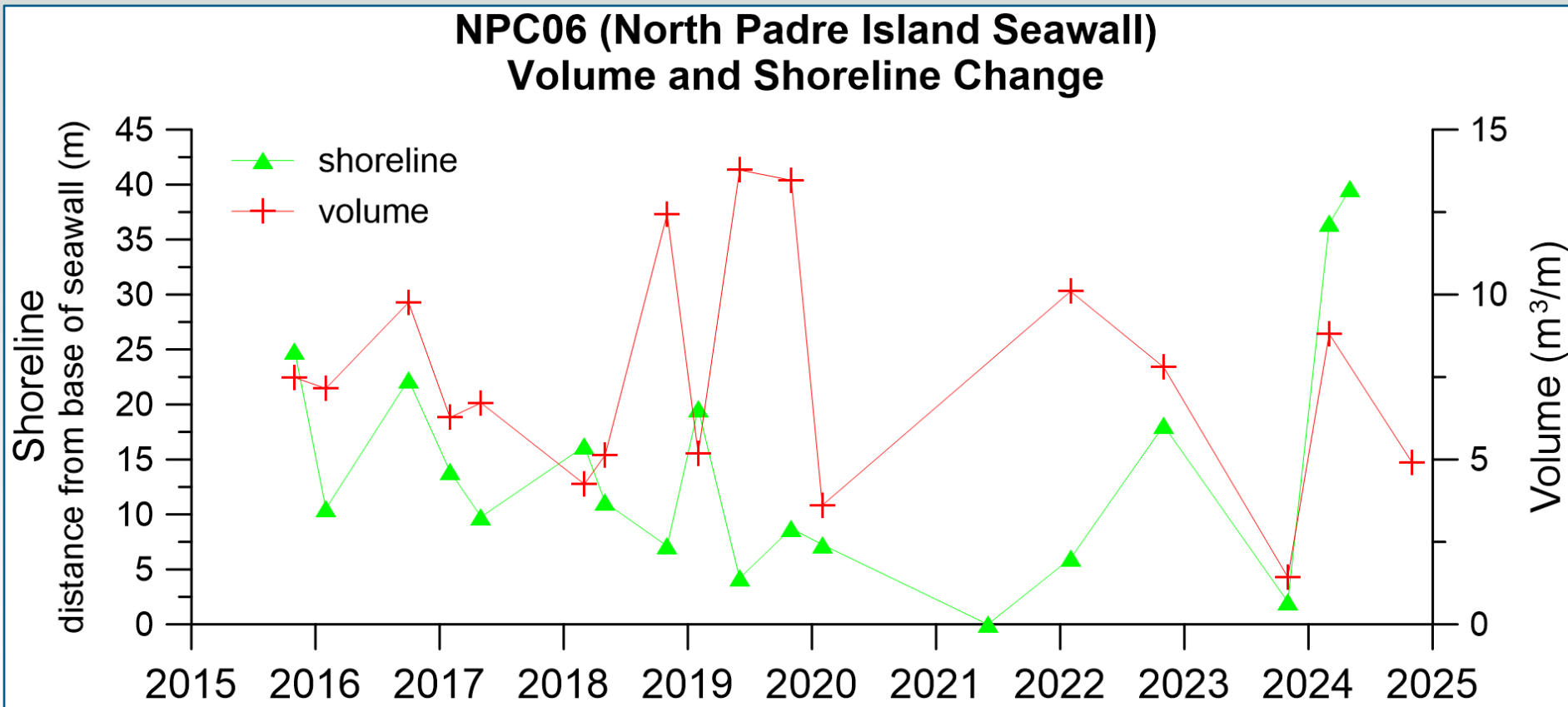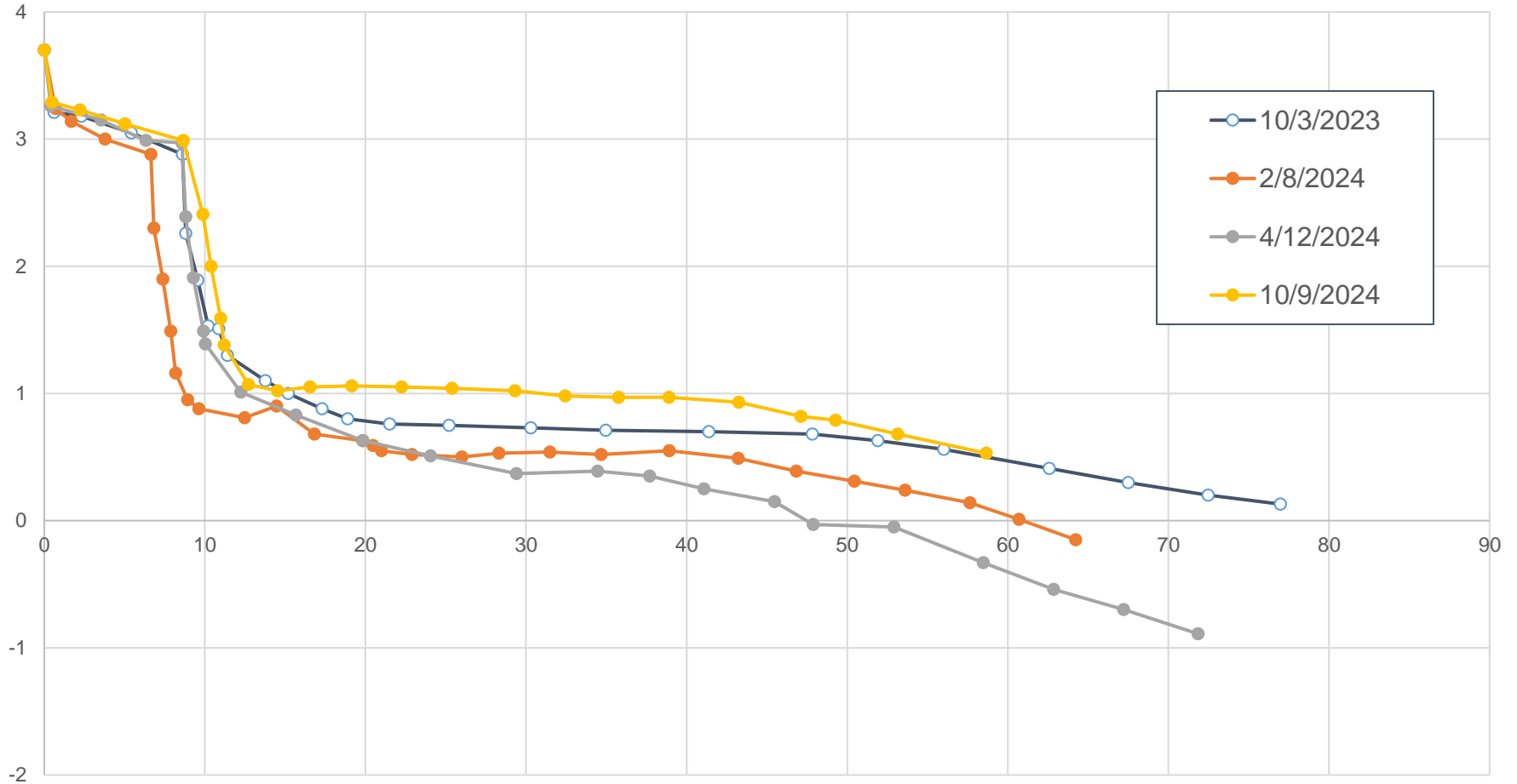
NPC06 shoreline positions

NPISW

October 3, 2023

October 9, 2024

NPISW new: fall 2023-fall 2024

Seawall shoreline positions