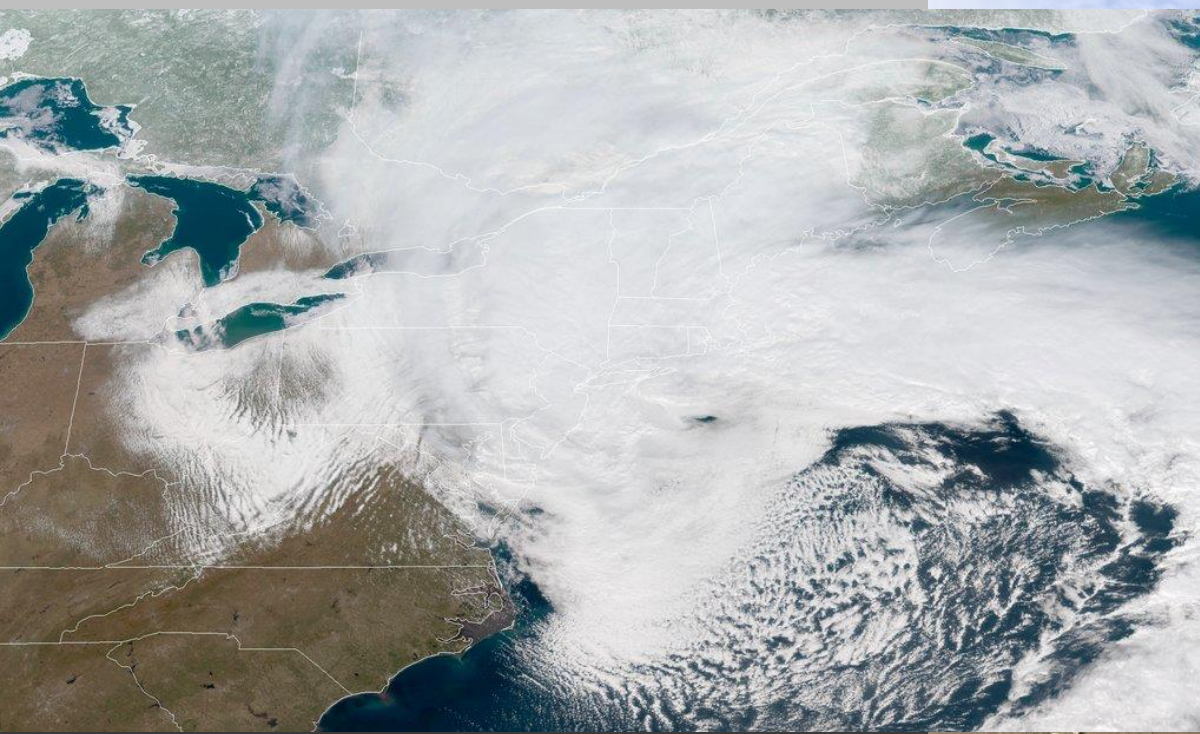


Nor'easters + Dunes + Beaches – Answers from Citizen Science



Alyson Eberhardt, NH Sea Grant Extension
Coastal Research Volunteers
Larry Ward, UNH Center for Coastal and Ocean Mapping
David Burdick, UNH Jackson Estuarine Laboratory
Caitlin Mandeville, NH Sea Grant Extension
Zach McAvoy, UNH Center for Coastal and Ocean Mapping
Christopher Peter, GBNERR (formerly UNH)
Gregg Moore, UNH Jackson Estuarine Laboratory
Cat Ashcraft, UNH Dept of Natural Resources



Extension

Three Nor'easters in 10 days

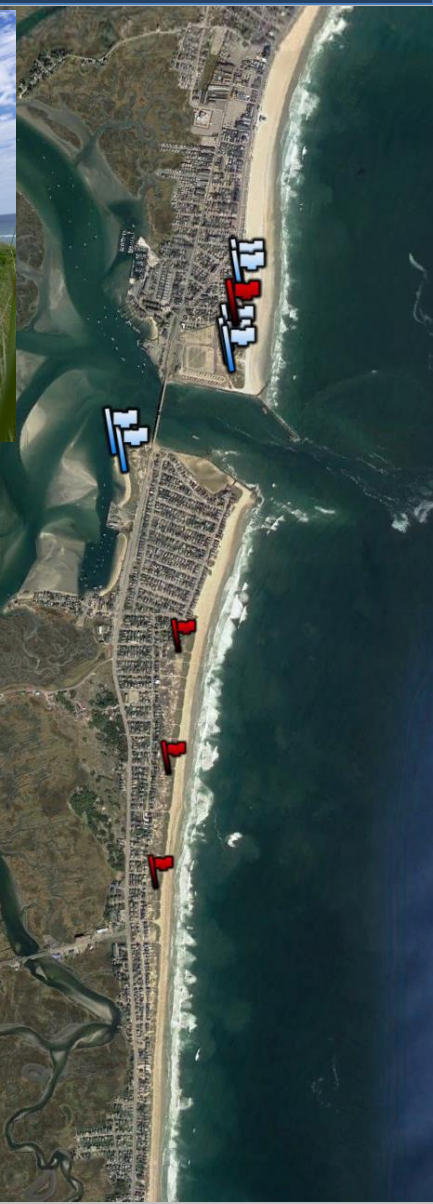
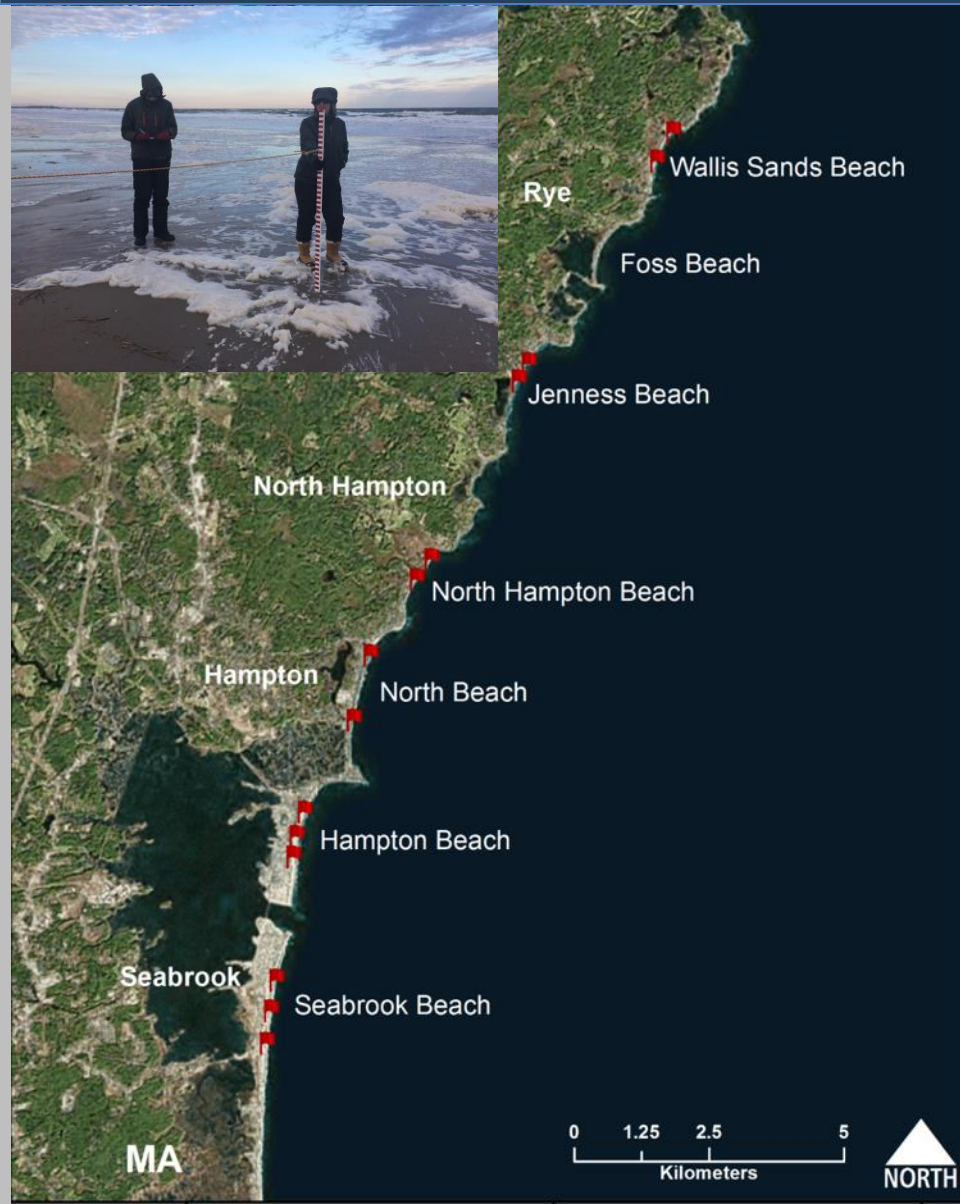
Video: Carol Robidoux, Manchester Ink



Coastal Research Volunteers



NH Beach and Dune Profile Programs



Why are we doing this?

Need data to aid management decisions and planning

- How beaches and dunes change seasonally
- How beaches and dunes react to storm events
- Volumetric changes in the beaches and dunes
- Evaluation of restoration efforts

No long-term study has been done for New Hampshire!

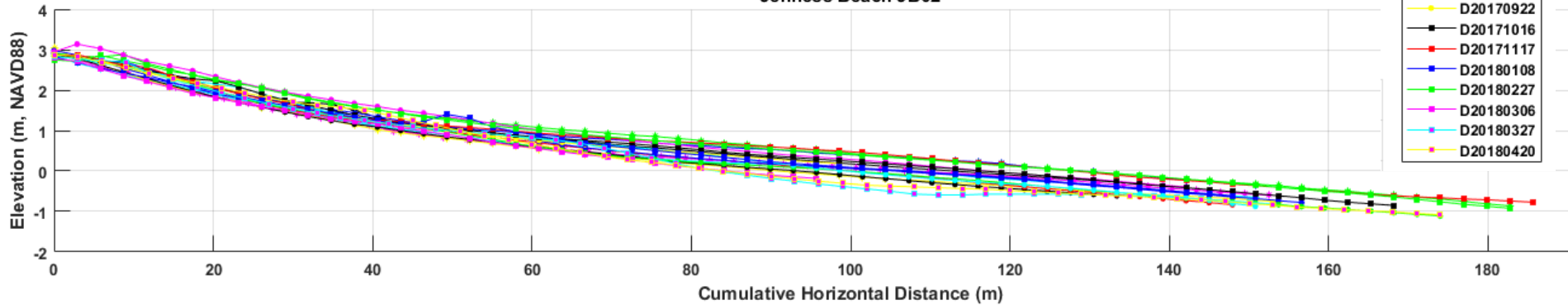


All Profiles at Jenness Beach State Park

December 8, 2016 to April 20, 2018

- D20161208
- D20161220
- D20170110
- D20170217
- D20170307
- D20170317
- D20170405
- D20170503
- D20170530
- D20170627
- D20170726
- D20170824
- D20170922
- D20171116
- D20180108
- D20180227
- D20180306
- D20180327
- D20180420

Jenness Beach JB02



July 26, 2017



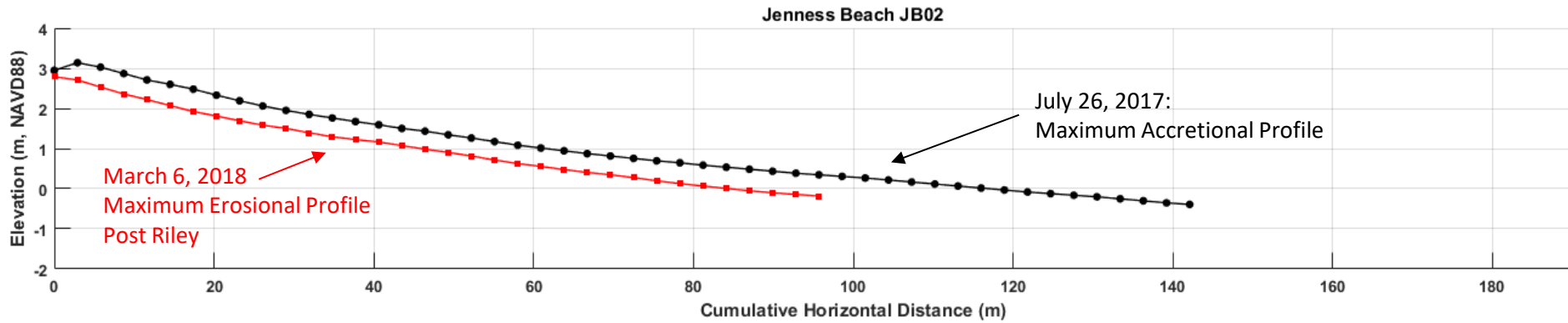
Slide: Larry Ward, UNH CCOM

Dec 20, 2016



Jenness Beach State Park: Maximum and Minimum Profiles

July 26, 2017 and March 6, 2018



March 4, 2018

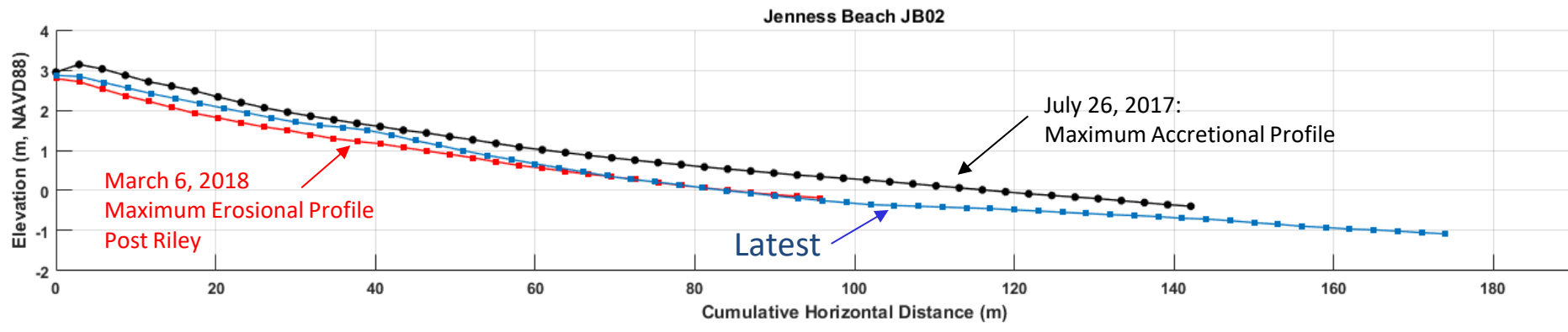


March 4, 2018



Jenness Beach State Park: Maximum, Minimum, and Latest Profiles

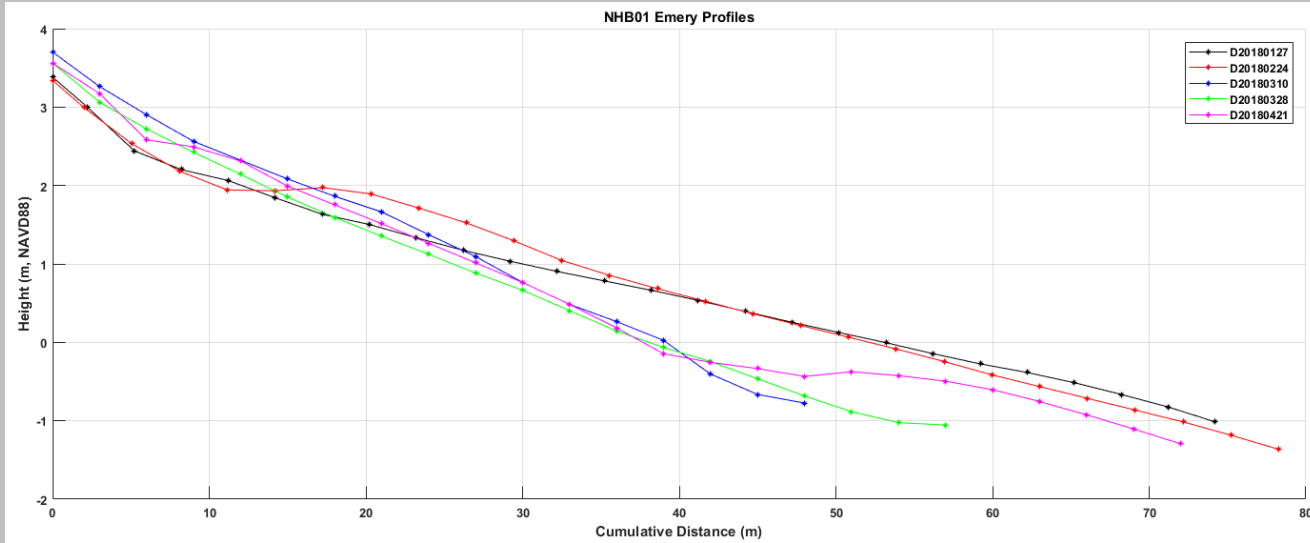
July 26, 2017, March 6, 2018, April 20, 2018



As of April 20, Jenness had not recovered from the winter storms

All Profiles at North Hampton State Park

January 27 to April 21, 2018



North Hampton (August 8, 2016):
Accretional Conditions

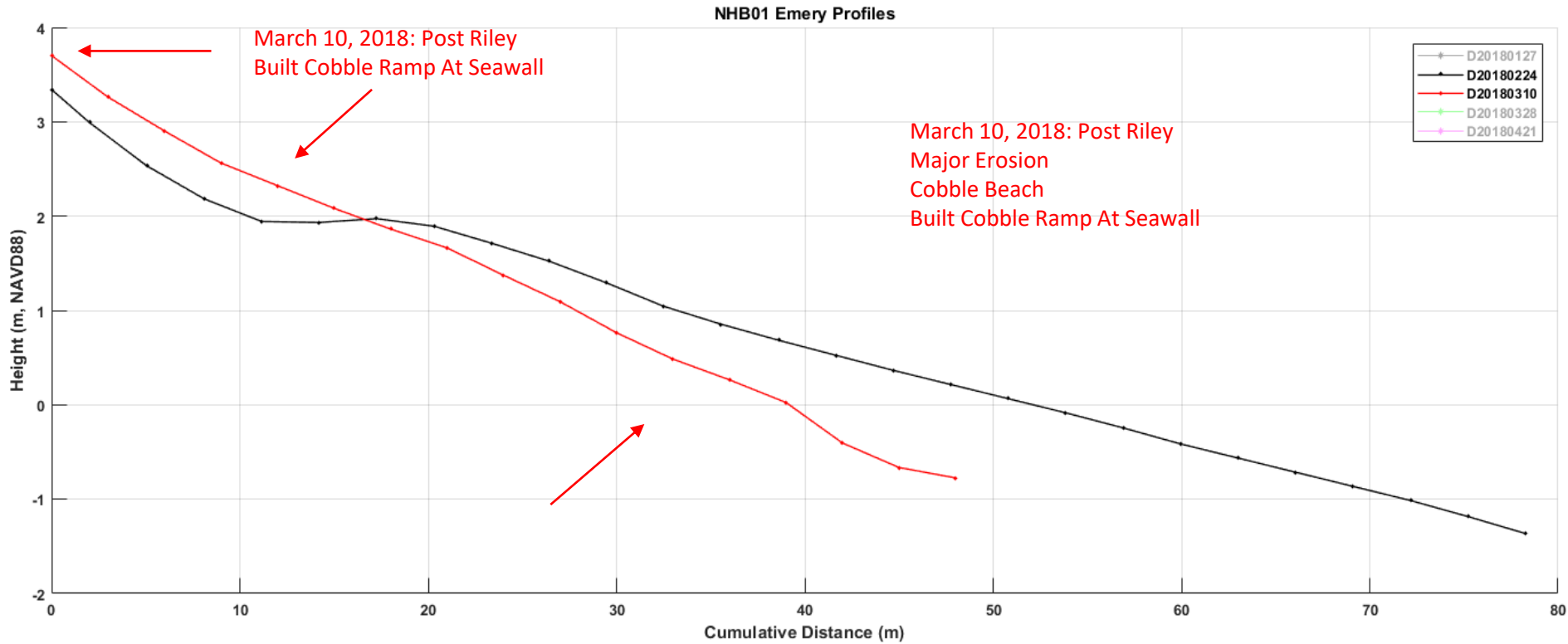


North Hampton (September 9, 2016):
Erosional Conditions (after Hermine)



Maximum and Minimum Profiles at North Hampton State Park

February 24 and March 10, 2018



Post Riley
March 3, 2018

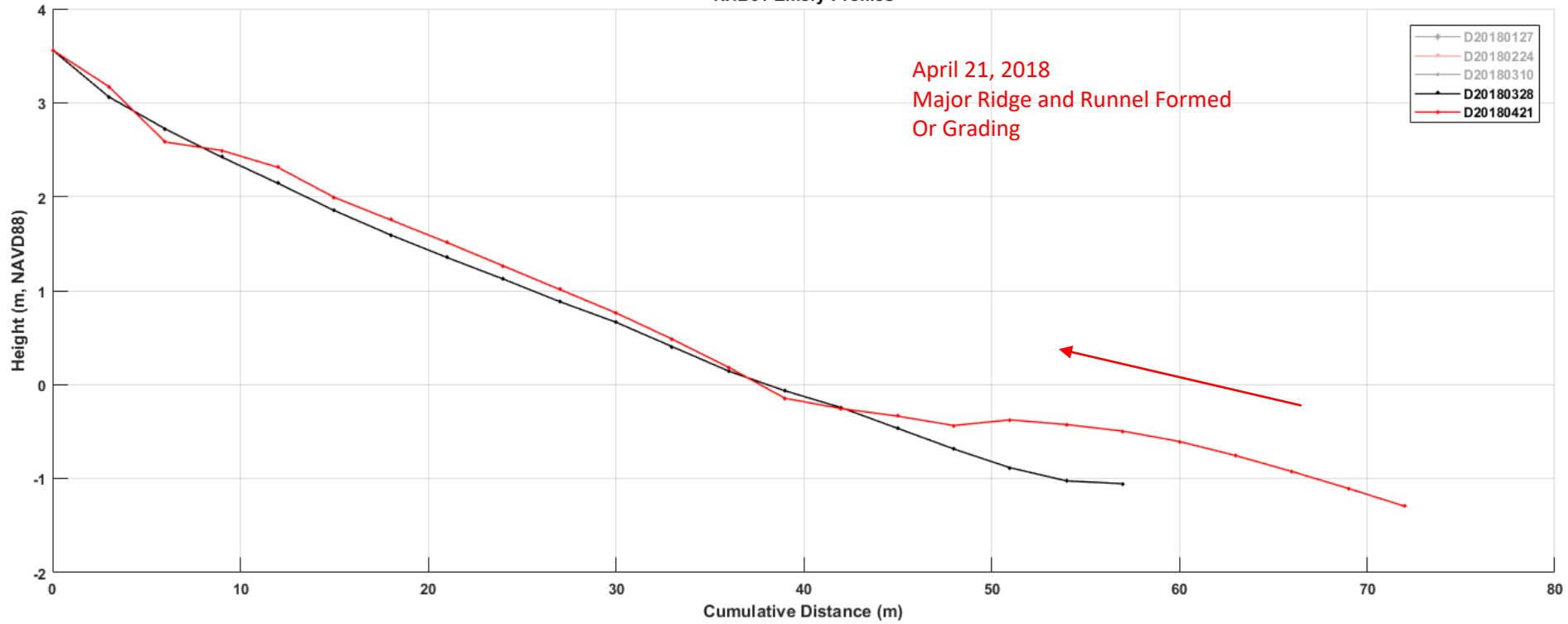


Slide: Larry Ward, UNH CCOM

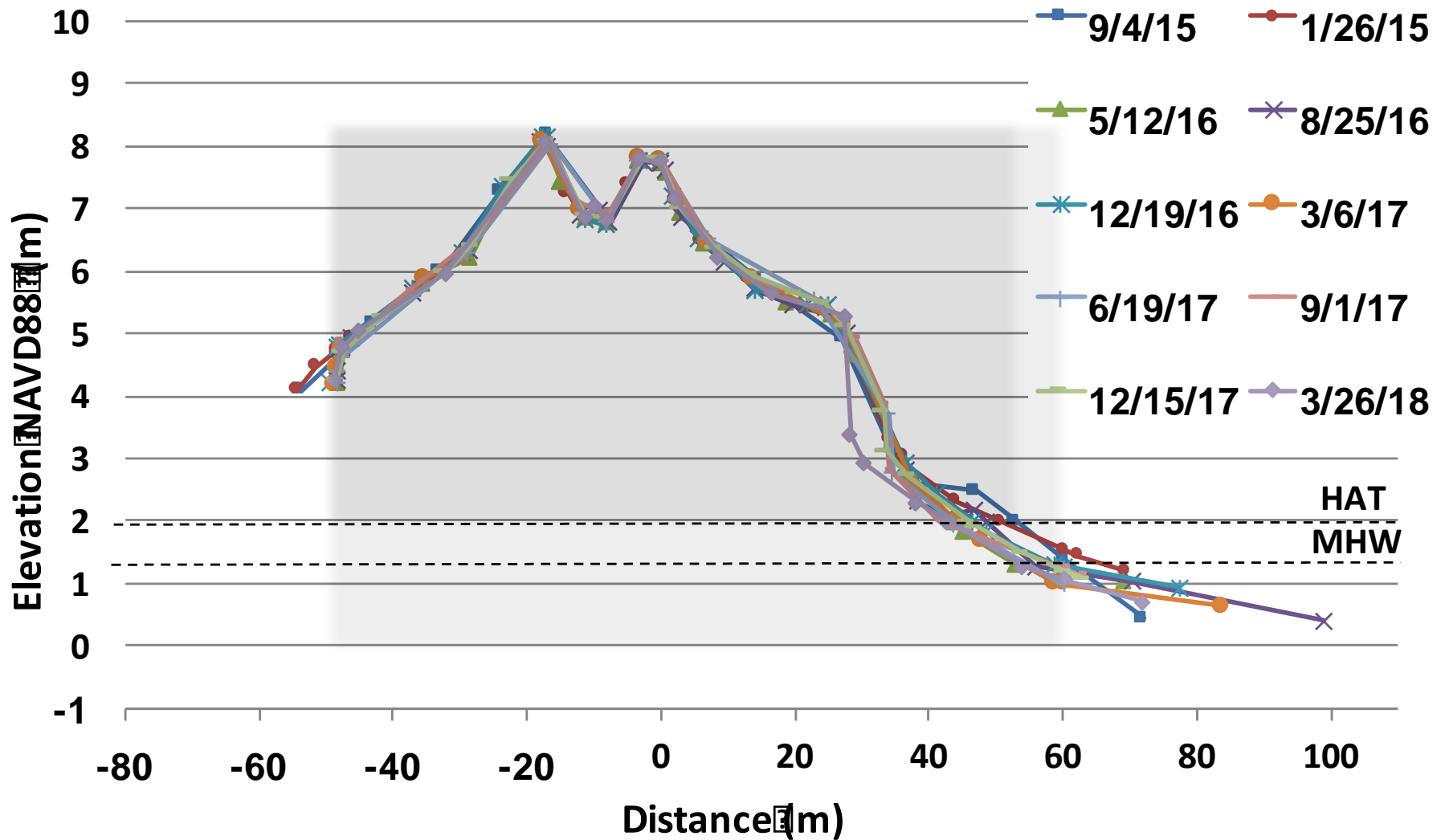
North Hampton State Park

March 28 and April 21, 2018

NHB01 Emery Profiles

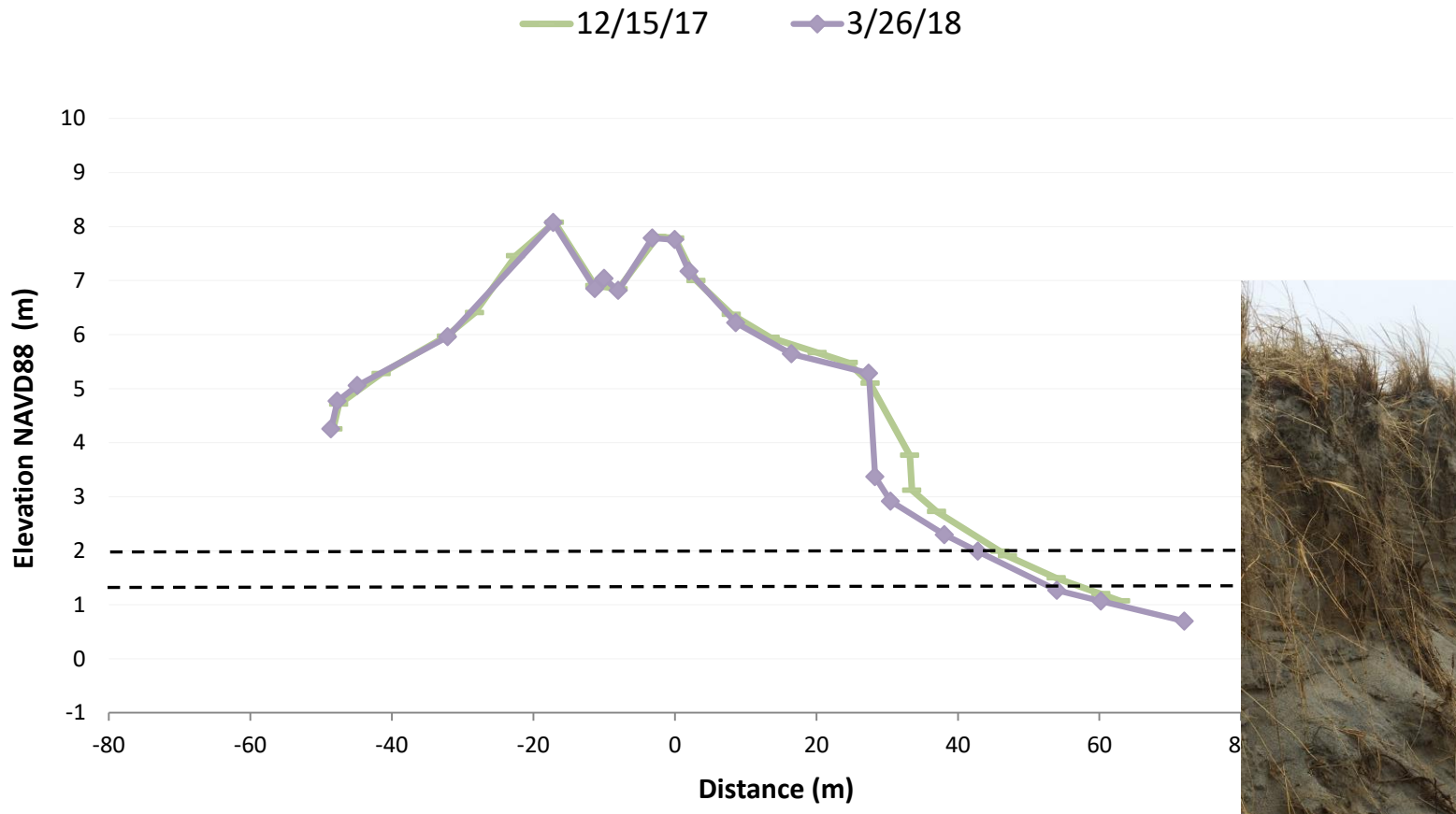


All Profiles for Hampton Beach State Park - Dunes



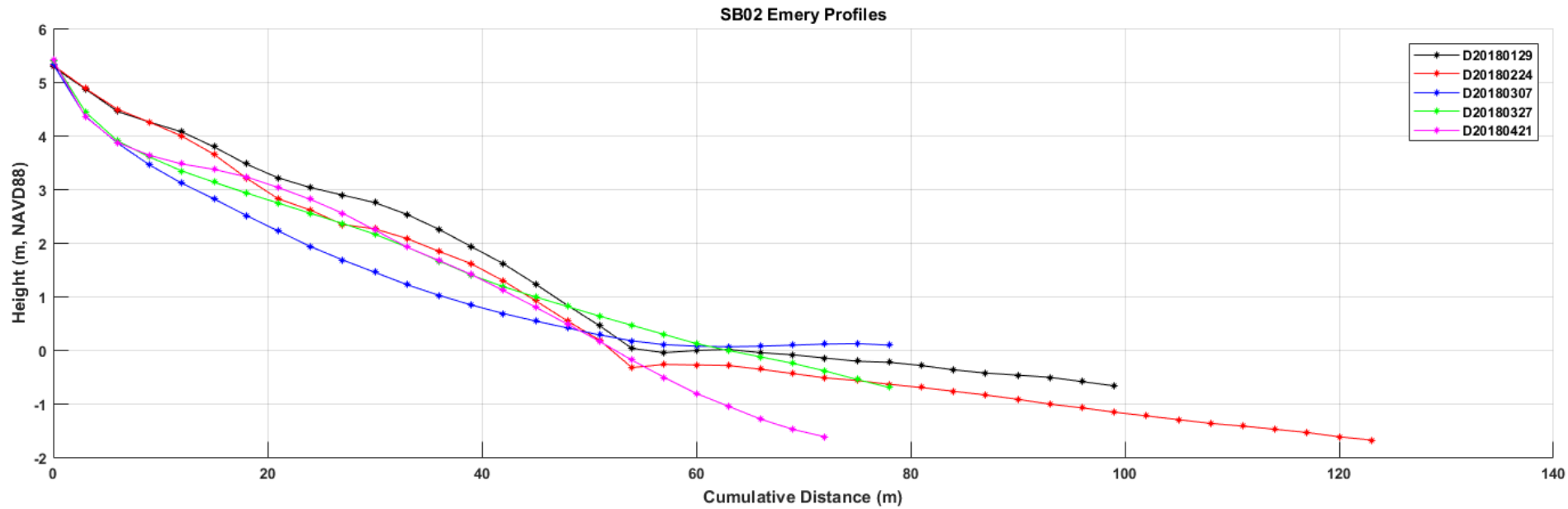
Hampton Beach State Park – Dunes

December 15, 2017 and March 26, 2018



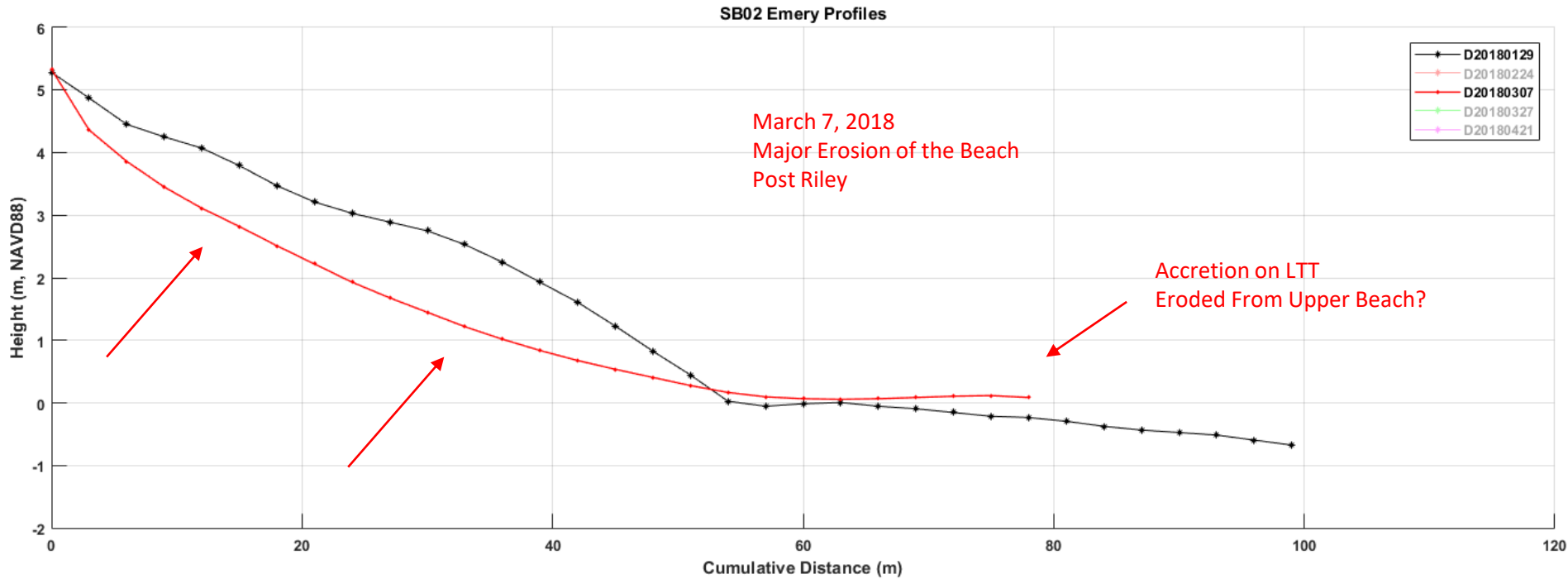
All Profiles at Seabrook Beach

January 29 to April 21, 2018



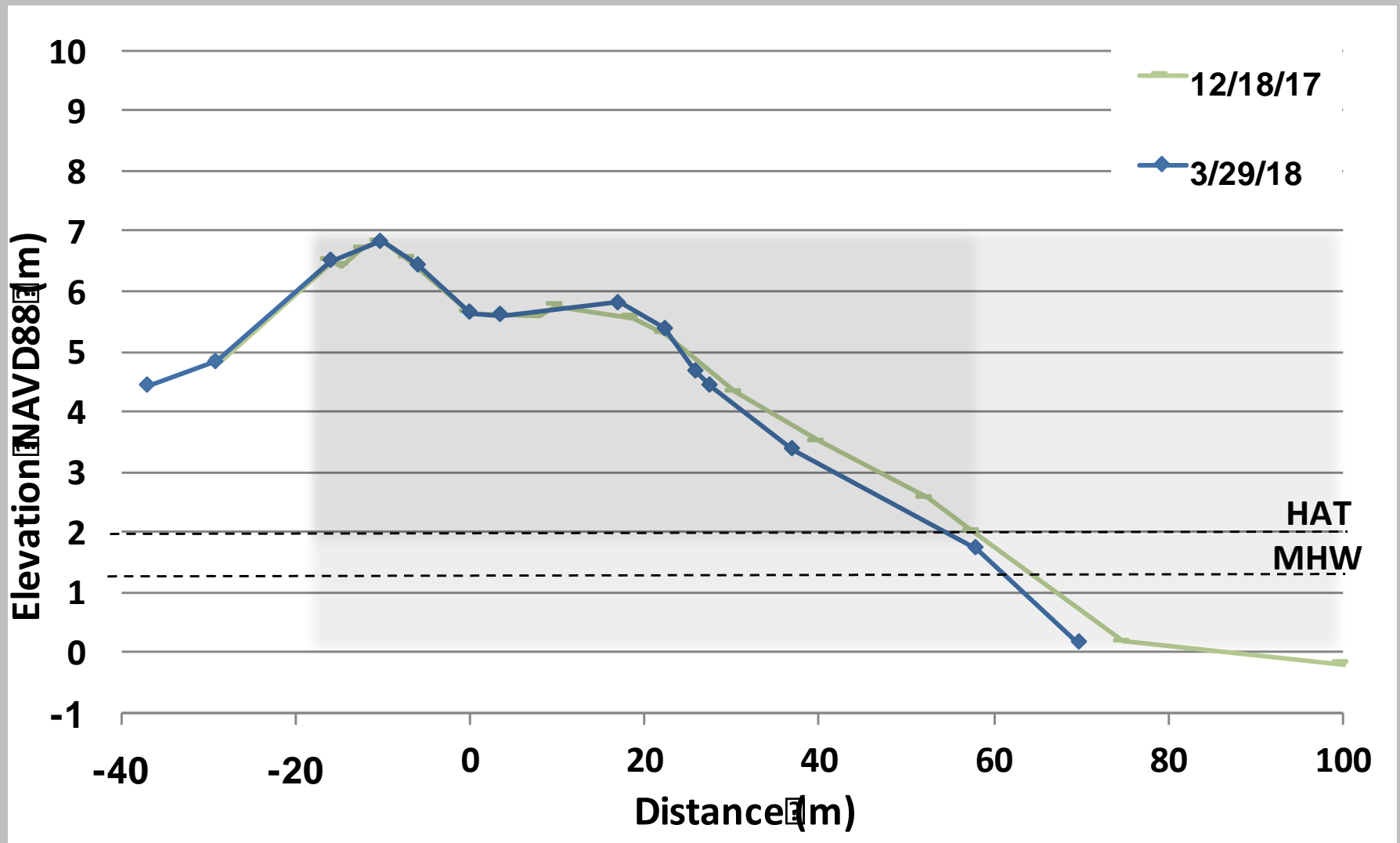
Maximum and Minimum Profiles at Seabrook Beach

January 29 and March 7, 2018



Seabrook Beach - Dunes

December 12, 2017 and March, 29 2018



March 3, 2018



March 3, 2018



March 28, 2018



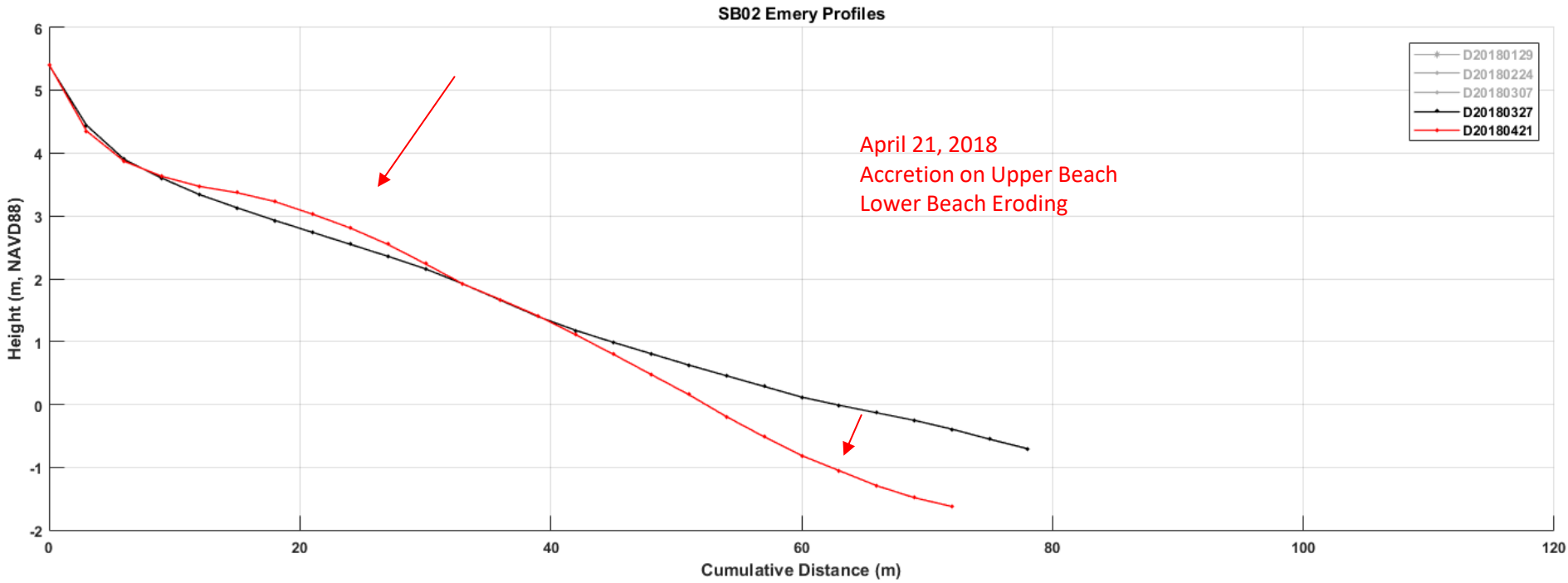
March 28, 2018



Slide: Larry Ward, UNH CCOM

Seabrook Beach

March 27 and April 21, 2018



Conclusions

All beaches got hammered in March

Recovery is occurring to varying degrees

Need more data to understand long term trends

Actions that will help beach and dune recovery:

- Retain sand in the system
- Allow space areas for beaches and dunes to move and reshape
- Protect dunes as a buffer and sand source
- Restore dunes where conditions allow
- Explore novel approaches to shoreline stabilization (e.g., living shorelines) in lieu of hardening



Funded, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the NH DES Coastal Program



Thank you to the volunteers of the NH Volunteer Beach Profile Monitoring Program!

Wallis Sands Beach

WS 01

Claudia Gilmartin
Lee Pollock
Sylvia Pollock

WS 02.5

Molly Dennett
Holly Oliver
Marc Tosiano

North Beach

NB 01

Rick Cliche
Leslie Cliche
Don Maggs
Dave Perkins
Dave Samara
Sally Nickerson

NB 02

Hopi Wickson
Maverick Wickson
Lauren Belliveau
Greyson Belliveau

Jenness Beach

JB 01

Craig Jaus
Kaye Jaus
Lisa Sweet

JB 02

NH Coastal
Program staff

Hampton Beach

HB 02

Mike Stockdale
Terry Stockdale
Sherri Townsend

HB 04

Cathy Silver
Doug Silver

North Hampton Beach

NHB 01 and NHB 02

Tom Adams
Dennis Barrett
Hank Bautzmann

Seabrook Beach

SB 02

Dave Canedy
Kathy Canedy
Colin Canedy

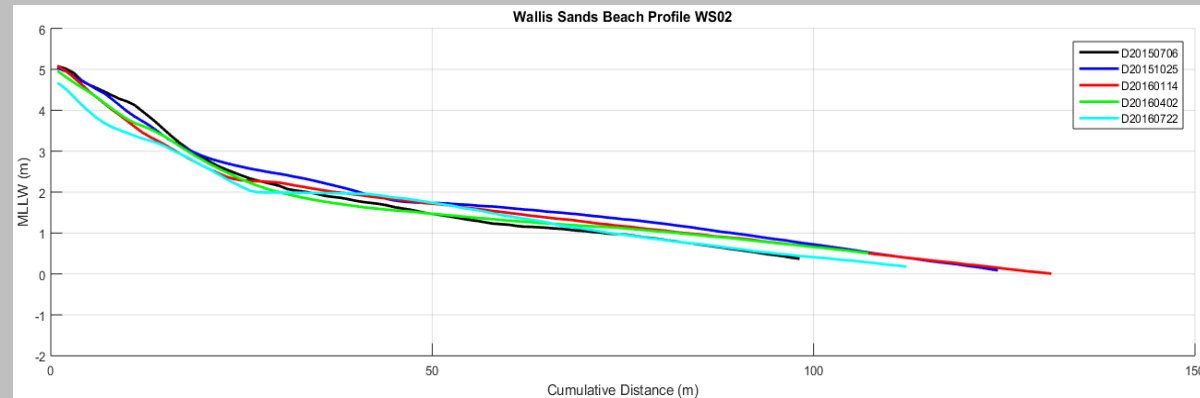
SB 03 and SB 04

Rebecca Beasley
Jennifer Stetson
Bryce Stetson

Dominant Beach Types in NH

Northern Beaches

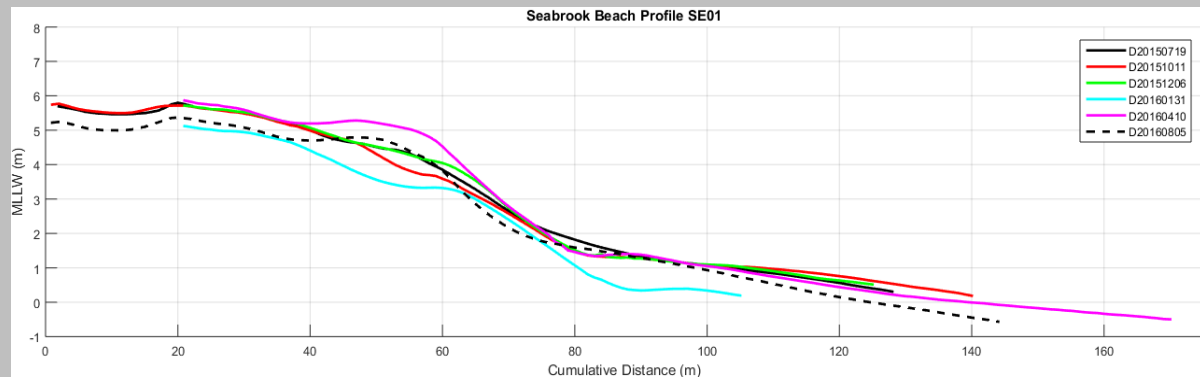
- North of Great Boars Head
- Smaller beaches with lower sediment volume
- Tend to be flatter with fewer features
- Minor net sediment volume changes



Profile measurements from Wallis Sands station WS02 over the study period.

Southern Beaches

- Primarily south of Great Boars Head
- Large, wide beaches
- True barriers
- Large, well-defined berms
- Much more relief



Profile measurements from Seabrook Beach station SB01 over the study period.