



# Coastal Change Analysis Using Airborne LiDAR Data and Historic Aerial Photographs

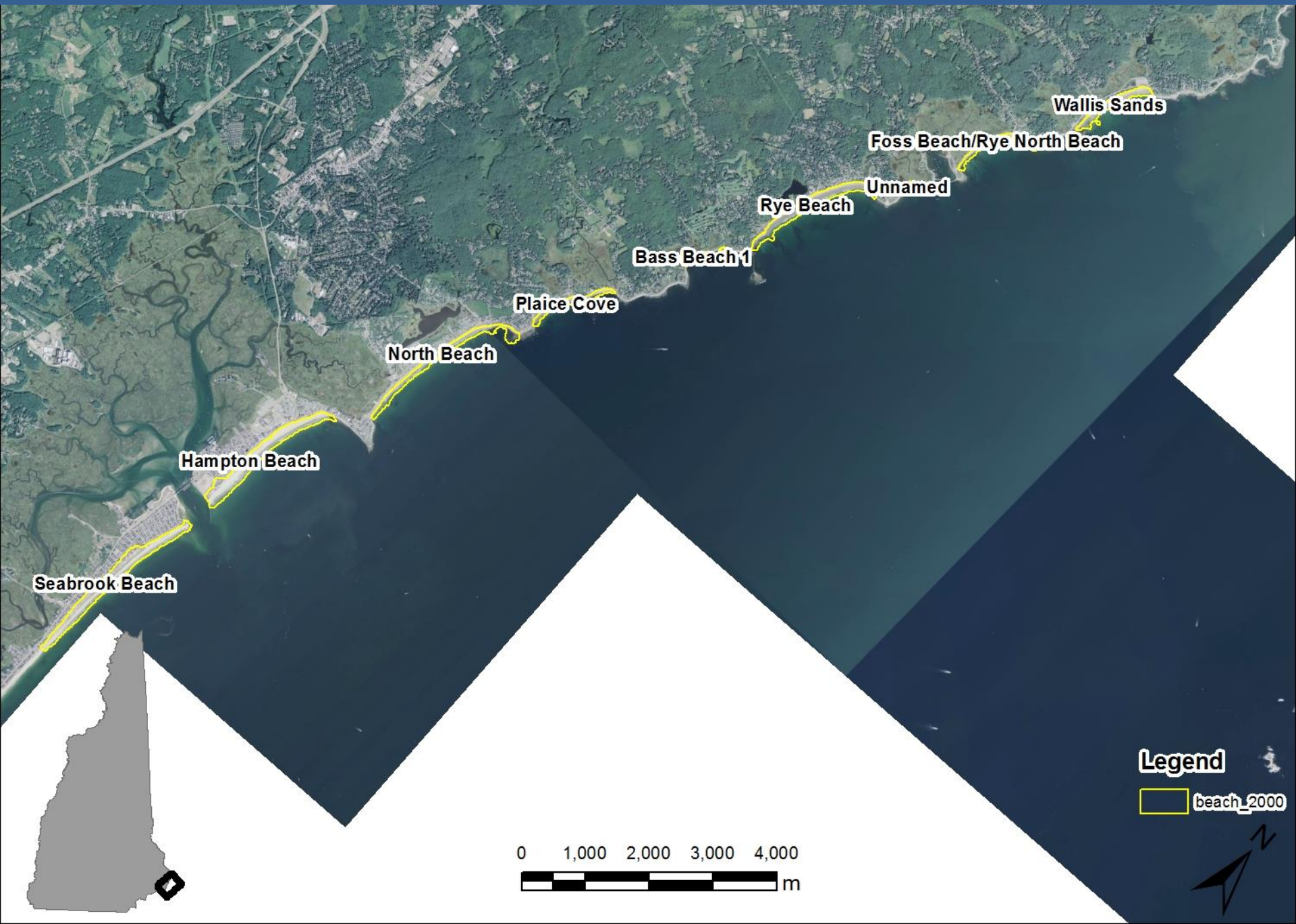
Neil Olson

New Hampshire Geological Survey/NHDES

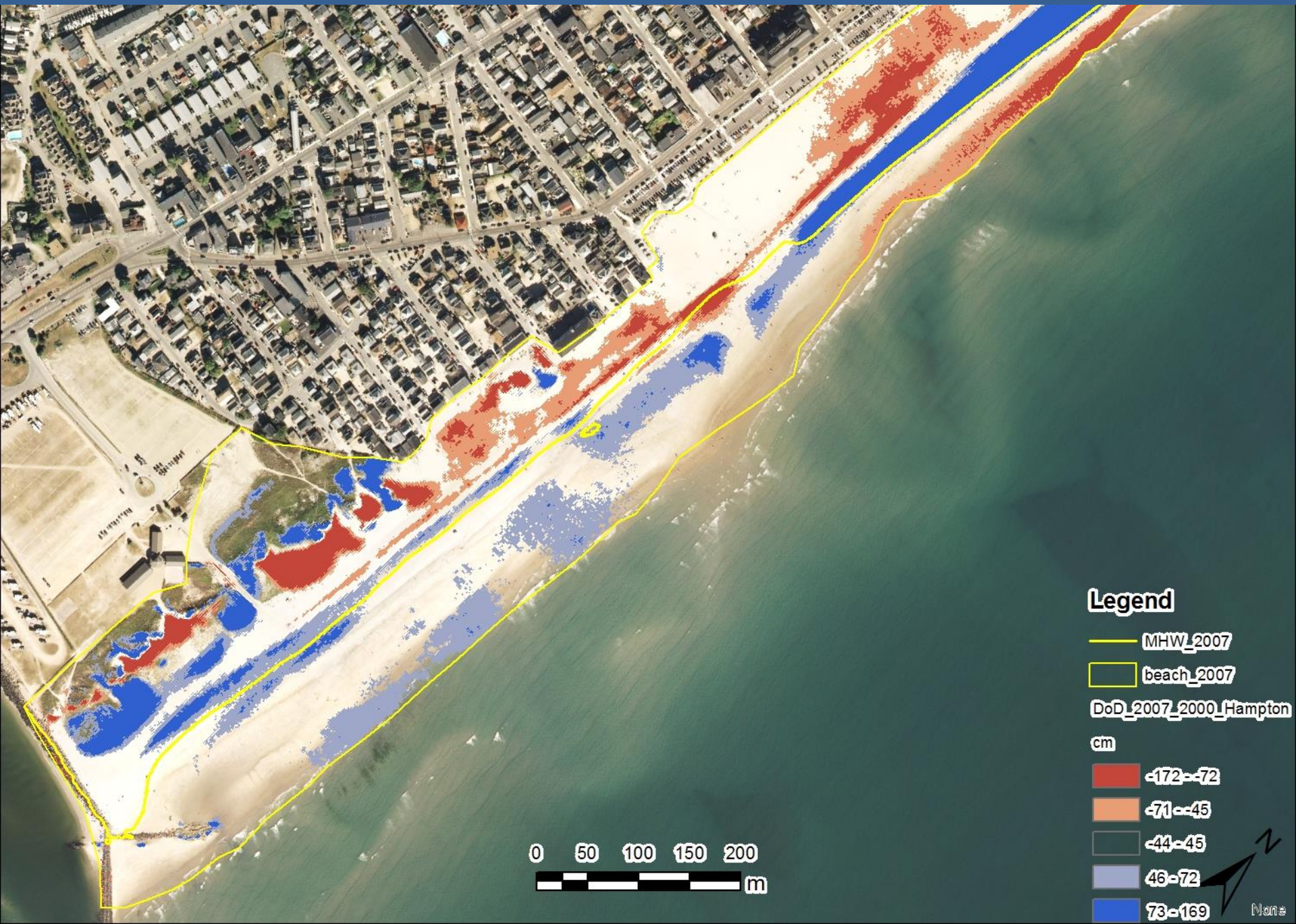
- Funding provided by BOEM Hurricane Sandy Coastal Recovery and Resiliency-Resource Identification, Delineation and Management Practices
- Assistance from Larry Ward, Zach McAvoy, Rick Chormann

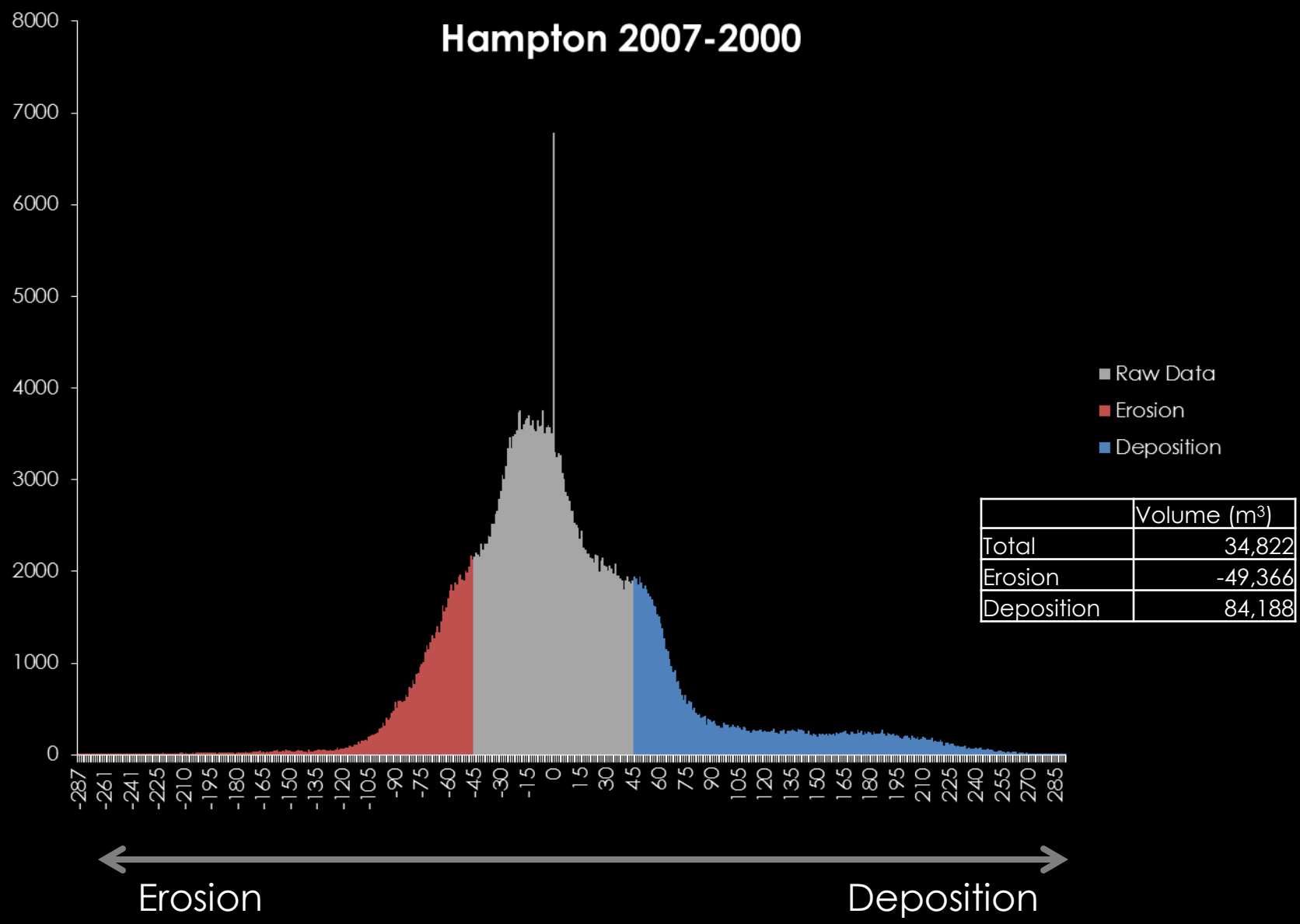


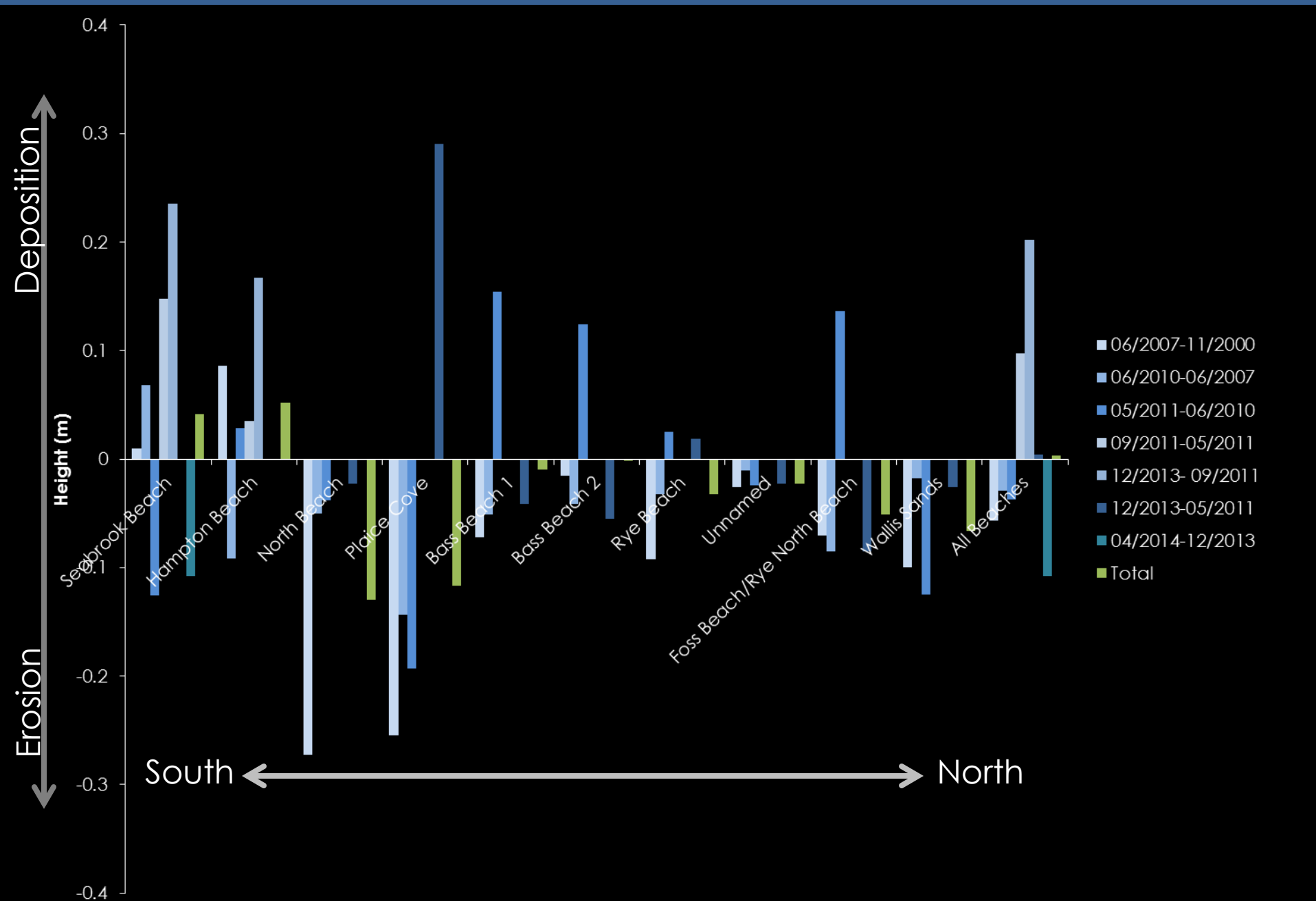
University of  
New Hampshire







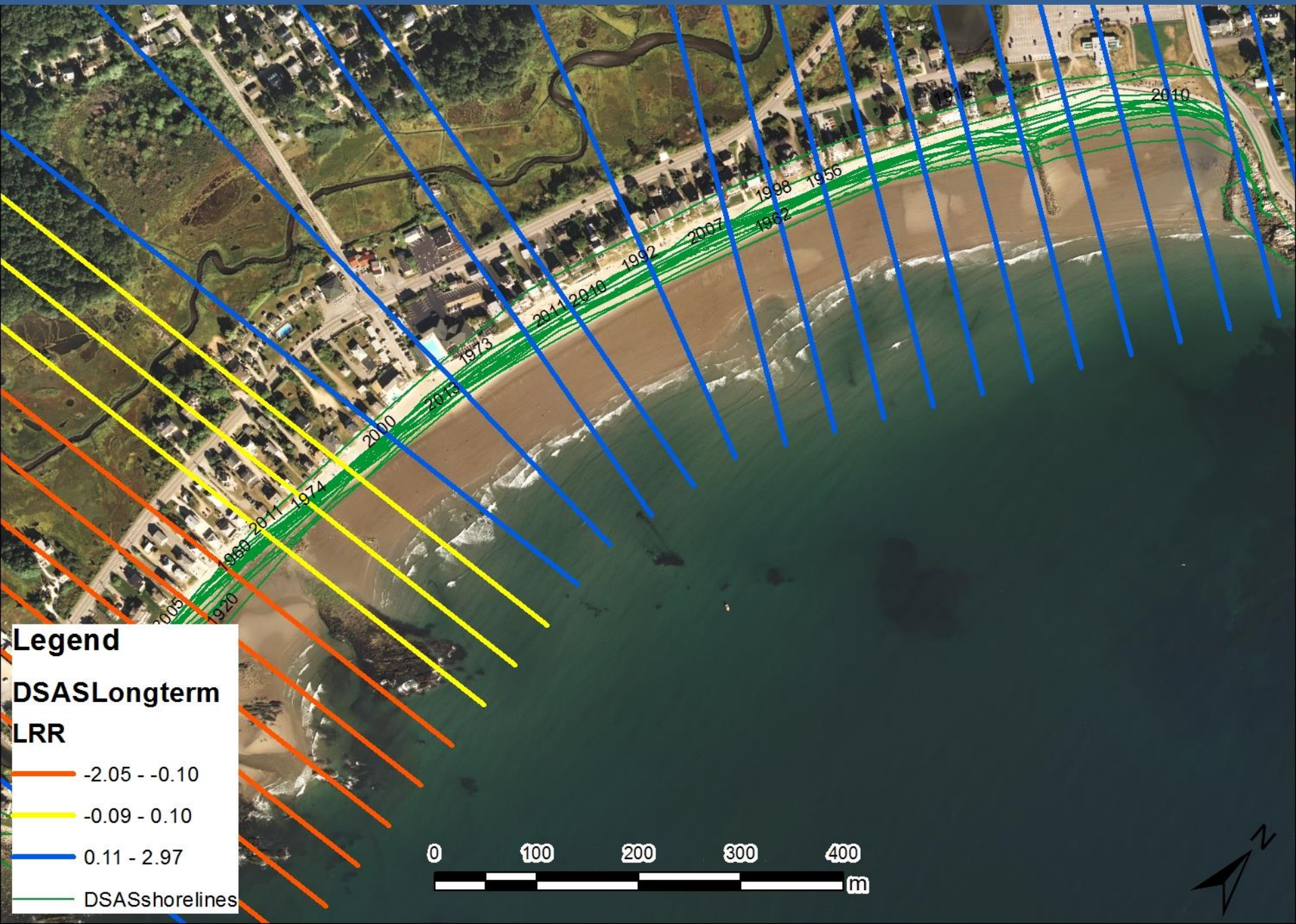




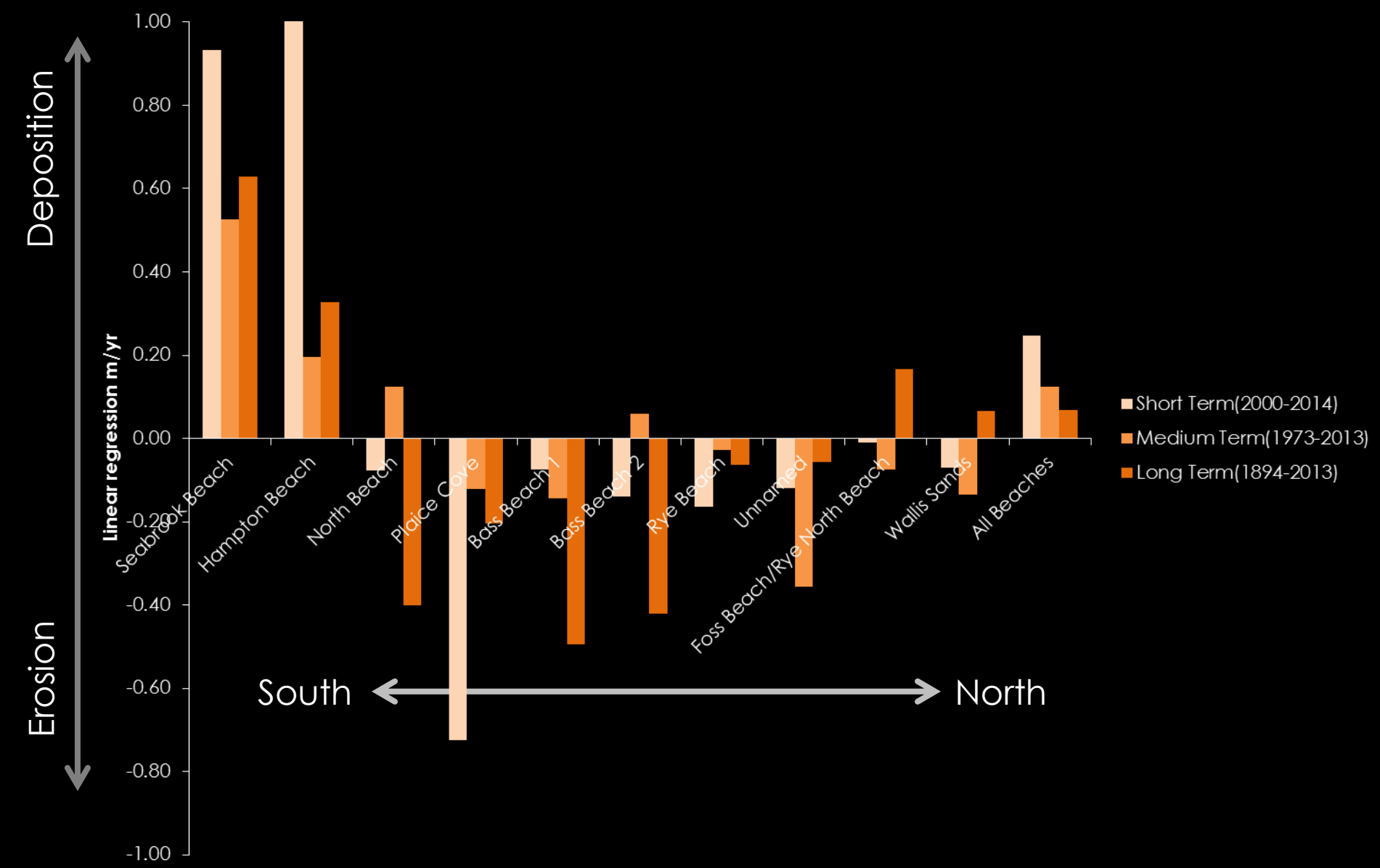












| Site         | Year | Volume (yards <sup>3</sup> ) |
|--------------|------|------------------------------|
| Wallis Sands | 1963 | 200,000                      |
| Wallis Sands | 1972 | 1,0000                       |
| Wallis Sands | 1983 | ?                            |
| Hampton      | 1935 | 1,000,000                    |
| Hampton      | 1955 | 400,000                      |
| Hampton      | 1965 | 169,000                      |
| Hampton      | 1972 | 70,000                       |
| Hampton      | ?    | 340,000                      |
| Hampton      | 1987 | 21,000                       |
| Wallis Sands | 2001 | 40,000                       |
| Seabrook     | 2005 | ?                            |
| Seabrook     | 2012 | 120,000                      |
| Hampton      | 2012 | 52,000                       |

Volumes from Haddad and Pilkey 1998, Summary of New England Beach Nourishment Experience (1935-1996) Journal of Coastal Research 14-4 pp.1395-1404 and NHDES Coastal Management Office/US Army Corps of Engineers



| Beach                      | Shorelines (m/yr) | LiDAR (m <sup>3</sup> ) |
|----------------------------|-------------------|-------------------------|
| Seabrook Beach             | 0.63              | 95,256.00               |
| Hampton Beach              | 0.33              | 89,144.71               |
| North Beach                | -0.40             | -70,246.98              |
| Plaice Cove                | -0.21             | -30,946.82              |
| Bass Beach 1               | -0.50             | -542.02                 |
| Bass Beach 2               | -0.42             | -33.22                  |
| Rye Beach                  | -0.06             | -26,268.79              |
| Unnamed                    | -0.06             | -1,745.97               |
| Foss Beach/Rye North Beach | 0.17              | -13,474.14              |
| Wallis Sands               | 0.07              | -21,972.28              |
| All Beaches                | 0.07              | 19,170.49               |