Relocated Boulders

Type Enterprise Geodatabase Feature Class

Tags There are no tags for this item.

Summary

This dataset displays known boulder relocations made during offshore wind construction projects.

Description

This dataset displays the point locations where boulders (usually defined as pieces of rock >256 millimeters or ~10 inches in diameter) on or within the seafloor were relocated during offshore wind construction projects. The Bureau of Ocean Energy Management (BOEM) may require that offshore wind companies develop a "Boulder Identification and Relocation Plan" as part of their Construction and Operation Plan approval. Different offshore wind projects may have different requirements. Several offshore wind companies have posted the coordinates of relocated boulders on their websites. This boulder relocation dataset is made up of all publicly available sites of moved boulders and was compiled by the Regional Wildlife Science Collaborative (RWSC).

Boulders are usually relocated because they are obstructing the site where offshore wind infrastructure (e.g., turbine, substation, cable) is being installed. Ocean users and researchers may be interested in the locations of boulders in and around offshore wind farms as this information may inform the deployment of research equipment or other activities that interact with the seafloor.

Date of last update: May 20, 2025

Credits

RWSC, Revolution Wind, South Fork Wind, Vineyard Wind, Sunrise Wind

Use limitations

There are no access and use limitations for this item.

Extent

West -72.826767   East -70.368855
North 41.635556   South 40.724900

Scale Range

Maximum (zoomed in)   1:5,000
Minimum (zoomed out) 1:150,000,000

Topics and Keywords ▶

Themes or categories of the resource   Environment, Oceans

Content type   ⇔ Downloadable Data
    Export to FGDC CSDGM XML format as Resource Description   No

Theme keywords   Boulder

Thesaurus ▶
    Title   Coastal and Marine Ecological Classification Standard

    Resource location online
        Online location (URL)   https://apps.usgs.gov/thesaurus/thesaurus-full.php?thcode=62

Place keywords   North Atlantic

Citation ▶

Title   Relocated Boulders
Publication date   2024-04-09   00:00:00

Presentation formats   ⇔ digital map

Citation Contacts ▶

Responsible party - originator
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

    Contact information ▶
        Phone
            Voice   585-402-6044
        Address
            Type   physical
            City   Pittsford
            Administrative area   New York
            Postal code   14534
        Online resource
            Online location (URL)   https://rwsc.org/

Resource Details ▶

Dataset languages ⇔ English (UNITED STATES)
Dataset character set utf8 - 8 bit UCS Transfer Format

Status on-going
Spatial representation type ⇔ vector

Processing environment ⇔ Microsoft Windows 10 Version 10.0 (Build 26100) ; Esri ArcGIS 13.4.0.55405

Credits
RWSC, Revolution Wind, South Fork Wind, Vineyard Wind, Sunrise Wind

ArcGIS item properties
Name ⇔ rpt.rpt.Relocated_Boulders
Location ⇔ Server=rwsc-db-pg15.env.duke.edu; Service=sde:postgresql:rwsc-db-pg15.env.duke.edu; Database=rpt; User=rpt; Version=sde.DEFAULT
Access protocol ⇔ ArcSDE Connection

Extents ▶

Extent
Description
Temporal extent is ground condition of when boulders were relocated, as provided by Offshore Wind Developers

Geographic extent
Bounding rectangle
Extent type
Extent used for searching
West longitude -72.826767
East longitude -70.368855
South latitude 40.724900
North latitude 41.635556
Extent contains the resource No

Temporal extent
Beginning date 2022-09-01 00:00:00
Ending date 2025-05-20 00:00:00

Vertical extent
Minimum value ⇔ 0.000000
Maximum value ⇔ 0.000000

Extent in the item's coordinate system
westBL ⇔ -72.826767
eastBL ⇔ -70.368855
southBL ⇔ 40.724900
northBL ⇔ 41.635556
exTypeCode ⇔ Yes

Resource Points of Contact ▶

Point of contact - point of contact
Individual's name Samantha Coccia-Schillo
Organization's name Regional Wildlife Science Collaborative

Contact information ▶
Phone
Voice 585-402-6044
Address
Type physical
City Pittsford
Administrative area New York
Postal code 14534

Resource Maintenance ▶

Resource maintenance
Update frequency as needed

Spatial Reference ▶

ArcGIS coordinate system
Type ⇔ Geographic
Geographic coordinate reference ⇔ GCS_WGS_1984
Coordinate reference details ⇔
GeographicCoordinateSystem
WKID 4326
XOrigin -400
YOrigin -400
XYScale 999999999.99999988
ZOrigin -100000

ZScale   10000
        MOrigin   -100000
        MScale   10000
        XYTolerance   8.983152841195215e-09
        ZTolerance   0.001
        MTolerance   0.001
        HighPrecision   true
        LeftLongitude   -180
        LatestWKID   4326
        WKT
        GEOGCS["GCS_WGS_1984",DATUM["D_WGS_1984",SPHEROID["WGS_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433],AUTHORIT

Reference system identifier
    Value   ⇔ 4326
    Codespace   ⇔ EPSG
    Version   ⇔ 6.2(3.0.1)

Spatial Data Properties ►

Vector ►
    Level of topology for this dataset   ⇔ geometry only

    Geometric objects
        Feature class name   rpt.rpt.Relocated_Boulders
        Object type   ⇔ point
        Object count   ⇔ 3336

    ArcGIS Feature Class Properties ►
        Feature class name   rpt.rpt.Relocated_Boulders
        Feature type   ⇔ Simple
        Geometry type   ⇔ Point
        Has topology   ⇔ FALSE
        Feature count   ⇔ 3336
        Spatial index   ⇔ TRUE
        Linear referencing   ⇔ FALSE

Data Quality ►

Data quality report - Conceptual consistency   ►
    Data quality measure reference
        Measure description
        Point data are represented by a set of coordinate pairs.

Data quality report - Completeness omission   ►
    Data quality measure reference
        Measure description
        This dataset is not a complete representation of all relocated boulders in the Atlantic Ocean moved as a result of Offshore Wind construction. It will be updated as more data
        are provided to the public.

Lineage ►

Process step ►
    When the process occurred   2024-01-19   00:00:00
    Description
    1. For Vineyard Wind, South Fork Wind and Revolution Wind, data were downloaded from developer websites or acquired directly from the developers through email.

    Process contact - originator
        Individual's name   Samantha Coccia-Schillo
        Organization's name   Regional Wildlife Science Collaborative

        Contact information ►
            Phone
                Voice   585-402-6044
            Address
                Type   physical
                City   Pittsford
                Administrative area   New York
                Postal code   14534
            Online resource
                Online location (URL)   https://rwsc.org/

Process step ►
    When the process occurred   2024-01-22   00:00:00
    Description
    2. Coordinates transformed to decimal degrees if not already provided in that format.

    Process contact - originator
        Individual's name   Samantha Coccia-Schillo
        Organization's name   Regional Wildlife Science Collaborative

Contact information ▶
    Phone
      Voice   585-402-6044
    Address
      Type   physical
      City   Pittsford
      Administrative area   New York
      Postal code   14534
    Online resource
      Online location (URL)   https://rwsc.org/

Process step ▶
When the process occurred   2024-03-25   00:00:00
Description
3. Attribute tables were modified to be consistent across all developers.

  Process contact - originator
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

    Contact information ▶
      Phone
        Voice   585-402-6044
      Address
        Type   physical
        City   Pittsford
        Administrative area   New York
        Postal code   14534
      Online resource
        Online location (URL)   https://rwsc.org/

Process step ▶
When the process occurred   2024-03-25   00:00:00
Description
4. Datasets merged ('After' boulder relocation points only)

  Process contact - originator
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

    Contact information ▶
      Phone
        Voice   585-402-6044
      Address
        Type   physical
        City   Pittsford
        Administrative area   New York
        Postal code   14534
      Online resource
        Online location (URL)   https://rwsc.org/

Process step ▶
When the process occurred   2024-03-25   00:00:00
Description
5. Datasets merged ('After' boulder relocation points only)

  Process contact - originator
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

    Contact information ▶
      Phone
        Voice   585-402-6044
      Address
        Type   physical
        City   Pittsford
        Administrative area   New York
        Postal code   14534
      Online resource
        Online location (URL)   https://rwsc.org/

Process step ▶
When the process occurred   2025-05-20   00:00:00
Description
New boulders appended to dataset.

  Process contact - originator
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

Contact information ►
  Phone
    Voice   585-402-6044
  Address
    Type   physical
    City   Pittsford
    Administrative area   New York
    Postal code   14534
  Online resource
    Online location (URL)   https://rwsc.org/

Source data ►
  Description
  • Revolution (2023) was required to submit to BOEM a boulder relocation plan, including a shapefile, of locations and sizes (in meters) of boulders that would be moved. Within 60 days of completion of boulder relocation activities they have to submit to BOEM a report, including a shapefile, of final locations and other info including sizes. They also have to submit backscatter data and basic spatial habitat info (might be as simple as complex/not complex) in the micrositing plan. This means that spatial data, size, and some level of habitat context info should exist for both before and after for this project. It looks like they are required to report on boulders >0.5m.

  • South Fork (2022) was required to submit a pre-movement plan, but not a post-movement report. No sizes of boulders are specified.

  • Vineyard wind (2021) had no requirements to plan or report on boulders in federal waters. May be required to report in state waters.

Distribution ►
  Distribution format
    Name   ⇔ Enterprise Geodatabase Feature Class

Fields ►
  Details for object rpt.rpt.Relocated_Boulders ►
    Type   ⇔ Feature Class
    Row count   ⇔ 3336
    Definition
    Relocated boulders

    Definition source
    None

    Field OBJECTID ►
      Alias   ⇔ OBJECTID
      Data type   ⇔ OID
      Width   ⇔ 4
      Precision   ⇔ 10
      Scale   ⇔ 0

      Field description   ⇔
      Internal feature number.

      Description source   ⇔
      Esri

      Description of values   ⇔
      Sequential unique whole numbers that are automatically generated.

    Field Shape ►
      Alias   ⇔ Shape
      Data type   ⇔ Geometry
      Width   ⇔ 8
      Precision   ⇔ 0
      Scale   ⇔ 0

      Field description   ⇔
      Feature geometry.

      Description source   ⇔
      Esri

      Description of values   ⇔
      Coordinates defining the features.

    Field Boulder_Name ►
      Alias   ⇔ Boulder Name
      Data type   ⇔ String
      Width   ⇔ 255
      Precision   ⇔ 0
      Scale   ⇔ 0

      Field description
      Unique name/number give or assigned to each boulder moved

Description source
None

Description of values
Unique name/number give or assigned to each boulder moved

Field DateMoved ▶
Alias ⇔ datemoved
Data type ⇔ Date
Width ⇔ 8
Precision ⇔ 0
Scale ⇔ 0

Field description
Date boulder was moved

Description source
None

List of values
Value   Date
Description   Date boulder was moved
Enumerated domain value definition source   None

Field Prev_Latitude ▶
Alias ⇔ Prev_Latitude
Data type ⇔ Double
Width ⇔ 8
Precision ⇔ 38
Scale ⇔ 8

Field description
Original or previous latitude of the boulder

Description source
None

Description of values
Coordinates

Field Prev_Longitude ▶
Alias ⇔ Prev_Longitude
Data type ⇔ Double
Width ⇔ 8
Precision ⇔ 38
Scale ⇔ 8

Field description
Original or previous longitude of the boulder

Description source
None

Description of values
Coordinates

Field Latitude ▶
Alias ⇔ Latitude
Data type ⇔ Double
Width ⇔ 8
Precision ⇔ 38
Scale ⇔ 8

Field description
Latitude of new boulder location post move

Description source
None

Description of values
Coordinates

Field Longitude ▶
Alias ⇔ Longitude
Data type ⇔ Double
Width ⇔ 8
Precision ⇔ 38

Scale ⇔ 8

Field description
Longitude of new boulder location post move

Description source
None

Description of values
Coordinates

Field Project_Area ▶
Alias ⇔ Project Area
Data type ⇔ String
Width ⇔ 255
Precision ⇔ 0
Scale ⇔ 0

Field description
Type of project area – for example, cable route or turbine foundation

Description source
None

Coded values
Name of codelist   Categories of project areas
Source   None

Field Developer ▶
Alias ⇔ Developer
Data type ⇔ String
Width ⇔ 255
Precision ⇔ 0
Scale ⇔ 0

Field description
Name of offshore wind development company for which the boulder was moved

Description source
None

Description of values
Name

Field Project_Name ▶
Data type   String
Width   0
Precision   0
Alias ⇔ Project_Name
Scale ⇔ 0

Field description
Name of unique offshore wind development project

Description source
None

Description of values
Name

Field Boulder_Size_Category ▶
Data type   String
Width   0
Alias ⇔ Boulder_Size_Category
Precision ⇔ 0
Scale ⇔ 0

Field description
Category of boulder size (in dimension) TBD

Description source
None

Coded values
Name of codelist   boulder categories
Source   None

Field Boulder_Size_Specific ▶
Alias   Boulder Size (Specific)

Data type   String
Width   0
Precision   ⇔0
Scale   ⇔0

Field description
If available, the specific size of the boulder, either dimensional or weight

Description source
None

Description of values
Measurement

Field Habitat ▶
Data type   String
Width   0
Alias   ⇔Habitat
Precision   ⇔0
Scale   ⇔0

Field description
CMECS habitat of where moved boulder now resides

Description source
None

Coded values
    Name of codelist   CMECS
    Source   CMECS

Field Comments ▶
Data type   String
Width   0
Alias   ⇔Comments
Precision   ⇔0
Scale   ⇔0

Field description
any comments regarding project or individual boulder movement

Description source
None

Description of values
Comment field

Metadata Details ▶

Metadata language   ⇔English (UNITED STATES)
Metadata character set   utf8 - 8 bit UCS Transfer Format

Scope of the data described by the metadata   ⇔dataset
Scope name   ⇔dataset

Last update   ⇔2025-05-20

ArcGIS metadata properties
    Metadata format   ArcGIS 1.0
    Standard or profile used to edit metadata   FGDC

    Created in ArcGIS for the item   2024-04-10   11:46:00
    Last modified in ArcGIS for the item   2025-05-20   11:50:24

    Automatic updates
        Have been performed   Yes
        Last update   2025-05-20   11:50:24

Metadata Contacts ▶

Metadata contact - point of contact
    Individual's name   Samantha Coccia-Schillo
    Organization's name   Regional Wildlife Science Collaborative

    Contact information ▶
        Phone
            Voice   585-402-6044
        Address
            Type   physical
            City   Pittsford
            Administrative area   New York
            Postal code   14534

Metadata Maintenance ▶

Maintenance
Update frequency   as needed