Identification_Information:
  Citation:
    Citation_Information:
      Originator: Commission for Environmental Cooperation
      Publication_Date: 2021
      Title: North American Seagrass Locations
      Geospatial_Data_Presentation_Form: Vector digital data
      Publication_Information:
        Publication_Place: Montréal, Québec, Canada
        Publisher: Commission for Environmental Cooperation
      Online_Linkage: http://www.cec.org/north-american-environmental-atlas/

  Description:
    Abstract:
      The locations of Seagrasses in North America were estimated by combining datasets from different sources using different methods. These include global and national datasets that were generated from remote sensed imagery, field surveys and herbarium records. The current dataset serves as an updated of the previously North American Seagrass distribution map published by the Commission for Environmental Cooperation in 2017.

        Commission for Environmental Cooperation (CEC). 2016. "North American Blue Carbon". Ed. 1.0, Vector digital data [1:10,000,000]. Available at http://www.cec.org/tools-and-resources/map-files/north-american-blue-carbon-2017 CEC. 2016. North America's Blue Carbon: Assessing Seagrass, Salt Marsh and Mangrove Distribution and Carbon Sinks. Montreal, Canada: Commission for Environmental Cooperation. 54 pp. Available at http://www3.cec.org/islandora/en/item/11664-north-america-s-blue-carbon-assessing-seagrass-salt-marsh-and-mangrove-en.pdf

A) Datasets used in the North American 2021 Seagrass Locations Map. A more detailed description of all the datasets used, as well as the preprocess performed to extract Seagrasses information is available in the accompanying document "Blue Carbon Map source data notes 2021.docx".

SG_27 Global Distribution of Seagrasses
World Conservation Monitoring Center-United Nations Environment Programme
Spatial Domain: Global
Geometry: Point
Data: https://data.unep-wcmc.org/datasets/7
Source metadata: https://data.unep-wcmc.org/pdfs/7/Global_Distribution_of_Seagrasses.pdf?1615453339
Source file name: WCMC013014-Seagrasses-Py-v7.shp
Scale/Resolution: point layer
Version: 7.0
Year of Origin: 2018
Year of Publication: 2020

SG_28 Canada Eelgrass Locations
Environment and Climate Change Canada
Spatial Domain: Canada
Geometry: Point
Data: https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/eelgrass-canada.html

Source metadata: https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/eelgrass-canada.html
Source file name: eelgrass-sites-in-canada.csv
Scale/Resolution: point layer
Version: N/A
Year of Origin: 1969 - 2019
Year of Publication: 2020

SG_29 Canada Eelgrass Locations 2
Compiled by Matt Christensen (University of British Columbia)
Spatial Domain: Canada
Geometry: Point
Layer status: New spatial layer
Data: Dataset provided by Matt Christensen (mattch85@gmail.com)
Source metadata: N/A
Source file name: ZMarina_2020_05_12.csv
File folder: Canada_eelgrass_locations_2
File name: Canada_eelgrass_locations_2.shp
Scale/Resolution: point layer
Version: N/A
Year of Origin: 1882 - 2013
Year of Publication: 2020

SG_30 BC Howe Sound Eelgrass locations
Howe Sound/Átl'ka7tsem Marine Reference Guide
Spatial Domain: Regional
Geometry: Point
Data: Dataset provided by Matt Christensen (mattch85@gmail.com)
Source metadata: https://howesoundguide.ca/wp-content/uploads/2020/02/Eelgrass-survey-report_MRG_final.pdf
Source file name: Eelgrass_HowSound.gdb
Scale/Resolution: N/A
Version: N/A
Year of Origin: 2019
Year of Publication: 2020

SG_31 New Brunswick seagrass locations
Frederick T. Short (University of New Hampshire)
Spatial Domain: Regional
Geometry: Point
Data: Dataset provided by Frederick T. Short (fredtshort@gmail.com)
Source metadata: http://publications.gc.ca/collections/collection_2018/eccc/cw69-5/CW69-5-267-eng.pdf
Source file name: NBZosteraLocations.shp
Scale/Resolution: N/A
Version: N/A
Year of Origin: 1980 - 1985
Year of Publication: 1996

SG_32 Prince Edward Island seagrass locations
Frederick T. Short (University of New Hampshire)
Spatial Domain: Regional
Geometry: Point
Data: Dataset provided by Frederick T. Short (fredtshort@gmail.com)

Source metadata:
http://publications.gc.ca/collections/collection_2018/eccc/cw69-5/CW69-5-267-eng.pdf
Source file name: CAN-PEI-FShort-Zostera_pt.shp
Scale/Resolution: N/A
Version: N/A
Year of Origin: 1974
Year of Publication: 1996

SG_33 Nova Scotia seagrass locations
Frederick T. Short (University of New Hampshire)
Spatial Domain: Regional
Geometry: Point
Data: Dataset provided by Frederick T. Short (fredtshort@gmail.com)
Source metadata:
http://publications.gc.ca/collections/collection_2018/eccc/cw69-5/CW69-5-267-eng.pdf
Source file name: NS_Zostera.shp
Scale/Resolution: N/A
Version: N/A
Year of Origin: 1974 - 1978
Year of Publication: 1996

SG_34 National Greenhouse Gasses Inventory
Environmental Protection Agency
Spatial Domain: United States
Geometry: Point
Data: https://github.com/Smithsonian/Coastal-Wetland-NGGI-Data-Public
Source metadata: https://github.com/Smithsonian/Coastal-Wetland-NGGI-Data-Public/raw/master/5-Report/Report%20on%202017%20NGGI%20Update.pdf
Source file name: Coastal Carbon NGGI Data.xlsx
Scale/Resolution: point layer
Version: 1
Year of Origin: 2016
Year of Publication: 2017

SG_35 Pacific Northwest seagrass locations
Prentice, C., et al. 2020. A synthesis of blue carbon stocks, sources, and accumulation rates in eelgrass (Zostera marina) meadows in the Northeast Pacific. Global Biogeochemical Cycles, 34(2)
Spatial Domain: Regional
Geometry: Points
Data: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019GB006345
Source metadata:
https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019GB006345
Source file name:
ID43_Asynthesis_samples_blue_carbon_stocks_bibliographic.shp
Scale/Resolution: N/A
Version: N/A
Year of Origin: 2015 – 2019
Year of Publication: 2020

SG_36 North Pacific coast seagrass locations
Kauffman, J. Boone, et al. "Total ecosystem carbon stocks at the marine-terrestrial interface: Blue carbon of the Pacific Northwest Coast, United States." Global Change Biology 26.10 (2020): 5679-5692.
Spatial Domain: Regional

Geometry: Points
Data: Dataset provided by Craig Cornu (cecornu@gmail.com)
Source metadata: https://onlinelibrary.wiley.com/doi/10.1111/gcb.15248
Source file name: ID67_pointFor_Boone_Kauffman_paperresearch.shp
Scale/Resolution: Point data
Version: N/A
Year of Origin: 2020
Year of Publication: 2020

SG_37 Washington coast seagrass locations
Washington State Department of Natural Resources Submerged Vegetation Monitoring Program
Spatial Domain: Regional
Geometry: Point
Data: https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP_distribution.zip
Source metadata: https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP_distribution.zip
Source file name: SVMP_distribution.gdb
Scale/Resolution: N/A
Version: N/A
Year of Origin: 2000 – 2019
Year of Publication: 2020

SG_38 Pastos marinos en la Península de Yucatán
National Commission for the Knowledge and Use of Biodiversity (CONABIO) - UAM-I
Spatial Domain: Regional
Geometry: Point
Data: Provided by Iliana Pérez Espinosa (CONABIO)
Source metadata: N/A
Source file name: EspeciesPY.shp
Scale/Resolution: N/A
Version: N/A
Year of Origin: 2013 – 2018
Year of Publication: 2021

Purpose:

This dataset was created as part of a collaborative effort between the Mexican Carbon Program that conducted an exhaustive search for data updates or new datasets available, as well as coordinate three national workshops with Blue Carbon experts from Canada, the United States and Mexico to retrieve feedback on the best practices to map Blue Carbon ecosystems across North America; and the Commission for Environmental Cooperation that conducted the review and evaluation of the datasets collected, as well as the map integration process and cartographic refinement in collaboration with Ricardo Llamas (rllamas@comunidad.unam.mx)as independent geospatial consultant.

The goal of this datasets is to serve as a geospatial tool to estimate Blue Carbon Sink potential of North America in ecosystems such as Seagrasses, as well as provide a standardized and publicly available input dataset for various Carbon Budget analyses.

Supplemental_Information:
The Commission for Environmental Cooperation (CEC) is an international organization created by Canada, Mexico, and the United States of America under the North American Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA). Further information on the CEC is available from http://www.cec.org/ or from
>Commission for Environmental Cooperation
>700 de la Gauchetière St. West
>Suite 1620
>Montréal (Québec)
>H3B 5M2 Canada
>
>Telephone: 1 514 350 4300
>Facsimile: 1 514 350 4314
>Electronic mail: info@cec.org
>

A more detailed description of all the datasets used, as well as the preprocess performed to extract Seagrasses locations is available in the accompanying document "Blue Carbon Map source data notes 2021.docx"

Information related to the Blue Carbon legacy maps produced by the Commission for Environmental Cooperation can be found in the following reports:

1) CEC. 2014. North America's Blue Carbon: Assessing Seagrass, Salt Marsh and Mangrove Carbon Sinks A Final Report. Montreal, Canada: Commission for Environmental Cooperation. 219 pp

2)CEC. 2017. Blue Carbon Seagrass Mapping in Canada and The United States: British Columbia Washington and Oregon, Developing an Algorithm and Quantifying Eelgrass Extent A Final Report. Montreal, Canada: Commission for Environmental Cooperation. 82 pp

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 3 May 2021
Currentness_Reference: Publication date
Status:
Progress: Complete
Maintenance_and_Update_Frequency: Irregular
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -170.5
East_Bounding_Coordinate: -50.0
North_Bounding_Coordinate: 85.0
South_Bounding_Coordinate: 14.0

Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category

```
      Theme_Keyword: biota
      Theme_Keyword: environment
      Theme_Keyword: oceans

    Theme:
      Theme_Keyword_Thesaurus: GCMD science keywords
      Theme_Keyword: Seagrass
      Theme_Keyword: Eelgrass

    Place:
      Place_Keyword_Thesaurus: None
      Place_Keyword: North America
      Theme_Keyword: Canada
      Place_Keyword: Mexico
      Place_Keyword: United States of America


  Access_Constraints: None
  Use_Constraints:
    None. Acknowledgement of the Commission for Environmental Cooperation
          would be appreciated in products derived from these data.

  Point_of_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: Commission for Environmental Cooperation
      Contact_Address:
        Address_Type: Mailing and physical address
        Address: 700 de la Gauchetière St. West, Suite 1620
        City: Montreal
        State_or_Province: Quebec
        Postal_Code: H3B 5M2
        Country: Canada
      Contact_Voice_Telephone: 1 514 350 4300
      Contact_Facsimile_Telephone: 1 514 350 4314
      Contact_Electronic_Mail_Address: info@cec.org

Data_Quality_Information:
  Attribute_Accuracy:
    Attribute_Accuracy_Report:
      Attributes and values were reviewed manually. No additional tests for
      attribute accuracy was performed on this data set.
  Logical_Consistency_Report:
    No tests for logical consistency have been performed on this data set.

  Completeness_Report:

      The international, national, and local datasets used in this analysis
      have known data gaps. In this dataset, the most updated Seagrass
      locations datasets to our knowledge have been used. Future updates are
      envisioned as new data is available and new data providers offer
      spatial information over areas omitted in the current map.

  North American Seagrasses Locations, Map Integration Report:
      The datasets used for the North America Blue Carbon Maps integration
      were preprocessed to extract spatial information representing the
      distribution of Saltmarshes, Mangroves and Seagrasses.
```

Preprocesses conducted with the Seagrasses datasets were performed between December 2020 and March 2021.

NOTE: A more complete and detailed report of the North American 2021 Seagrasses Locations map is available in the accompanying report "NA BC Cartographic Integration Process.docx"

Preprocessing by dataset:

SG_27. Global Distribution of Seagrasses

A "selection by attributes process" was performed to isolate all seagrasses points corresponding to Canada, the United States and Mexico territories. All points located in the USA territories over the Pacific Ocean as well as Puerto Rico were deselected. A final seagrass layer was exported from the remaining points selection.

SG_28. Canada Eelgrass Locations

No preprocessing was needed for this dataset.

SG_29. Canada Eelgrass Locations 2

Data from the input dataset were converted to a point spatial layer based on the coordinates reported for each record. Records not reporting species name were omitted and the rest of the records were exported to a new point spatial layer.

SG_30. BC Howe Sound Eelgrass locations

The original data is available in a geodatabase that contains different polygon layers and a point layer with locations of presence of seagrasses. The layer with seagrass distribution and a layer that merges all of them. The layer "Eelgrass_HoweSound_Fieldwork2019_coordinates_WM" was selected and exported to a new points spatial layer.

SG_31. New Brunswick seagrass locations

No preprocessing was needed for this dataset.

SG_32. Prince Edward Island seagrass locations

No preprocessing was needed for this dataset.

SG_33. Nova Scotia seagrass locations

No preprocessing was needed for this dataset.

SG_34. National Greenhouse Gasses Inventory

The coastal carbon dataset was converted from an excel spreadsheet to a point shapefile based on Latitude and Latitude values per each record, the references coordinate system assigned was WGS84. Seagrass records were selected by "select by attributes" tool. A few points possibly incorrectly georeferenced over the ocean and further inland were deleted manually to keep only the records along the coast of the United States.

SG_35. Pacific Northwest seagrass locations

Seagrass sample locations were selected and georeferenced into a point spatial layer.

SG_36. North Pacific coast seagrass locations

The original dataset was georeferenced and converted into spatial points by the Mexican Carbon Program. This dataset provides a set of points that describe locations of seagrasses and saltmarshes in the North Pacific coast of the United States. Seagrass points where selected and exported to a new spatial layer.

SG_37. Washington coast seagrass locations
All points classified as different than "no_grass" or "no_data" class in the "site_pt" layer within the source geoDataset were selected and exported to a new points spatial layer.

SG_38. *Pastos marinos en la Península de Yucatán*
All class names reported as species abbreviations were described as complete species name in a new field. According to information reported by the author of this dataset, the "Year of origin" attribute was defined on a new attribute field.

Cartographic Integration Process:

Step 01
All the layers previously prepared and preprocessed were merged in a new spatial layer.
> BC_HoweSound_seagrass_locations_laea_final.shp
> Canada_eelgrass_locations_laea_final.shp
> Canada_eelgrass_locations_2_laea_final.shp
> NewBrunswick_seagrass_locations_laea_final.shp
> NGGI_united_states_seagrass_laea_final.shp
> North_Pacific_coast_seagrass_final.shp
> NovaScotia_seagrass_locations_laea_final.shp
> Pacific_Northwest_seagrass_locations_laea_final.shp
> PEI_seagrass_locations_laea_final.shp
> Washington_coast_seagrass_locations_laea_final.shp
> WCMC_NorthAmerica_seagrasses_point_laea_final.shp
> Mex_conabio_seagrass_laea_final.shp

Output = NorthAmerica_seagrasses_points_dissolve.shp

Step 02
All records in the attribute table fields were standardized, different feature names with different codes or abbreviations to indicate species or seagrass distribution characteristics were homogenized in a standard code names, common names were included in most of the records, accompanying the scientific name descriptions when available.

Step 03
After a final check of attribute table consistency and data display on different GIS platforms, a spatial data file in ESRI "shp" format is generated to provide the final CEC North America seagrasses distribution map.

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: G-point
      Point_and_Vector_Object_Count: 6760

```
Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Planar:
      Map_Projection:
        Map_Projection_Name: Sphere_ARC_INFO_Lambert_Azimuthal_Equal_Area
        Projection: Lambert
          Longitude_of_Projection_Center/Central Meridian: -100.0
          Latitude_of_Projection_Center/Origin: 45.0
          False_Easting: 0.0
          False_Northing: 0.0

      Planar_Coordinate_Information:
        Planar_Coordinate_Encoding_Method: Coordinate pair
        Coordinate_Representation:
          Abscissa_Resolution: 0.001
          Ordinate_Resolution: 0.001
          Planar_Distance_Units: Meter

      Geodetic_Model/Datum:
      Horizontal_Datum_Name: D_Sphere_ARC_INFO
      Ellipsoid_Name: Sphere_ARC_INFO
      Semi-major_Axis: 6370997.0
      Semiminor Axis: 6370997.0
      Denominator_of_Flattening_Ratio/Inverse Flattening: 0.0

Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: North American 2021 Seagrass Locations
      Entity_Type_Definition:
      Vector points representing Seagrass locations in North America.

      Entity_Type_Definition_Source:

      <See Datasets section>

    Attribute:
      Attribute_Label: FID
      Attribute_Definition: Unique identifier for each polygon.
      Attribute_Definition_Source: Automatically generated
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 6760

    Attribute:
      Attribute_Label: COUNTRY
      Attribute_Definition: Country.
      Attribute_Definition_Source: Country of location of each polygon (CAN:
           Canada, USA: United States of America, MEX: Mexico). CEC 2005.
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: (see table below)
          Enumerated_Domain_Value_Definition:
            >----------------------------------------------------------------
            > CAN
            > MEX
```

```
        > USA

  Reference:
  Commission for Environmental Cooperation (2005) Guidelines for Geo-
  spatial data for Compatibility with the North American Atlas Framework.
  CEC: Montreal pp.5-11

Attribute:
  Attribute_Label: STATEABB
  Attribute_Definition: State or Province.
  Attribute_Definition_Source: State or province code defining the
      location of each polygon (two letters country code + two letters
      state/province code).
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >-----------------------------------------------------------------
        > CA-BC
        > CA-NB
        > CA-NL
        > CA-NS
        > CA-NT
        > CA-ON
        > CA-PE
        > CA-QC
        > MX-BCN
        > MX-BCS
        > MX-CAM
        > MX-CHP
        > MX-OAX
        > MX-ROO
        > MX-SIN
        > MX-SON
        > MX-TAM
        > MX-VER
        > MX-YUC
        > US-AK
        > US-AL
        > US-CA
        > US-FL
        > US-LA
        > US-MA
        > US-MD
        > US-ME
        > US-NC
        > US-NH
        > US-NJ
        > US-OR
        > US-TX
        > US-VA
        > US-WA

  See complete list in:
  Commission for Environmental Cooperation (2005) Guidelines for Geo-
  spatial data for Compatibility with the North American Atlas Framework.
  CEC: Montreal pp.5-11
```

Attribute:
  Attribute_Label: NAME
  Attribute_Definition: Reported Name.
  Attribute_Definition_Source: Name of the features described by each
      polygon, as reported by the source of each dataset.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >--
        > Caribbean Seagrass (Halophila decipiens)
        > Clover Grass (Halophila baillonis)
        > Dwarf Eelgrass (Zostera japonica)
        > Eelgrass (Zostera marina)
        > Eelgrass (Zostera marina) - Dwarf Eelgrass (Zostera japonica)
        > Eelgrass (Zostera marina) - Surfgrass (Phyllospadix)
        > Johnson's Seagrass (Halophila johnsonii)
        > Manatee Grass (Syringodium filiforme)
        > Not Reported
        > Scouler's Surfgrass (Phyllospadix scouleri)
        > Seagrass
        > Seagrass (Historical observation)
        > Seagrass (Multiple observations)
        > Seagrass (Restored)
        > Seagrass (Single observation)
        > Seagrass (Zostera)
        > Shoal Grass (Halodule wrightii)
        > Star Grass (Halophila engelmannii)
        > Surfgrass (Phyllospadix)
        > Toothed Surfgrass (Phyllospadix serrulatus)
        > Torrey's Surfgrass (Phyllospadix torreyi)
        > Turtle Grass (Thalassia testudinum)
        > Turtle Grass (Thalassia testudinum) - Manatee Grass
        (Syringodium Filiforme) - Shoal Grass (Halodule wrightii)
        > Turtle Grass (Thalassia testudinum) - Manatee Grass
        (Syringodium Filiforme) - Shoal Grass (Halodule wrightii) -
        Macroalgae
        > Zostera asiatica

Attribute:
  Attribute_Label: INPT_SRCE
  Attribute_Definition: Input Source.
  Attribute_Definition_Source: Description of the original dataset used
      to acquire each polygon.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >--
        > Acadia University
        > Compiled by Matt Christensen (University of British Columbia)
        > Environment and Climate Change Canada
        > Environmental Protection Agency (EPA)
        > Frederick T. Short (University of New Hampshire)
        > Gouvernement du Québec
        > Kauffman, J. B. et al., 2020

> National Commission for the Knowledge and Use of Biodiversity (CONABIO) - UAM-I
> Prentice, C. et al., 2020
> UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
> Université Laval
> University of British Columbia
> Washington State Department of Natural Resources Submerged Vegetation Monitoring Program

Attribute:
  Attribute_Label: YEAR_PUB
  Attribute_Definition: Year of Publication.
  Attribute_Definition_Source: Year of the publication of the last update of the dataset used as input.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >----------
        > 1996
        > 2017
        > 2020
        > 2021

Attribute:
  Attribute_Label: RESP_PARTY
  Attribute_Definition: Responsible Party.
  Attribute_Definition_Source: Name of the entity responsible on providing each dataset.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >----------
        > CAN: E. C. Smith Herbarium (ACAD) - Cape Breton University Collection
        > CAN: Environment and Climate Change Canada
        > CAN: Herbier du Québec - Collection de plantes vasculaires
        > CAN: Herbier Louis-Marie - Collection de plantes vasculaires
        > CAN: Howe Sound/Átl’ka7tsem Marine Reference Guide
        > CAN: University of British Columbia
        > CAN: University of British Columbia Herbarium - Vascular Plant Collection
        > Faculty of Science, University of Western Australia
        > Frederick T. Short (University of New Hampshire)
        > Herrera-Silveira, Jorge (CINVESTAV-IPN, Merida)
        > Hoffman, B.
        > Iliana Pérez Espinosa and Margarita Gallegos Martínez
        > International Union for Conservation of Nature (IUCN) - UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
        > Kauffman, J. B. et al., 2020
        > MEX: Centro de Investigación y de Estudios Avanzados (CINVESTAV)
        > MEX: Universidad Nacional Autónoma de México (UNAM)
        > Morris, L. J. et al., 2000

> Not Reported
> Phillips, R. C., 1992
> Prentice, C. et al., 2020
> Raz-Guzmán, Andrea (Instituto de Investigaciones sobre los Recursos Naturales, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, México)
> UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
> United Nations Educational, Scientific and Cultural Organization (UNESCO)
> United Nations Educational, Scientific and Cultural Organization (UNESCO) - World Heritage Centre (WHC)
> USA: Boston University Marine Program
> USA: Coastal Change Analysis Program (C-CAP)
> USA: Coastal Resources Associates, Inc.
> USA: Deparmtent of Botany and Plant Pathology, Oregon State University
> USA: Department of Biology, Blakely Island Field Station, Seattle Pacific University
> USA: Environmental Protection Agency (EPA)
> USA: Florida Department of Environmental Protection
> USA: Florida International University
> USA: Florida Keys Land and Sea Trust
> USA: Moss Landing Marine Laboratories
> USA: San Diego State University
> USA: Seagrass Ecosystems Research Lab
> USA: Seagrass Recovery, Inc.
> USA: Seattle Pacific University
> USA: Smithsonian
> USA: Smithsonian Tropical Research Institute
> USA: The Bureau of the Convention on Wetlands
> USA: United States Geological Survey (USGS)
> USA: University of Alaska, Fairbanks
> USA: University of California Press
> USA: University of Miami - Rosenstiel School of Marine and Atmospheric Science
> USA: University of New Hampshire
> USA: University of Texas - Pan American
> USA: Virginia Institute of Marine Science, School of Marine Science
> USA: Washington State Department of Natural Resources Submerged Vegetation Monitoring Program
> World Bank

Attribute:
  Attribute_Label: YEAR_ORGN
  Attribute_Definition: Year of Origin.
  Attribute_Definition_Source: Year of origin of data reported by the source of each dataset (this can be year when data was taken or when the data was originally published by the source).
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: (see table below)
      Enumerated_Domain_Value_Definition:
        >----------
        > 1882
        > 1912

> 1913
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        > 2009
        > 2010
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        > 2012
        > 2013
        > 2013-2017
        > 2013, 2016, 2018
        > 2013, 2018
        > 2014
        > 2015
        > 2015-2019
        > 2015, 2016
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        > [MyFlorida.com]
        > [Personal communication reported by UNEP-WCMC]
        > A manipulative experiment demonstrates that blooms of the
        macroalga (Ulvaria obscura) can reduce eelgrass shoot density
        > A preliminary look at effects of the Exxon Valdez oil spill on
        Green Island Research Natural Area
```

> AMEC Earth and Environmental (2007) Northumberland Strait Ecosystem Overview Report, Moncton, New Brunswick (File No. TE61035). Submitted to: Fisheries and Oceans Canada
> Applied Geomatics Research Group, Nova Scotia Community College
> Assessment of environmental suitability for growth of Zostera marina Eelgrass in San Francisco Bay, California, USA
> Baldwin J. R. & Lovvorn J.R. (1991) Expansion of seagrass habitat by the exotic Zostera japonica, and its use by dabbling ducks and brant in Boundary Bay, British Columbia. Marine Ecology Progress Series. 103: 119-127
> Bélisle, Mathieu (2016) Cartographie de la zostère marine au Parc national du Canada Kouchibouguac, Nouveau-Brunswick, à l'aide d'imagerie satellitaire à haute résolution, WorldView-2
> Bélisle, Mathieu (2019) Cartographie de la zostère marine au Park national du Canada Terra Nova, Terre-Neuve, à l'aide d'imagerie WorldView-2, Rapport de cartographie.
> British Columbia Marine Conservation Analysis Project Team (2011) Marine Atlas of Pacific Canada: A Product of the British Columbia Marine Conservation Analysis
> Chapman A. & Smith J. (2004) Quantifying the rapid decline of eelgrass beds on the eastern shore of Nova Scotia between 1992 and 2002. In: Hanson A.R. (Ed.) Status and conservation of eelgrass (Zostera marina) in Eastern Canada
> Chesapeake Bay USA: An unprecedented decline in submerged aquatic vegetation
> Collins, K. et al., (2016) Topo-Bathymetric Lidar and Photographic Survey of Various Bays located in NB, NS, and PEI. Technical report, Applied Geomatics Research Group, NSCC Middleton, NS
> Consortium Genivar-Waska (2017) Centrales de l'Eastmain-1-A et de la Sarcelle et dérivation Rupert. Suivi de la zostère marine de la côte nord-est de la baie James. Rapport d'étude 2014. Rapport du Consortium GENIVAR-Waska pour Hydro-Québec
> Cowichan First Nation, SeaChange Maine Conservation Society
> Cullain N. et al., (2018) Correction to: Spatial variation of macroinfaunal communities associated with Zostera marina beds across three biogeographicr regions in Atlantic Canada. Estuaries and Coasts 41: 1522-1523
> Cullain N. et al., (2018) Potential impacts of finfish aquaculture on eelgrass (Zostera marina) beds and possible monitoring metrics for management: a case study in Atlantic Canada. PeerJ 6:e5630
> Cullain N. et al., (2018) Spatial variation of macroinfaunal communities associated with Zostera marina beds across three biogeographic regions in Atlantic Canada. Estuaries and Coasts 41: 1381-1396
> Cullis-Suzuki S. et al., (2015) Tending the meadows of the sea: A disturbance experiment based on traditional indigenous harvesting of Zostera marina L.
> Dataset derived from Kauffman, J. et al. 2020
> Durance, C. (2013) Project comissioned by the Port Metro Vancouver
> Durance, C. (2017) Unpublished report
> Durance, C. (2018) Project comissioned by the Port Metro Vancouver
> Durance, C. (2018) Unpublished report

> Durance, C. (2019) A summary of eelgrass (Zostera marina) transplants completed by Precision Identification between 1994 and 2019. Unpublished data
> Durance: Various unpublished reports
> Ecology of eelgrass meadows in the Pacific Northwest: a community profile
> Ecology of Eelgrass Zostera marina, transplants in Izembek Lagoon, Alaska
> Ecosystem characteristics and research and management needs in the Florida Big Bend
> Environment and Climate Change Canada (2018) Canadian Wildlife Service
> Epibiotic protozoa (Ciliophora) on a community of Thalassia testudinium Banks ex Konig in a coral reef in Veracruz, Mexico
> Eutrophication of Buttermilk Bay, a Cape Cod coastal embayment: concentrations of nutrients and watershed nutrient budgets
> Everglades National Park
> Evidence of interaction between the seagrasses (Zostera marina and Zostera japonica) on the Pacific coast of Canada
> Fisheries and Oceans Canada (2009) Does eelgrass (Zostera marina) meet the criteria as an ecologically significant species? DFO Canadian Science Advisory Secretariat Science Advisory Report 2009/018
> Friends of Boundary Bay
> Garbary D. & Munro J. (2004) Eelgrass decline: reality and causation. In: Hanson AR (Ed.) Status and conservation of eelgrass (Zostera marina) in Eastern Canada. Technical Report Series No. 412. Canadian Wildlife Service, Atlantic Region
> Garbary, D. J. et al., (2014) Drastic decline of an extensive eelgrass bed in Nova Scotia due to the activity of the invasive green crab (Carcinus maenas). Marine Biology 161: 3-15
> Geographic coordinates of sea grasses visual observations at various locations in the states of Campeche, Yucatán and Quintana Roo
> Gotceitas, V. et al., (1996) Description and distribution of habitat types and juvenile Atlantic cod in the nearshore environment along the northeast coast of Newfoundland, Canada. Memorial University of Newfoundland. Final Report
> Gotceitas, V. et al., (1997) Use of eelgrass beds (Zostera marina) by juvenile Atlantic cod (Gadus morhua). Canadian Journal of Fisheries and Aquatic Sciences. 54(6):1306-1319
> Grant C. & Provencher L. (2007) Caractérisation de l’habitat et de la faune des herbiers de Zostera marina (L.) de la péninsule de Manicouagan (Québec). Rapport technique Canadien des sciences halieutiques et aquatiques. 2772 : VIII + 65 p
> Gregory, R. S. et al., (1997) Temporal and spatial survey of the fish community and its distribution among nearshore habitat types in the marine environment in the vicinity of Terra Nova National Park
> Gregory, R. S. et al., (2020) Strength of three cohorts (2016-18) of Atlantic cod, from nearshore surveys of demersal age 0 and 1 juveniles in Newman Sound
> Gregory, Robert [Achived records]
> Hakai Institute, 2018 (doi.org/10.21966/ezev-0v96)
> Hastings, K. et al., (2014) Ecologically and Biologically Significant Areas in the Atlantic Coastal Region of Nova Scotia.

Canadian technical report of fisheries and aquatic sciences. 3107: XII + 174 p
> Herrera-Silveira, Jorge (CINVESTAV-IPN, Merida) [Personal communication reported by UNEP-WCMC]
> Howe Sound/Atl'ka7tsem Marine Reference Guide, Moonstone Enterprises Interpretation and Consulting (2019) Town of Gibsons and Howe Sound/Atl'ka7tsem Eelgrass Survey Report
> Information about the sequestration rates and sources of carbon to local sediments remains sparse. Estimates of sediment OC stocks and sequestration rates from 139 cores collected from temperate seagrass (Zostera marina) meadows in AK, BC, WA, OR
> Irradiance reduction: effects on standing crops of the Eelgrass (Zostera marina) in a coastal lagoon
> Jacques Whitford Ltd. (2010) Technical Data Report. Marine Fish and Fish Habitat. Enbridge Northern Gateway Project
> Laguna de Celestún, Yucatán, México
> Le Breton, S. et al., (2013) Suivi des zosteraies et de la biodiversité des poissons à l'embouchure de la rivière Romaine et dans la baie des Sept Îles pour l'année 2012. Agence Mamu Innu Kaikusseth
> Lemieux C. & Lalumière R. (1995) Répartition de la zostère marine (Zostera marina) dans l'estuaire du fleuve Saint-Laurent et dans la baie des Chaleurs (1994). Rapport présenté au Service canadien de la faune
> Listados florísticos de México, XI. Reserva de la Biosfera el Vizcaino, Baja California Sur
> Locke A. & Hanson J. M. (2004) Changes in eelgrass in southern Gulf of St. Lawrence estuaries. In: Hanson AR (Ed.) Status and conservation of eelgrass (Zostera marina) in Eastern Canada. Technical Report Series No. 412. Canadian Wildlife Service
> Lotze, H. K. et al., (2003) Nutrient pollution: A eutrophication survey of eelgrass beds in estuaries and coastal bays in northern and eastern New Brunswick. Conservation Council of New Brunswick
> Marine region 15: Northeast Pacific
> Marine Region 7: Wider Caribbean
> Martel, M-C. et al., (2009) Distribution and description of eelgrass beds in Québec. DFO Canadian Science Advisory Secretariat, Research Document, 2009/050. VIII + 37 p
> Matheson, K. et al., (2016) Linking eelgrass decline and impacts on associated fish communities to European green crab Carcinus maenas invasion. Marine Ecology Progress Series. 548: 31
> McCarthy, C. (2013) Estuary Therapy. Advances in coastal restoration at Kejimkujik National Park Seaside. Marine Green Crab Summit
> Monitoring seagrass changes in Indian River Lagoon, Florida using fixed transects
> Nellis, P. et al., (2012) Monitoring of vegetation and fish in six eelgrass beds in Quebec (2005-2010). Canadian technical report of fisheries and aquatic sciences. 2985: IX+96 p
> New Brunswick seagrass locations based on a published report by Hanson, A.R. Distribution of Eelgrass in the Maritime Provinces provided by Dr. Fred T. Short
> Niles, M. et al., (2014) Bivalve aquaculture and eelgrass (Zostera marina) coverage on a bay-wide scale utilizing bathymetric lidar and aerial photography

> Nomme K. M. & Harrison P. G. (1991) Evidence for interaction between the seagrasses Zostera marina and Zostera japonica on the Pacific coast of Canada. Canadian Journal of Botany. 69:2004-2010
> Norris, M. J. (1999) A multiscale analysis of juvenile cod (Gadus spp.) habitat association in a nearshore environment. BSc Honours Biology Thesis, Memorial University of Newfoundland. St. John's. 52 p
> Northeast Pacific Seagrass Summary
> Not Reported
> Nova Scotia seagrass locations based on a published report by Hanson, A.R. Distribution of Eelgrass in the Maritime Provinces provided by Dr. Fred T. Short
> O'Neill, J. D. et al., (2011) Remote Sensing of Shallow Coastal Benthic Substrates: In situ Spectra and Mapping of Eelgrass (Zostera marina) in the Gulf Islands National Park Reserve of Canada. Remote Sensing. 3:975-1005
> Parks Canada (2014) Gulf Islands National Park Reserve. Eelgrass Monitoring (www.pc.gc.ca/en/pn-np/bc/gulf/nature/recherche-research/~/media/D00AFF340BFF49AA84FD1EC7FCF2DBAC.ashx)
> Population variability of four sympatric penaeid shrimps (Farfantepenaeus spp.) in a tropical lagoon of Mexico
> Preserved Specimen
> Prince Edward Island seagrass locations based on a published report by Hanson, A.R. Distribution of Eelgrass in the Maritime Provinces provided by Dr. Fred T. Short
> Productivity and biomass of Thalassia testudinum as related to water column nutrient availability and epiphyte levels, field observations and experimental studies
> Productivity estimation in Halodule wrightii: comparison of leaf-clipping and leaf-marking techniques, and the importance of clip height
> Project Watershed
> Puerto Morelos, Quintana Roo, México
> Qalipu Mi'kmaq First Nation Band (2015) Spatial variation in the abundance of eelgrass (Zostera marina) at eight sites in western Newfoundland, Canada (http://qalipu.ca/qalipu/wp-content/uploads/2016/05/Eelgrass-2014-2015.pdf)
> Quantifying eelgrass habitat loss in relation to housing development and nitrogen loading in Waquoit Bay, Massachusetts
> Ramsar Sites Database Service
> Rao, A. S. et al., (2014) Eelgrass (Zostera marina) locations in Newfoundland and Labrador. Canadian technical report of fisheries and aquatic sciences. 3113: VI + 19 p
> Raz-Guzmán, Andrea (Instituto de Investigaciones sobre los Recursos Naturales, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, México) [Personal communication reported by UNEP-WCMC]
> Reshitnyk, L. et al., (2014) Evaluation of WorldView-2 and acoustic remote sensing for mapping benthic habitats in temperate coastal Pacific waters. Remote Sensing of Environment. 153: 7-23
> Roberts Timothy (2017) Influence of environmental factors on eelgrass bed density and biomass across three bays in Atlantic Canada. Faculty of Forestry and Environmental Management,University of New Brunswick, Fredericton, NB, Canada

> Role of seagrasses and mangroves in estuarine food webs: temporal and spatial changes in stable isotope composition and amino acid content during decomposition
> Royal BC museum specimen. V149588. Zostera marina L. Brayshaw, T.88-032. Collected on July 27, 1988 at Tofino (49.1083, -125.9)
> Royal BC museum specimen. V170129. Zostera marina L. Jamison, J. (614) Collected on May 18, 1997 at Denman Island; Denman Point (49.5666, -124.8333)
> Royal BC museum specimen. V171596. Zostera marina L. Lomer, F. & Grove, N. (97436) Collected on July 20, 1997 at Queen Charlotte City; Skidegate (53.25 -132.00)
> Royal BC museum specimen. V178073. Zostera marina L. Ceska, A. (s.n.) Collected on October 23, 1969 at Sedgwick Bay; Lyell Island (52.6333, -131.5667)
> Royal BC museum specimen. V180313. Zostera marina L. Ceska, A. & Mitchell, B. (001239). Collected on July 10, 1978 at Campbell River; White Rock (49.1666, -122.7833)
> Royal BC museum specimen. V193499. Zostera marina L. Marr, K., Copley, C. & McNall, M. (KM6136) Collected on June 20, 2005 at Porcher Island (53.9458, -130.6819)
> Royal BC museum specimen. V193758. Zostera marina L. Marr, K. & Hanke, G. (KM6270) Collected on June 21, 2005 at Larsen Island (53.6083, -130.575)
> Royal BC museum specimen. V193759. Zostera marina L. Marr, K. & Lambert, P. (KM6271) Collected on June 22, 2005 at Banks Island (53.6072, -130.5353)
> Royal BC museum specimen. V194076. Zostera marina L. Marr, K., Copley, C. & McNall, M. (KM6194) Collected on June 21, 2005 at Banks Island; Rawlinson Anchorage (53.5761, -130.5427)
> Royal BC museum specimen. V199472. Zostera marina L. Jones, L. (s.n.) Collected on January 1, 1980 at Malksope River (50.1333, -127.4167)
> Schmidt, A. L. et al., (2011) Ecosystem structure and services in eelgrass Zostera marina and rockweed Ascophyllum nodosum habitats. Marine Ecology Progress Series. 473: 51-68
> Schmidt, A. L. et al., (2012) Regional-scale effects of eutrophication on ecosystem structure and services of seagrass beds. Limnology and Oceanography. 57(5): 1389–1402
> Seagrass distribution in the Northern Gulf of Mexico
> Seagrass Ecosystem Research Lab
> Seagrass Recovery, Inc.
> Seagrass Status and Trends Monitoring Data
> Seagrasses
> Seagrasses - National Status Report, Caribbean Region
> Seagrasses - National Status Report, Central America
> Seagrasses of the Northeast Pacific
> Seymour, N. R., et al., (2002) Decline of Canada geese (Branta canadensis) and common goldeneye (Bucephala clangula) associated with a collapse of eelgrass (Zostera marina) in a Nova Scotia estuary. Helgoland Marine Research 56: 198-202
> Sharp G. & Semple R. (2004) Status of eelgrass beds in south-western Nova Scotia. In: Hanson AR (Ed.) Status and conservation of eelgrass (Zostera marina) in Eastern Canada. Technical Report
> Series No. 412. Canadian Wildlife Service, Atlantic Region
> Sian Ka'an

> Southern Gulf of St-Lawrence Coalition on Sustainability (nd) Executive Summary: Atlantic Eelgrass Monitoring Consortium (Atl-EMC)
> Speller R. & Harper J. R. (2003) The distribution of eelgrass in Okeover and Malaspina Inlets. Coastal and Oceans Resources, Inc.
> Standing stocks and other features of Eelgrass (Zostera marina) populations on the coast of Alaska
> The autecology and production dynamics of Eelgrass (Zostera marina) in Netart's Bay, Oregon
> The distribution of nearshore fishes in kelp and eelgrass communities in Prince William Sound, Alaska: associations with vegetation and physical habitat characteristics
> The Howe Sound/Atl'ka7tsem Marine Reference Guide is a collaborative and community-led initiative whose goal is to build capacity to protect the human and natural values associated with Howe Sound/Atl'ka7tsem's marine environment
> The MAB Programme
> The seagrass ecosystem and resources in Latin America
> The Seagrasses of The Gulf of Mexico
> The Seagrasses of the Pacific Coast of North America
> The Seagrasses of The Western North Atlantic
> The World Database on Protected Areas
> Top-down impact through a bottom-up mechanism. In situ effects of limpet grazing on growth, light requirements and survival of the Eelgrass (Zostera marina)
> Trophic structure related to seagrass habitat complexity
> Vandermeulen, H. (2013) Mapping Eelgrass (Zostera marina) with a novel towfish: Richibucto and Shippagan, New Brunswick. Canadian technical report of fisheries and aquatic sciences. 3064: V + 19 p
> Variation in ecological parameters of Thalassia testudinum across the CARICOMP network
> Whale Sanctuary of El Vizcaino
> Wong, M. C. (2018) Secondary production of macrobenthic communities in seagrass (Zostera marina, Eelgrass) beds and bare soft sediments across differing environmental conditions in Atlantic Canada. Estuaries and Coasts. 41:536-548
> Yakimishyn, J. (2018) Parks Canada
> Yakimishyn, J. (2019) Parks Canada

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        > Backman, T. W. & Barilotti, D. C. (1976) 'Irradiance reduction: effects on standing crops the eelgrass Zostera marina in a coastal lagoon, 33-40

> Beaty F. & Sanford D. (2019) 'Town of Gibsons and Howe Sound / Atl’ka7tsem Eelgrass Survey Report'
> Brouns, J. J. W. M. (1982) 'Seagrass Ecosystem Research Lab' [Seagrass Research Page at Florida International University]
> Bureau of the Convention on Wetlands (2003) 'Ramsar Sites Database Service' [Retrieved from https://rsis.ramsar.org]
> CARICOMP (1996) 'Variation in ecological parameters of Thalassia testudinum across the CARICOMP network', 663-668
> Coastal Change Analysis Program (1995) 'Northeast Pacific Seagrass Summary'
> Croom, M. et al., (1995) 'Marine region 15: Northeast Pacific' In: Kelleher, G. et al. (Eds) A Global Representative System of Marine Protected Areas. Vol. 4. South Pacific, Northeast Pacific, Northwest Pacific
> Data provided by Matt Christensen (University of British Columbia)
> Dean, T. A. et al., (2000) 'The distribution of nearshore fishes in kelp and eelgrass communities in Prince William Sound, Alaska: associations with vegetation and physical habitat characteristics' 271-287
> Environment and Climate Change Canada (2020) ' Canadian Environmental Sustainability Indicators: Eelgrass in Canada'
> EPA (2017) 'U.S. Greenhouse Gasses Inventory'
> Florida Department of Environmental Protection (2000) 'MyFlorida.com - The Official Portal of the State of Florida' [Retrieved April 30, 2020, from http://www.myflorida.com/]
> Guzmán, A. 2001 [Personal communication]
> Handley, L. R. (2001) 'Seagrass distribution in the Northern Gulf of Mexico'
> Hanson A. & Calkins L. (1996) 'Wetlands of the Maritime Provinces: Revised Documentation for the Wetlands Inventory' CWS Technical Report No. 267. Canadian Wildlife Service-Environment Canada. Sackville, New Brunswick, Canada, 67 pp
> Herrera-Silveira, J. A. 2001 [Personal communication reported by UNEP-WCMC]
> Herrera-Silveira, J. A., Ramírez-Ramírez, J. (1998) 'Laguna de Celestún, Yucatán, México' 43-55
> Hoffman, B. 2001. [Personal communication reported by UNEP-WCMC]
> IUCN & UNEP-WCMC (2003) 'The World Database on Protected Areas (WDPA)' Cambridge, UK: UNEP-WCMC [Available at: www.protectedplanet.net]
> Juday, G. P. & Foster, N. R. (1990) 'A preliminary look at effects of the Exxon Valdez oil spill on Green Island Research natural area' Agroborealis-Alaska Agricultural and Forestry Experiment Station, University of Alaska-Fairbanks (USA)
> Kauffman, J. et al. (2020) 'Blue carbon of the Pacific Northwest Coast, United States', Global Change Biology 26, 10, 5679-5692
> Kentula, M. E. & David McIntire, C. (1986) 'The autecology and production dynamics of eelgrass (Zostera marina) in Netart's Bay, Oregon. Estuaries 9: 188 [doi:10.2307/1352130]
> Kowalski JL, DeYoe HR, Allison TC, Kaldy JE. 2001. Productivity estimation in Halodule wrightii: comparison of leaf-clipping and leaf-marking techniques, and the importance of clip height. Marine Ecology Progress Series 220: 131-136.

> Luz, J.L.L.de la, et al., (1995) 'Listados floristicos de Mexico' XI. Reserva de la Biosfera el Vizcaino, Baja California Sur: 20
> Mattson, R. A. (1999) 'Seagrass ecosystem characteristics and research and management needs in the Florida Big Bend' Seagrasses: monitoring, ecology, physiology, and management. Stephen A. Bortone (Ed.) CRC Marine Science Series, Boca Raton, FL, 259-277
> McRoy, C. P. (1970) 'Standing stocks and other features of eelgrass (Zostera marina) populations on the coast of Alaska' Journal of the Fisheries Research Board of Canada 27(10): 1811-1821 [doi: 10.1139/f70-199]
> Morris, L. J. et al., (2000) 'Monitoring seagrass changes in Indian River Lagoon, Florida using fixed transects' 167-176
> Nelson T. A. & Lee A (2001) 'A manipulative experiment demonstrates that blooms of the macroalga (Ulvaria obscura) can reduce eelgrass shoot density' 149-154
> Nomme K. M. & Harrison P. G. (1991) 'Evidence of interaction between the seagrasses (Zostera marina and Zostera japonica) on the Pacific coast of Canada 2004-2010'
> Onuf et al., (2003) 'The Seagrasses of The Gulf of Mexico' In: World Atlas of Seagrasses. Green, E. P. & Short, F. T. (Eds.) Berkeley, California (USA): University of California Press
> Orth, R. J. & Moore, K. A (1983) 'Chesapeake Bay USA: an unprecedented decline in submerged aquatic vegetation' 51-53
> Pérez-Castañeda, R. & Defeo, O. (2001) 'Population variability of four sympatric penaeid shrimps (Farfantepenaeus spp.) in a tropical lagoon of Mexico' 631-641
> Pérez-Espinosa, I & Gallegos-Martínez, M., (2021) 'Pastos marinos en la Península de Yucatán', National Commission for the Knowledge and Use of Biodiversity (CONABIO) - UAM-I
> Phillips, R. C. (1984) 'Ecology of Eelgrass Meadows in the Pacific Northwest: A Community Profile (No. FWS/OBS-84/24)' Seattle Pacific Univ., WA (USA), School of Natural and Mathematical Sciences
> Phillips, R. C. (1992) 'The seagrass ecosystem and resources in Latin America' 107-121
> Phillips, R. C. (1996) 'Ecology of eelgrass (Zostera marina L.) transplants in Izembek Lagoon, Alaska' In Seagrass biology: Proceedings of an international workshop Rottnest Island, Western Australia (pp. 25-29)
> Phillips, R. C. (2001) 'Seagrasses - national status report, Caribbean Region' Draft paper submitted to the UNEP-WCMC Global Seagrass Workshop, St Pete's Beach, Florida, 5-9 November, 2001
> Phillips, R. C., & Mehez, E. G. (1988) 'Seagrasses' Smithsonian Contributions to the Marine Science, 34, 1-110
> Prentice, C. et al., (2020) 'A Synthesis of Blue Carbon Stocks, Sources, and Accumulation Rates in Eelgrass (Zostera marina) Meadows in the Northeast Pacific' Global Biogeochemical Cycles, 34(2), 1-16
> Raz-Guzman, A. & Sánchez, A. J. (1996) 'Trophic structure related to seagrass habitat complexity' In Seagrass biology: proceedings of an international seagrass workshop, Rottnest Island, Western Australia (pp. 5-29), Perth, Australia: Western
> Ruiz-Rentería, F. et al., (1998) 'Puerto Morelos, Quintana Roo, Mexico' In: Kjerfve, B. (Ed.) CARICOMP - Caribbean Coral Reef, Seagrass and Mangrove Sites: 57-66

> Seagrass Ecosystems Research Lab, & Florida Keys National Marine Sanctuary (1999) 'Seagrass Status and Trends Monitoring Data'
> Seagrass Recovery, Inc.
> Short F. T. & Burdick D. M. (1996) 'Quantifying eelgrass habitat loss in relation to housing development and nitrogen loading in Waquoit Bay, Massachusetts' Estuaries 19(3): 730-739 [doi: http://www.jstor.org/stable/1352532]
> Short F. T. & Short C. A. (2003) 'The Seagrasses of the Western North Atlantic' In: World Atlas of Seagrasses. Green, E. P. & Short, F. T. (Eds.) Berkeley, California (USA): University of California Press
> Stanley, S. (Ed.) (1995) 'Marine Region 7: Wider Caribbean' 13-41
> Tomasko D. A. & Lapointe B. E. (1991) 'Productivity and biomass of Thalassia testudinum as related to water column nutrient availability and epiphyte levels-field observations and experimental studies' Marine Ecology Progress Series 75: 9-17
> UNEP-WCMC, Short, F.T. (2020) 'Global distribution of seagrasses (version 7.0). Seventh update to the data layer used in Green and Short (2003)', Cambridge (UK): UN Environment World Conservation Monitoring Centre
> UNESCO (2000) 'Man and the Biosphere (MAB) Programme' [https://en.unesco.org/mab]
> UNESCO World Heritage Centre (1979) 'Everglades National Park' [http://whc.unesco.org/en/list/76]
> UNESCO World Heritage Centre (1987) 'Sian Ka'an' [http://whc.unesco.org/en/list/410]
> UNESCO World Heritage Centre (1993) 'Whale Sanctuary of El Vizcaino' [http://whc.unesco.org/en/list/554]
> Unpublished
> Valiela I. & Costa J. E. (1988) 'Eutrophication of Buttermilk Bay, a cape cod coastal embayment: Concentrations of nutrients and watershed nutrient budgets' Environmental Management 12(4): 539-553 [doi: 10.1007/BF01873266]
> WA-DNR (2020) 'Submerged Vegetation Monitoring Program 2000-2019 Database', Washington Department of Natural Resources, Aquatic Resources Division, Olympia, WA, USA.
> Wyllie-Echeverria S. & Ackerman J. D. (2003) 'The Seagrasses of the Pacific Coast of North America' In: World Atlas of Seagrasses. Green E. P. & Short F. T. (Eds.) Berkeley, California (USA): University of California Press
> Wyllie-Echeverria S. & Phillips R. C. (1994) 'Seagrasses of the Northeast Pacific' In: Wyllie-Echeverria, S. et al., (Eds.) Seagrass Science and Policy in the Pacific Northwest, Proceedings of a Seminar Series (SMA 94-1) EPA 910/R-9
> Zieman, J. C. et al., (1984) 'Role of seagrasses and mangroves in estuarine food webs: temporal and spatial changes in stable isotope composition and amino acid content during decomposition' Bulletin of Marine Science 35(3): 380-392
> Zimmerman, R. C. et al., (1991) 'Assessment of environmental suitability for growth of Zostera marina L. (eelgrass) in San Francisco Bay. Aquatic Botany 39(3-4), 353-366
> Zimmerman, R. C. et al., (2001) 'Top-down impact through a bottom-up mechanism. In situ effects of limpet grazing on growth, light requirements and survival of the eelgrass Zostera marina' Marine Ecology Progress Series 218: 127-140

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      Attribute_Definition: Identification code of the datasets reported in
          the data sources full description document.
      Attribute_Definition_Source: Assigned by the GIS consultant
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: SG_27
          Range_Domain_Maximum: SG_38

Distribution_Information:
  Distributor:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: Commission for Environmental Cooperation
      Contact_Address:
        Address_Type: Mailing and physical address
        Address: 700 de la Gauchetière St. West, Suite 1620
        City: Montreal
        State_or_Province: Quebec
        Postal_Code: H3B 5M2
        Country: Canada
      Contact_Voice_Telephone: 1 514 350 4300
      Contact_Facsimile_Telephone: 1 514 350 4314
      Contact_Electronic_Mail_Address: info@cec.org
  Distribution_Liability:
    Although these data have been processed successfully on a computer system
    at the Commission for Environmental Cooperation, no warranty expressed or
    implied is made by the CEC regarding the utility of the data on any other
    system, nor shall the act of distribution constitute any such warranty.
    No responsibility is assumed by CEC in the use of these data.
  Standard_Order_Process:
    Digital_Form:
      Digital_Transfer_Information:
        Format_Name: ESRI Shapefile
      Digital_Transfer_Option:
        Online_Option:
          Computer_Contact_Information:
            Network_Address:
              Network_Resource_Name: http://www.cec.org/north-american-
environmental-atlas/
    Fees: Gratuit-Free

Metadata_Reference_Information:
  Metadata_Date(YYYYMMDAY): 20210425
  Metadata_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: Commission for Environmental Cooperation
      Contact_Address:
        Address_Type: Mailing and physical address
        Address: 700 de la Gauchetière St. West, Suite 1620
        City: Montreal
        State_or_Province: Quebec
        Postal_Code: H3B 5M2
        Country: Canada
```

Contact_Voice_Telephone: 1 514 350 4300
Contact_Facsimile_Telephone: 1 514 350 4314
Contact_Electronic_Mail_Address: info@cec.org
Metadata_Standard_Name:
FGDC Content Standard for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Access_Constraints: None
Metadata_Use_Constraints: None