

Identification_Information:

Citation:

Citation_Information:

Originator: Commission for Environmental Cooperation

Publication_Date: 2021

Title: North American Saltmarshes Distribution

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 extent of Saltmarshes in North America was estimated by combining datasets from different sources using different methods. These include global, national, and local datasets that were generated from ground surveys, and remote sensed imagery. The current dataset serves as an updated of the previously North American Saltmarshes distribution map published by the Commission for Environmental Cooperation in 2016.

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

SM_01 Global Distribution of Saltmarshes

Reference: World Conservation Monitoring Center-United Nations Environment Programme

Spatial Domain: Global

Geometry: Polygon

Data: <https://data.unep-wcmc.org/datasets/43>

Source metadata: https://data.unep-wcmc.org/pdfs/43/Global_Distribution_of_Saltmarsh.pdf?1615453673

Source file name: WCMC027_Saltmarshes_Py_v6.shp

Scale/Resolution: 1:10,000 - 1: 4,000

Version: 6.0

Year of Origin: 2017

Year of Publication: 2019

SM_02 United States National Wetlands Inventory

Reference: U.S. Fish and Wildlife Service

Spatial Domain: United States of America

Geometry: Polygon

Data: <https://www.fws.gov/wetlands/Data/State-Downloads.html>

Source metadata: https://www.fws.gov/wetlands/Data/metadata/FWS_Wetlands.xml

Source file name: AK_Wetlands_North.shp, AK_Wetlands_Central.shp,
AK_Wetlands_South.shp, AL_Wetlands.shp, CA_Wetlands_North.shp,
CA_Wetlands_NorthCentral.shp, CA_Wetlands_South.shp,
CA_Wetlands_SouthCentral.shp, CT_Wetlands.shp, CT_Wetlands.shp,
DE_Wetlands.shp, FL_Wetlands.shp, GA_Wetlands.shp, LA_Wetlands.shp,
MA_Wetlands.shp, MD_Wetlands.shp, ME_Wetlands.shp, MS_Wetlands.shp,
NC_Wetlands.shp, NH_Wetlands.shp, NJ_Wetlands.shp, NY_Wetlands.shp,
OR_Wetlands_East.shp, OR_Wetlands_West.shp, RI_Wetlands.shp,
SC_Wetlands.shp, TX_Wetlands_West.shp, TX_Wetlands_Central.shp,
TX_Wetlands_East.shp, VA_Wetlands.shp, WA_Wetlands_West.shp
Scale/Resolution: 1:24,000 - 1:25,000
Version: 2.0
Year of Origin: 2016
Year of Publication: 2020

SM_03 C-CAP Saltmarshes USA Northeast
NOAA Coastal Change Analysis Program (C-CAP)
Spatial Domain: Regional
Geometry: Polygon
Data: <https://coast.noaa.gov/digitalcoast/data/ccapsalthabitat.html>
Source metadata:
<https://coast.noaa.gov/htdata/raster1/landcover/bulkdownload/marshhabitat/>
Source file name: nh_2013_salt_marsh_habitats_20200813.shp,
ri_2012_salt_marsh_habitats_20210113.shp
Scale/Resolution: 0.5 meters
Version: N/A
Year of Origin: 2012 - 2013
Year of Publication: 2019 - 2020

SM_04 Prince Edward Island 2000 Wetlands Inventory
Reference: PEI Department of Environment, Energy and Forestry
Spatial Domain: Regional
Geometry: Polygon
Data: http://www.gov.pe.ca/gis/download.php3?name=Wetlands00&file_format=SHP
Source metadata: <http://www.gov.pe.ca/gis/index.php3?number=1008003&lang=E>
Source file name: Wetlands2000_Modified.shp
Scale/Resolution: 1:17,500
Version: 1.0
Year of Origin: 2000
Year of Publication: 2005

SM_05 New Brunswick Hydrographic Network
Reference: New Brunswick, Department of Energy and Resource Development
Spatial Domain: Regional
Geometry: Polygon
Data: <http://www.snb.ca/geonb1/e/DC/catalogue-E.asp>
Source metadata: <http://www.snb.ca/geonb1/e/DC/NBHN.asp>
Source file name: NBHN_0000_03_wl.shp
Scale/Resolution: N/A
Version: 1.0
Year of Origin: 2018
Year of Publication: 2018

SM_06 Nova Scotia Forest Inventory
Reference: Nova Scotia, Department of Lands and Forestry
Spatial Domain: Regional
Geometry: Polygon

Data: https://novascotia.ca/natr/forestry/gis/dl_forestry.asp

Source metadata:

https://novascotia.ca/natr/forestry/gis/pdf/Forest_metadata_web_attrib.pdf

Source file name: Annapolis.shp, Antigonish.shp, Cape Breton.shp, Colchester.shp, Cumberland.shp, Digby.shp, Guysborough.shp, Halifax East.shp, Halifax West.shp, Hants.shp, Inverness.shp, Kings.shp, Lunenburg.shp, Pictou.shp, Queens.shp, Richmond.shp, Shelburne.shp, St. Marys.shp, Victoria.shp, and Yarmouth.shp

Scale/Resolution: 1:10,000 - 1:12,500

Version: 1.0

Year of Origin: 2020

Year of Publication: 2020

SM_07 British Columbia Shorezone Observed Habitat Polygons

Reference: Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Spatial Domain: Regional

Geometry: Polygon

Data: <https://catalogue.data.gov.bc.ca/dataset/shorezone-observed-habitat-polygons/resource/995afa79-05d4-4c68-8d30-a81e0bf2b67d#edc-pow>

Source metadata: <https://catalogue.data.gov.bc.ca/dataset/shorezone-observed-habitat-polygons/resource/995afa79-05d4-4c68-8d30-a81e0bf2b67d#edc-pow>

Source file name: HAB_O_PY_S_polygon.shp

Scale/Resolution: N/A

Version: N/A

Year of Origin: 2011

Year of Publication: 2018

SM_08 St. Lawrence Wetlands

Reference: Environment and Climate Change Canada (guy.letourneau@canada.ca)

Spatial Domain: Regional

Geometry: Polygon

Data: Dataset provided by Guy Letourneau (guy.letourneau@canada.ca)

Source metadata: N/A

Source file name: mh1991_riv_ouelle_UTM19.shp, mh1991_kamouraska_UTM19.shp, mh1991_riv_du_loup_UTM19.shp, mh1991_isle_verte_UTM19.shp, mh1991_trois_pistoles_UTM19.shp, mh1997_kamouraska_UTM19.shp, mh2000_la_pocatiere_UTM19.shp, mh2000_riv_ouelle_UTM19.shp, mh2000_riv_du_loup_UTM19.shp, mh2000_trois_pistoles_UTM19.shp, mh2002_kamouraska_UTM19.shp, mh2002_isle_verte_UTM19.shp

Scale/Resolution: N/A

Version: N/A

Year of Origin: 2005

Year of Publication: N/A

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 Saltmarshes, 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

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>

A more detailed description of all the datasets used, as well as the preprocess performed to extract Saltmarshes information 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: Saltmarsh
Theme_Keyword: Estuarine Wetland
Theme_Keyword: Halophilous Vegetation
Theme_Keyword: Brackish Marsh

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 dataset used in this analysis
have known data gaps. In this dataset, the most updated and spatially

extended Saltmarshes 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 2021 Saltmarshes Distribution, 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 Saltmarshes datasets were performed between December 2020 and March 2021.

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

Preprocessing by dataset:

SM_01. WCMC Saltmarshes Distribution Map

The original data set was acquired from the World Conservation Monitoring Centre (WCMC) that integrates two vector layers: polygons and points.

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

SM_02. National Wetlands Inventory, Version 2

Based on Cowardin Classification

(<http://www.fws.gov/wetlands/Documents/Wetlands-and-Deepwater-Habitats-Classification-chart.pdf>) used to delineate salt marshes in the 2015 CEC North America Blue Carbon Map, a SQL selection was set up to isolate saltmarshes in the 2020 USA National Wetlands Inventory. USA National Wetlands Inventory (NWI) Code Definitions table was downloaded from the US Fish and Wildlife Service (<https://www.fws.gov/wetlands/data/wetland-codes.html>) and used to join all polygon features descriptions to the state-level wetlands shapefiles available through the NWI.

The SQL expression selected all polygons defined as "Estuarine - Intertidal - Emergent - Persistent - Saltwater Tidal"

WHERE "SYSTEM_NAME" == Estuarine AND "SUBSYSTEM_NAME" == Intertidal AND "CLASS_NAME" == Emergent OR "SUBCLASS_NAME" == Persistent AND "WATER_REGIME_SUBGROUP" == Saltwater Tidal

All saltmarshes polygons identified at state-level based on the predefined SQL selection were finally merged into a national saltmarshes distribution file (Alaska and CONUS).

SM_03. C-CAP Saltmarshes USA Northeast

Polygons describing classes related to salt marsh habitats in both New Hampshire and Rhode Island files were selected and exported to new spatial layers. Classes selected were: Brackish Marsh, Dieoff Depression, High Marsh; *J. gerardii*, High Marsh; Mix, High Marsh; *S. alterniflora*, High Marsh; *S. patens*-*D. spicata*, Low Marsh, Panne, *Salicornia* spp., Salt Shrub, Short form *S. alterniflora*, Terrestrial border, Wrack.

New layers were merged in a new spatial layer combining salt marshes polygons from Rhode Island and New Hampshire and names were

standardized to avoid different spelling refereeing to identical classes.

SM_04. PEI 2000 Wetlands Inventory

This layer contains different types of wetland areas across Prince Edward Island, including "salt or brackish marshes". A "select by attributes" tool was used to select all "salt or brackish marshes" within the WETL_TYPE (Wetland Type) attribute. A final layer of saltmarshes of PEI was generated from the selected features.

SM_05. New Brunswick Hydrographic Network (NBHN)

This layer was indicated by Bernie Connors (Land Information Infrastructure Secretariat, Service New Brunswick) as the one that contains more specific information on the wetland types, including coastal marsh attribute. The codes for the attribute description are in a "xlsx" file delivered by Bernie Connors (DNR_DataDictionary.xlsx). According to the reference xlsx file, CM (Coastal Marsh) = wetlands dominated by rooted herbaceous plants that drain directly into coastal waters and have the potential to be at least partially inundated with salt or brackish water.

As a first processing step, the wetlands layer within the Hydrographic Network set of files was selected (NBHN_0000_03_wl.shp). The WC attribute describes "wetland class", all "Coastal Marsh" polygons were selected and exported to a new feature dataset.

SM_06. Nova Scotia Forest Inventory

This layer is a combination of county forest inventories of Nova Scotia, all the layers were merged to generate a province-level forestry inventory layer. Saltmarshes are described in the "wetland type" (WC_TYPE) field, code for saltmarsh = S.

Individual files were acquired for Annapolis, Antigonish, Cape Breton, Colchester, Cumberland, Digby, Guysborough, Halifax East, Halifax West, Hants, Inverness, Kings, Lunenburg, Pictou, Queens, Richmond, Shelburne, St. Marys, Victoria, and Yarmouth.

Saltmarshes were extracted from all forest inventories by individual files, that created a collection of individual files of saltmarshes. Those individual files by section were then integrated in a single file of saltmarshes for Nova Scotia.

SM_07. BC ShoreZone Observed Habitat Polygons

This is an updated layer from the BC_ShoreZone dataset used in the CEC 2015 Blue Carbon map. The data was downloaded from the BC Geographic Warehouse Custom Download. By means of a selection by attributes, all polygons with SPECIES_NM equal to "marsh grasses and sedges" and "Salicornia virginica" were exported to a final BC saltmarshes layer.

SM_08. St. Lawrence wetlands classification

The layers used to generate the St. Lawrence saltmarshes distribution were delivered by Environment and Climate Change Canada. The shapefiles used to generate this layer correspond to the estuarine section of the St. Lawrence river. Based on feedback from Guy Letourneau from Environment and Climate Change Canada, some of the shapefiles of the sections used in the 2015 Blue Carbon Map should be omitted as they are not considered as part of estuarine region of the St. Lawrence river. Sections of Quebec, Cap Tourmente, Montmangy, and Orleans that were included in the previous Blue Carbon Map of North America are omitted in this updated version.

Different years in the shapefiles correspond to different mapping efforts based on the date when the source orthoimages were taken. Due to geometry problems reported by Environment and Climate Change Canada, files from 2000 were not used when there were files from 2002 for each section of the River. The process to prepare the final layer of the salt marshes in the St. Lawrence reiver is described below.

1. A new attribute field describing the year of origin of each polygon was added to each shapefile of the preselected river sections.
2. Merge of 12 shapefiles that encompass the estuarine section of the St. Lawrence river.
3. Dissolve all polygons based on their legend description.
4. Selection by attributes of polygons containing the text string "marsh" and export to a final St. Lawrence saltmarshes layer.

Cartographic Integration Process:

As some of the datasets show spatial overlaps, some criteria were defined to deal with overlapping polygons from different data sources and keep as much spatial information as possible.

In order to define the criteria to prioritize sources datasets on areas where information overlaps, the Mexican Carbon Program conducted a series of three national workshops with experts from Canada, the United States and Mexico.

Experts were asked to rank the sources datasets features that should be considered when selecting the sources of information that must prevail over areas with overlapping polygons. Six quality features were evaluated by the experts, comprising:

- > Most updated datasets
- > Fine spatial resolution over coarse spatial resolution
- > Datasets reporting accuracy
- > National or regional datasets over global datasets
- > Independent research studies over institutional datasets
- > Most complete metadata

A group of eleven experts participated in a survey to rank the criteria
>-----

Name	Institution	Email
Nate Herold	NOAA	nate.herold@noaa.gov
Margot Hessing-Lewis	Hakai Institute	margot@hakai.org
Gail Chmura	McGill University	gail.chmura@mcgill.ca
Dan Mulrooney	Parks Canada	dan.mulrooney@canada.ca
Anna Hilting	NOAA	anna.hilting@noaa.gov
Ma. Teresa Rodríguez	CONABIO	mrodrig@conabio.gob.mx
Joanna Acosta Velázquez	Aura Manglares y costas	joanna.acosta@gmail.com
Iliana Pérez Espinosa	CONABIO	iperez@conabio.gob.mx
Carlos Troche	CONABIO	ctroche@conabio.gob.mx
Beatriz Corral Osuna	INECC	beatriz.corral@gmail.com
Zulia Sánchez Mejía	ITSON	zulia.sanchez@itson.edu

As a result of the experts-defined criteria and the characteristics of the information provided by each source dataset, we defined each dataset as authoritative over its corresponding region.

All polygons from the most spatially extent dataset (WCMC global saltmarsh distribution map), that intersected areas already mapped by

regional or national datasets were omitted in the integration process. In the United States, regional data from NOAA C-CAP in Rhode Island and New Hampshire were prioritized at regional level over the USA National Wetlands Inventory. Polygons from the latest dataset that intersected with regional data from the C-CAP product data were removed. These criteria were defined as in most of the cases, the data from local or regional data sources refer to a latest date than the sources data reported by WCMC global saltmarsh distribution map, and in some other cases, the local or regional datasets are the same used in the WCMC global saltmarsh distribution map. All polygons from each local or regional datasets and the remaining polygons from the that do not overlap with already mapped areas were merged in a final North America saltmarshes distribution map.

Step 01

Selection of all polygons from the WCMC global saltmarsh distribution map that do not overlap other input datasets and generation of a new spatial layer.

Output = WCMC_saltmarshes_laea_final.shp

Step 02

All the layers previously prepared and preprocessed with no overlapping areas between source data sets were merged in a new spatial layer.

```
> WCMC_saltmarshes_laea_final.shp
> CAN_BC_saltmarshes_laea_final.shp
> CAN_NB_saltmarshes_laea_final.shp
> CAN_NS_saltmarshes_laea_final.shp
> CAN_PEI_saltmarshes_laea_final.shp
> CAN_StLawrence_saltmarshes_laea_final.shp
> USA_NWI_saltmarshes_laea_final.shp
> USA_CCAP_saltmarshes_laea_final.shp
> CCAP_coastal_saltmarshes_laea_final.shp
```

Output = NorthAmerica_saltmarshes_layers_merge.shp

Step 03

A process of "Multipart to Single part" was applied to the output layer from the previous step. This way, all polygons are individually accounted as single polygons, which will allow to dissolve spatially connected polygons that share the same values in all the attribute fields.

Output = NorthAmerica_saltmarshes_layers_singlepart.shp

Step 04

A "Dissolve" process was applied to the output layer from the previous step. All individual polygons that are spatially connected and share the same values across the thirteen common attributed fields (except area) will break down into new polygons. This way, the number of polygons and the size of the final spatial layer file is reduced. No multipart features creation is allowed in this step.

Output = NorthAmerica_saltmarshes_polygons_dissolve.shp

Step 05

A new field "AREA_SQMT" is created and the area in squared meters is calculated for this field. The area is calculated based on the map coordinate reference system, 1 decimal point and thousands separated by comas are defined.

Step 06

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 saltmarsh distribution map.

Note that, although there are no overlapping areas from different data sources, overlapping polygons within the same input datasets are preserved. (e.g., WCMC in the Baja California peninsula or Environment Canada in the Saint Lawrence wetlands classification).

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 466972

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 Saltmarshes Distribution

Entity_Type_Definition:

Vector polygons representing Saltmarsh areas 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: 466972

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-NS
> CA-PE
> CA-QC
> MX-BCN
> MX-BCS
> MX-CAM
> MX-JAL
> MX-NAY
> MX-SIN
> MX-SON
> MX-TAM
> US-AK
> US-AL
> US-CA

- > US-CT
- > US-DE
- > US-FL
- > US-GA
- > US-LA
- > US-MA
- > US-MD
- > US-ME
- > US-MS
- > US-NC
- > US-NH
- > US-NJ
- > US-NY
- > US-OR
- > US-RI
- > US-SC
- > US-TX
- > US-VA
- > US-WA

See complete list in:

Commission for Environmental Cooperation (2005) *Guidelines for Geospatial 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:

```

>-----
> Brackish Marsh
> Coastal Marsh
> Coastal Saltmarsh
> Dieoff Depression
> Estuarine and Marine Wetland
> Estuarine Emergent Wetland
> Halophilous Vegetation
> High Marsh dominated by Common Glasswort and Canada Sandspurry
> High Marsh dominated by Common Reed
> High Marsh dominated by Prairie Cordgrass
> High Marsh dominated by Saltmeadow Cordgrass
> High Marsh dominated by Saltmeadow Cordgrass and Cosmopolitan
  Bulrush
> High Marsh dominated by Saltmeadow Cordgrass and Goose Tongue
> High Marsh dominated by Saltmeadow Cordgrass and Vanilla Grass
> High Marsh dominated by Sedges
> High Marsh used for Agriculture
> High Marsh; J.gerardii
> High Marsh; Mix
> High Marsh; S.alterniflora
> High Marsh; S.patens-D.spicata
> High Saltmarsh

```

- > Low Marsh
- > Low Marsh dominated by Baltic Rush
- > Low Marsh dominated by Cattails
- > Low Marsh dominated by Common Glasswort
- > Low Marsh dominated by Common Threesquare
- > Low Marsh dominated by Purple Loosestrife
- > Low Marsh dominated by Smooth Cordgrass
- > Low Marsh dominated by Smooth Cordgrass and Common Glasswort
- > Low Marsh dominated by Wild Rice
- > Marsh Grasses and Sedges
- > Panne
- > Salicornia spp.
- > Salicornia Virginica
- > Salt or Brackish Marsh
- > Salt Shrub
- > Saltmarsh
- > Short form S. alterniflora
- > Terrestrial border
- > Wrack

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:

>-----
 > British Columbia ShoreZone Observed Habitat Polygons
 > New Brunswick Hydrographic Network
 > Nova Scotia Forest Inventory
 > Prince Edward Island Wetlands Inventory
 > St. Lawrence Wetlands Database
 > UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
 > United States National Wetlands Inventory
 > NOAA Coastal Change Analysis Program (C-CAP)

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:

>-----
 > 1991
 > 1997
 > 2000
 > 2002
 > 2005
 > 2018
 > 2019

> 2020

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: BC Ministry of Forests, Lands, Natural Resource Operations
and Rural Development
> CAN: Department of Energy and Resource Development
> CAN: Environment and Climate Change Canada
> CAN: New Brunswick Dept. of Natural Resources, Fish and
Wildlife Branch
> CAN: Nova Scotia Dept. of Lands and Forestry
> CAN: Nova Scotia Dept. of Natural Resources, Wildlife Division
> CAN: PEI Dept. of Agriculture and Forestry
> CAN: PEI Dept. of Environment, Energy and Forestry
> CAN: The British Columbia Marine Conservation Analysis (BCMCA)
> MEX: National Commission of Natural Protected Areas (CONANP)
The Nature Conservancy
> USA: Dept. of Commerce (DOC), National Oceanic and Atmospheric
Administration (NOAA), National Ocean Service (NOS), Coastal
Services Center (CSC)
> USA: Fish and Wildlife Service
> USA: Florida Fish and Wildlife Conservation Commission (Fish
and Wildlife Research Institute, Center for Spatial Analysis)
> USA: National Oceanic and Atmospheric Administration (NOAA)
Office for Coastal Management
> USA: Rhode Island Geographic Information System (RIGIS) Data
Distribution System

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:

>-----
> 1977-2020
> 1991
> 1995
> 1997
> 1999
> 2000
> 2001
> 2002
> 2003
> 2004

- > 2005
- > 2007
- > 2008
- > 2009
- > 2010
- > 2011
- > 2012
- > 2013
- > 2014
- > Not Reported

Attribute:

Attribute_Label: SURVEY_MET
Attribute_Definition: Survey Method.
Attribute_Definition_Source: Reported method of data acquisition as reported by the source of each dataset.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: (see table below)

Enumerated_Domain_Value_Definition:

>-----
> Field Survey
> Not Reported
> Remote Sensing
> Remote Sensing, Field Survey
> Remote Sensing, Ground-Truth

Attribute:

Attribute_Label: SCAL_RPRTD
Attribute_Definition: Scale Reported.
Attribute_Definition_Source: Scale of the input data used in each polygon or general dataset as reported by the source.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: (see table below)

Enumerated_Domain_Value_Definition:

>-----
> 1:10,000
> 1:10,000 - 1:12,500
> 1:17,500
> 1:24,000
> 1:24,000 - 1:25,000
> 1:60,000
> Not Reported

Attribute:

Attribute_Label: RESL_RPRTD
Attribute_Definition: Resolution Reported.
Attribute_Definition_Source: Resolution of the input data used in each polygon or general dataset as reported by the source.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: (see table below)

Enumerated_Domain_Value_Definition:

>-----
> 0.5 m
> 12 m

- > 30 m
- > 5 m
- > Not Reported

Attribute:

Attribute_Label: SOURCE_DES

Attribute_Definition: Source Description.

Attribute_Definition_Source: General description of the source dataset used to derive each polygon.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: (see table below)

Enumerated_Domain_Value_Definition:

- >-----
- > A derivative of the PEI Corporate Land Use Inventory 2010 - Digital Aerial Photography.
 - > Case Study: Shoreline habitat classification for Northern California Current (NCC), Pacific Northwest Coast (PNWC), Northwest Atlantic Coastal and Marine (NAC-marine) Ecoregional Assessments.
 - > Combination of county level sections of the Nova Scotia Forest Inventory and extraction of saltmarshes classes.
 - > Data Prepared by NSDNR from 1:10,000 air photos and Landsat imagery.
 - > Digital outline of PEI wetlands taken from 1: 17 500 CIR aerial photography during the 2000 Corporate Land Use Inventory.
 - > Florida Fish and Wildlife Conservation Commission - Fish and Wildlife Research Institute (1999-2010).
 - > New Brunswick wetland classification for 2003-2012 photo cycle.
 - > Not Reported
 - > Province of British Columbia, BC Physical and Biophysical ShoreZone Mapping System 1989-2004. Data from British Columbia Marine Conservation Analysis (BCMCA).
 - > Province of British Columbia, BC Physical and Biophysical ShoreZone Mapping System. Data from Coastal Resource Information Management System (CRIMS).
 - > Province of New Brunswick, Hydrographic Network containing information on wetland types and describing the location of coastal marshes.
 - > The Saint-Lawrence Wetlands Mapping Project is a multi-year project that mapped portions of shores of the St-Lawrence river, using remote-sensed imagery from 1990/91, 1996/97, 2000, and 2002.
 - > This data set consists of salt marsh habitats for the state of Rhode Island derived from high resolution (0.5m) imagery collecting during June 2012.
 - > This data set is intended to establish a baseline to document statewide tidal wetland change over time. It focuses on salt marsh system response to relative sea level rise, documenting both changing quality and quantity of this habitat.
 - > This data set represents the extent, approximate location and type of wetlands and deep-water habitats in the United States and its Territories. These data delineate the areal extent of wetlands and surface waters as defined by Cowardin et al. (1979).
 - > U.S. Department of the Interior, 2012. Fish and Wildlife Service, National Wetlands Inventory.

Attribute:

Attribute_Label: CITATION

Attribute_Definition: Full citation of the used data source.

Attribute_Definition_Source: Modified APA 7th citation style to fit in a maximum of 254 characters.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: (see table below)

Enumerated_Domain_Value_Definition:

>-----
> BC FLNRORD (2018) 'British Columbia ShoreZone Observed Habitat Polygons', BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development - GeoBC, Victoria, BC, Canada.
> Dibblee, Randy (2000) 'Digital outline of PEI freshwater wetlands taken from 1: 17 500 CIR aerial photography during the 2000 Corporate Landuse Inventory', 1:17,500, PEI Department of Environment, Energy and Forestry, Charlottetown, PEI, Canada.
> ERD (2018) 'New Brunswick Hydrographic Network (NBHN)', New Brunswick Department of Energy and Resource Development, Fredericton, NB, Canada.
> Létourneau, G. & M. Jean (2005) 'Mapping the Wetlands of the St. Lawrence using Remote Sensing (1990-91)', Environment and Climate Change Canada.
> Létourneau, G. & M. Jean (2006) 'Mapping the Wetlands of the St. Lawrence using Remote Sensing (1996-97)', Environment and Climate Change Canada.
> Létourneau, G. & M. Jean (2006) 'Mapping the Wetlands of the St. Lawrence using Remote Sensing (2000)', Environment and Climate Change Canada.
> Létourneau, G. & M. Jean (2006) 'Mapping the Wetlands of the St. Lawrence using Remote Sensing (2002)', Environment and Climate Change Canada.
> Mcowen, C. J. et al. (2017) 'A global map of saltmarshes', Biodiversity Data Journal, 5 (1).
> NOAA C-CAP (2020) 'New Hampshire Salt Marsh Habitats 2013', National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management, USA.
> NSDLF (2020) 'Nova Scotia Interpreted Forest Inventory - Current Forest Data', 1:10,000 - 1:12,500, Nova Scotia Department of Lands and Forestry, Halifax, NS, Canada.
> RIGIS (2017) 'Salt Marsh Habitats; saltmarsh12', Rhode Island Geographic Information System (RIGIS) Data Distribution System, Environmental Data Center, University of Rhode Island, Kingston, RI, USA.
> U.S. Fish and Wildlife Service (2020) 'National Wetlands Inventory - Version 2 - Surface Waters and Wetlands Inventory', 1:24,000 and 1:25,000, U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C., USA.

Attribute:

Attribute_Label: SOURCE_ID

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: SM_01

Range_Domain_Maximum: SM_08

Attribute:

Attribute_Label: AREA_SQMT

Attribute_Definition: The size of the shape in square meters.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1

Range_Domain_Maximum: 368309443

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(YYYYMMDD): 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