

Identification\_Information:

Citation:

Citation\_Information:

Originator: Commission for Environmental Cooperation

Publication\_Date: 2021

Title: North American Seagrasses Extent

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 Seagrasses in North America was estimated by combining datasets from different sources using different methods. These include global and national datasets that were generated from remote sensed imagery. 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 Seagrasses Extent 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\_01 Global Distribution of Seagrasses*

*World Conservation Monitoring Center-United Nations Environment Programme*

*Spatial Domain: Global*

*Geometry: Polygon*

*Data: <https://data.unep-wcmc.org/datasets/7>*

*Source metadata: [https://data.unep-wcmc.org/pdfs/7/Global\\_Distribution\\_of\\_Seagrasses.pdf?1615453339](https://data.unep-wcmc.org/pdfs/7/Global_Distribution_of_Seagrasses.pdf?1615453339)*

*Source file name: WCMC013014-Seagrasses-Py-v7.shp*

*Scale/Resolution: 1:12,000 - 1:80,000*

*Version: 7.0*

*Year of Origin: 2020*

*Year of Publication: 2020*

*SG\_02 BC Howe Sound Eelgrass distribution*

*Howe Sound/Átl'ka7tsem Marine Reference Guide*

*Spatial Domain: Regional*

*Geometry: Polygon*

*Data: Dataset provided by Matt Christensen ([mattch85@gmail.com](mailto:mattch85@gmail.com))*

*Source metadata: [https://howesoundguide.ca/wp-content/uploads/2020/02/Eelgrass-survey-report\\_MRG\\_final.pdf](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: 2012 - 2018  
Year of Publication: 2020

SG\_03 British Columbia ShoreZone Observed Habitat Polygons  
BC 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/787b45c7-4340-4c28-ba2c-051c78cfb5eb>  
Source file name: HAB\_O\_PY\_S\_polygon.shp  
Scale/Resolution: 1:2,000 - 1:50,000  
Version: N/A  
Year of Origin: 2011  
Year of Publication: 2018

SG\_04 East Canada Eelgrass Inventory  
Fisheries and Oceans Canada (DFO)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Matt Christensen (mattch85@gmail.com)  
Source metadata: N/A  
Source file name: Zostera\_Zostere.shp  
Scale/Resolution: N/A  
Version: N/A  
Year of Origin: 1987 - 2009  
Year of Publication: 2009

SG\_05 New Brunswick Eelgrass Distribution  
Melanie Leblanc (McGill University)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Melanie Leblanc (leblanc.melanie.louise@gmail.com)  
Source metadata: N/A  
Source file name: ID56\_EelgrassTabusintac\_NewBrunswick.shp  
Scale/Resolution: 30 m  
Version: N/A  
Year of Origin: 2017  
Year of Publication: 2017

SG\_06 St. Lawrence wetlands classification (seagrass)  
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: Map\_13.tif, Map\_14.tif  
Scale/Resolution: 10 m  
Version: N/A  
Year of Origin: 1991  
Year of Publication: N/A

SG\_07 Alaska and the Aleutians seagrass distribution  
United States Geological Survey and Fish and Wildlife Service  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Frederick T. Short (fredtshort@gmail.com)  
Source metadata: N/A  
Source file name: Togiak\_All\_PhotoMos\_ZM.shp,  
AKpen\_NunivakIsl\_All\_Landsat\_ZM.shp, Togiak\_All\_SatIK2QB2\_ZM.shp  
Scale/Resolution: N/A  
Version: N/A  
Year of Origin: 2002 - 2008  
Year of Publication: 2012

SG\_08 Washington coast seagrass distribution  
Washington State Department of Natural Resources Submerged Vegetation  
Monitoring Program  
Spatial Domain: Regional  
Geometry: Polygon  
Data:  
[https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP\\_distribution.zip](https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP_distribution.zip)  
Source metadata:  
[https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP\\_distribution.zip](https://fortress.wa.gov/dnr/adminsa/gisdata/datadownload/SVMP_distribution.zip)  
Source file name: SVMP\_distribution.gdb  
Scale/Resolution: 1:50,000 - 1:625,000  
Version: N/A  
Year of Origin: 2000 - 2019  
Year of Publication: 2020

SG\_09 Washington ShoreZone seagrass distribution  
Washington State Department of Natural Resources  
Spatial Domain: Regional  
Geometry: Polygon  
Data: <http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html>  
Source metadata:  
[http://www.dnr.wa.gov/ResearchScience/Topics/AquaticHabitats/Pages/aqr\\_nrsh\\_eelgrass\\_monitoring.aspx](http://www.dnr.wa.gov/ResearchScience/Topics/AquaticHabitats/Pages/aqr_nrsh_eelgrass_monitoring.aspx)  
Source file name: eelpoly.shp  
Scale/Resolution: 1:24,000  
Version: N/A  
Year of Origin: 2001  
Year of Publication: 2006

SG\_10 Density of Eelgrass in the USA Northeast Atlantic  
Northeast Ocean Data  
Spatial Domain: Regional  
Geometry: Polygon  
Data: <https://www.northeastoceandata.org/data-download/>  
Source metadata:  
<https://www.northeastoceandata.org/files/metadata/Themes/Restoration/EelgrassBeds.pdf>  
Source file name: ID65\_Habitat.gdb  
Scale/Resolution: 1:5,000 - 1:3,000,000  
Version: N/A  
Year of Origin: 2014  
Year of Publication: 2014

SG\_11 San Francisco Bay seagrass distribution  
Frederick T. Short (University of New Hampshire)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Frederick T. Short (fredtshort@gmail.com)  
Source metadata: <http://www.snb.ca/geonbl/e/DC/NBHN.asp>  
Source file name: N/A  
Scale/Resolution: N/A  
Version: N/A  
Year of Origin: 2009  
Year of Publication: 2009

SG\_12 Texas Christmas Bay seagrass distribution  
Texas Parks and Wildlife, Coastal Fisheries Division  
Spatial Domain: Regional  
Geometry: Polygon  
Data:  
<https://tpwd.maps.arcgis.com/apps/webappviewer/index.html?id=af7ff35381144b97b38fe553f2e7b562>  
Source metadata:  
<https://tpwd.maps.arcgis.com/apps/webappviewer/index.html?id=af7ff35381144b97b38fe553f2e7b562>  
Source file name: TPWD\_ChristmasBay\_WestBay\_Seagrass.shp  
Scale/Resolution: N/A  
Version: N/A  
Year of Origin: 2016  
Year of Publication: 2018

SG\_13 Seagrass distribution, Veracruz reef system  
Mendoza-Martínez et al. 2019. Almacenes de carbono en biomasa de pastos marinos de una laguna arrecifal y su relación con variables ambientales. Serie Síntesis Nacionales. Programa Mexicano del Carbono en colaboración con el Centro Nayarita de Innovación y Transferencia de Tecnología, Universidad Autónoma de Nayarit, Consejo de Ciencia y Tecnología del Estado de Nayarit y Stanford University - México Economía Limpia.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Juan Mendoza (juan.mendoza@cinvestav.mx)  
Source metadata: N/A  
Source file name: ID41\_seagrassCabezo\_2017.shp  
Scale/Resolution: 2 m  
Version: N/A  
Year of Origin: 2017  
Year of Publication: 2020

SG\_14 Seagrass distribution, Veracruz reef system 2  
Herrera-Silveira, et al. 2018. Evaluación y monitoreo de los pastos marinos en el contexto del proyecto de ampliación del Puerto de Veracruz-Fase I, Programa Mexicano del Carbono-CINVESTAV-IPN Unidad Mérida.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Sara Morales (sara.morales@cinvestav.mx)  
Source metadata: N/A  
Source file name: ID64\_PastosmarinosPNSAVsystemPMClabProdCinvestav.gdb  
Scale/Resolution: 2 meters  
Version: 1

Year of Origin: 2017  
Year of Publication: 2017

SG\_15 Distribution of seagrasses in eastern Yucatan  
National Commission for the Knowledge and Use of Biodiversity (CONABIO)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: <http://geoportal.conabio.gob.mx/metadatos/doc/html/mcalgas20gw.html>  
Source metadata:  
<http://geoportal.conabio.gob.mx/metadatos/doc/html/mcalgas20gw.html>  
Source file name: mcalgas20gw.shp  
Scale/Resolution: 1:20,000  
Version: 1  
Year of Origin: 2018 - 2019  
Year of Publication: 2020

SG\_16 Seagrass distribution, Dzilam, Yucatan  
Mendoza-Martínez et al. 2018. Almacenes de Carbono en Biomasa de Pastos Marinos Costeros Tropicales de Regiones Cársticas. Serie Síntesis Nacionales. Programa Mexicano del Carbono en colaboración con el Instituto Tecnológico de Sonora.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Juan Mendoza ([juan.mendoza@cinvestav.mx](mailto:juan.mendoza@cinvestav.mx))  
Source metadata: N/A  
Source file name: ID40\_BottomSeafloor\_seagrassDzilam2015.shp  
Scale/Resolution: 6 m  
Version: N/A  
Year of Origin: 2017  
Year of Publication: 2018

SG\_17 Aquatic submerged vegetation, Yucatan  
National Commission for the Knowledge and Use of Biodiversity (CONABIO)  
Spatial Domain: Regional  
Geometry: Polygon  
Data:  
[http://www.conabio.gob.mx/informacion/metadatos/gis/vas\\_yucgw.xml?\\_httpcache=yes&\\_xsl=/db/metadatos/xsl/fgdc\\_html.xsl&\\_indent=no](http://www.conabio.gob.mx/informacion/metadatos/gis/vas_yucgw.xml?_httpcache=yes&_xsl=/db/metadatos/xsl/fgdc_html.xsl&_indent=no)  
Source metadata:  
[http://www.conabio.gob.mx/informacion/metadatos/gis/vas\\_yucgw.xml?\\_httpcache=yes&\\_xsl=/db/metadatos/xsl/fgdc\\_html.xsl&\\_indent=no](http://www.conabio.gob.mx/informacion/metadatos/gis/vas_yucgw.xml?_httpcache=yes&_xsl=/db/metadatos/xsl/fgdc_html.xsl&_indent=no)  
Source file name: vas\_yucgw.shp  
Scale/Resolution: 1:450,000  
Version: 1  
Year of Origin: 2010 - 2012  
Year of Publication: 2018

SG\_18 Chelem seagrass distribution  
Laboratorio Producción Primaria, CINVESTAV-Unidad Mérida  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Javier Ramírez ([javier.ramirez@cinvestav.mx](mailto:javier.ramirez@cinvestav.mx))  
Source metadata: N/A  
Source file name: ID71\_ChelemLagoonSeagrass2019.shp  
Scale/Resolution: 10 m  
Version: N/A  
Year of Origin: 2019

Year of Publication: 2019

SG\_19 Aquatic submerged vegetation, Campeche  
National Commission for the Knowledge and Use of Biodiversity (CONABIO)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: <http://geoportal.conabio.gob.mx/metadatos/doc/html/vaspetenesgw.html>  
Source metadata:  
<http://geoportal.conabio.gob.mx/metadatos/doc/html/vaspetenesgw.html>  
Source file name: vaspetenesuw.shp  
Scale/Resolution: 1:350,000  
Version: 1  
Year of Origin: 2011 - 2017  
Year of Publication: 2020

SG\_20 Laguna de Términos seagrasses distribution  
INECC-PNUD México. 2017. Estudio para la identificación, caracterización y evaluación del balance entre las emisiones de GEIs y las zonas de captura y almacenamiento de carbono en zonas de ecosistemas costero/marinos del Pacífico, Golfo de México y la Península de Yucatán (Carbono azul). Programa Mexicano del Carbono, A.C. México.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Sara Morales ([sara.morales@cinvestav.mx](mailto:sara.morales@cinvestav.mx))  
Source metadata:  
<http://cambioclimatico.gob.mx:8080/xmlui/handle/publicaciones/253?show=full>  
Source file name: ID59\_LagunaTerminosPastosmarinosPNUD.shp  
Scale/Resolution: 30 meters  
Version: 1  
Year of Origin: 2017  
Year of Publication: 2017

SG\_21 Los Petenes, Campeche, seagrasses distribution  
INECC-PNUD México. 2017. Estudio para la identificación, caracterización y evaluación del balance entre las emisiones de GEIs y las zonas de captura y almacenamiento de carbono en zonas de ecosistemas costero/marinos del Pacífico, Golfo de México y la Península de Yucatán (Carbono azul). Programa Mexicano del Carbono, A.C. México.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Sara Morales ([sara.morales@cinvestav.mx](mailto:sara.morales@cinvestav.mx))  
Source metadata:  
<http://cambioclimatico.gob.mx:8080/xmlui/handle/publicaciones/253?show=full>  
Source file name: ID61\_PetenesPastosmarinosPNUD.shp  
Scale/Resolution: 30 meters  
Version: 1  
Year of Origin: 2017  
Year of Publication: 2017

SG\_22 Bahía Ascensión, Q Roo, seagrasses distribution  
INECC-PNUD México. 2017. Estudio para la identificación, caracterización y evaluación del balance entre las emisiones de GEIs y las zonas de captura y almacenamiento de carbono en zonas de ecosistemas costero/marinos del Pacífico, Golfo de México y la Península de Yucatán (Carbono azul). Programa Mexicano del Carbono, A.C. México.  
Spatial Domain: Regional  
Geometry: Polygon

Data: Dataset provided by Sara Morales (sara.morales@cinvestav.mx)  
Source metadata:  
<http://cambioclimatico.gob.mx:8080/xmlui/handle/publicaciones/253?show=full>  
Source file name: ID63\_AscensionPastosmarinosPNUD.shp  
Scale/Resolution: 30 meters  
Version: 1  
Year of Origin: 2017  
Year of Publication: 2017

SG\_23 Nichupte Lagoon seagrass distribution  
Herrera-Silveira et al. 2020. Evaluación y monitoreo de los pastos marinos como parte del servicio: Evaluación de carbono azul del Área de Protección de Flora y Fauna Manglares de Nichupté y Sistema Lagunar Nichupté-Bojórquez. Programa Mexicano del Carbono-CINVESTAV-IPN Unidad Mérida.  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Juan Mendoza (juan.mendoza@cinvestav.mx)  
Source metadata: N/A  
Source file name: ID69\_NichupteLagoonSeagrass2019.shp  
Scale/Resolution: 10 m  
Version: N/A  
Year of Origin: 2019  
Year of Publication: 2019

SG\_24 Yalahau-Holbox seagrass distribution  
Herrera Silveira, et al. 2018. Almacenes de carbono en manglar y pastos marinos del área de protección de flora y fauna reserva de Yum Balam. Informe Técnico Final. PMC-CINVESTAV-CEMDA  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by Juan Mendoza (juan.mendoza@cinvestav.mx)  
Source metadata: <https://www.cemda.org.mx/wp-content/uploads/2018/09/Almacenes-de-Carbono-Azul-Yum-Balam-2018.pdf>  
Source file name: ID70\_YalahauHolboxSeagrass2017.shp  
Scale/Resolution: 10 m  
Version: N/A  
Year of Origin: 2017  
Year of Publication: 2017

SG\_25 Catoche-Xcalak seagrasses distribution  
National Commission for the Knowledge and Use of Biodiversity (CONABIO)  
Spatial Domain: Regional  
Geometry: Polygon  
Data: <http://geoportal.conabio.gob.mx/metadatos/doc/html/habitatv2gw.html>  
Source metadata:  
<http://geoportal.conabio.gob.mx/metadatos/doc/html/habitatv2gw.html>  
Source file name: habitatv2gw.shp  
Scale/Resolution: 1:8,000  
Version: 2  
Year of Origin: 2017  
Year of Publication: 2018

SG\_26 Isla de Todos los Santos seagrass distribution  
Botánica Marina del Instituto de Investigaciones Oceanológicas, UABC  
Spatial Domain: Regional  
Geometry: Polygon  
Data: Dataset provided by José Miguel Sandoval Gil (jmsandovalgil@gmail.com)

Source metadata: [http://cimarron.uabc.mx/info\\_proy.html?clave=403/636/E](http://cimarron.uabc.mx/info_proy.html?clave=403/636/E)  
Source file name: ID73\_Pradera ITS\_Feb2020.shp  
Scale/Resolution: N/A  
Version: N/A  
Year of Origin: 2020  
Year of Publication: 2020

**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](mailto: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

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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"

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

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Address: 700 de la Gauchetière St. West, Suite 1620

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Contact\_Electronic\_Mail\_Address: [info@cec.org](mailto: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 Seagrass 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 Seagrasses Extent, 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 Extent map is available in the accompanying report "NA BC Cartographic Integration Process.docx"

#### Preprocessing by dataset:

##### SG\_01. Global Distribution of Seagrasses

A "selection by attributes process" was performed to isolate all seagrasses 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 seagrass layer was exported from the remaining polygons selection.

##### SG\_02. BC Howe Sound Eelgrass distribution

The original data is available in a geodatabase that contains different polygon layers with seagrass distribution and a layer that merges all of them. The "Eelgrass\_HoweSound\_Merged" was selected and exported to a new polygons spatial layer.

##### SG\_03. British Columbia 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 "Zostera marina" were exported to a final BC seagrasses layer.

##### SG\_04. East Canada Eelgrass Inventory

Based on feedback from different experts (Brigitte Leblon, University of New Brunswick; Javier Guijarro-Sabaniel, Fisheries and Oceans

Canada; Melanie Leblanc, McGill University) in relation the high uncertainty in the seagrasses distribution in James Bay derived from previous mapping efforts; all polygons in the region were removed from this dataset.

SG\_05. New Brunswick Eelgrass Distribution  
Classes corresponding to seagrass habitats were extracted from the field "CLASS NAME": Class1 "LOW", Class2 "MED", Class3 "DENSE".

SG\_06. St. Lawrence wetlands classification (seagrass)  
The layers used to generate the St. Lawrence seagrasses distribution were delivered by Environment and Climate Change Canada. The files were delivered in raster format, containing pixels of eelgrass distribution in 1991. Eelgrass data is only available in the area between Isle Verte and Trois Pistole. Base on feedback from Guy Letourneau from Environment and Climate Change Canada, data from "Map\_13.tif" must be impose over "Map\_14.tif".

1. A mosaic to new raster process was performed to generate a single raster file for the region of interest.
  2. Conversion from raster to vector polygons preserving pixel edges shape.
  3. Values corresponding to "Fucus and Eelgrass == 14" and "Eelgrass == 15" were selected and exported to a new spatial layer.
  4. A new attribute field describing g the year of origin of the data was added to the attribute table and filled with "1991".
- A new attribute field describe the class name was added to the attribute table and filled with "14 == Fucus and Eelgrass" and "15 == Eelgrass"

SG\_07. Alaska and the Aleutians seagrass distribution  
Three input layers were merged into a new polygon spatial layer.

SG\_08. Washington coast seagrass distribution  
All polygons classified as different than "no\_grass" class in the "generalized\_eelgrass\_poly" layer withing the source geoDataset were selected and exported to a new polygons spatial layer.

SG\_09. Washington ShoreZone seagrass distribution  
The polygons different than "absent" in the layer eelpoly.shp was exported to a new polygons spatial layer from the source geodatabase.

SG\_10. Density of Eelgrass in the USA Northeast Atlantic  
No preprocessing was needed for this dataset.

SG\_11. San Francisco Bay seagrass distribution  
No preprocessing was needed for this dataset.

SG\_12. Texas Christmas Bay seagrass distribution  
No preprocessing was needed for this dataset.

SG\_13. Seagrass distribution, Veracruz reef system  
Classes corresponding to seagrass habitats were extracted from the field "CLASE": Class 2 "low cover of seagrasses <30%"; Class 3 "medium cover of seagrasses 20-70%"; Class 4 "high cover of seagrass >70%".  
A new field "Coverage" was created to describe the percentage of seagrass coverages indicated by each value in the field "CLASE".

SG\_14. Seagrass distribution, Veracruz reef system 2  
Nine features contained in the geodatabase that describe seagrass distribution were merged and exported to a new spatial layer.

SG\_15. Distribution of seagrasses in eastern Yucatan  
Classes corresponding to seagrass habitats were extracted from the field "Clases": class 1 "Halodule wrightii"; Class2 "Mix of Thalassia testudinum and macroalgae", Class3 "Mix of seagrasses", Class4 "Mix of seagrasses and macroalgae", Class5 "Syringodium filiforme", Class6 "Thalassia testudinum". Polygons selection was exported to a new spatial layer.

SG\_16. Seagrass distribution, Dzilam, Yucatan  
As reported by the source, the file contains two grid codes describing "Sand == 1" and "Seagrass == 2". All polygons corresponding to grid code 2 were selected and exported to a new spatial layer.

SG\_17. Aquatic submerged vegetation, Yucatan  
Classes corresponding to seagrass habitats were extracted from the field "Habitat": class 1 "seagrass with sand"; Class2 "seagrass with macroalgae", Class3 "seagrass beds".

SG\_18. Chelem seagrass distribution  
No preprocessing was needed for this dataset.

SG\_19. Aquatic submerged vegetation, Campeche  
Classes corresponding to seagrass habitats were extracted from the field "Habitat": Class 1 "Mix of Thalassia testudinum and macroalgae"; Class 2 "Mix of seagrasses", Class 3 "Mix of seagrasses and macroalgae".

SG\_20. Laguna de Términos seagrasses distribution  
Classes corresponding to seagrass habitats were extracted from the field "CLASE", this field is linked to seagrasses species and percentage of seagrass coverage in the attribute table.

SG\_21. Los Petenes, Campeche, seagrasses distribution  
Classes corresponding to seagrass habitats were extracted from the field "CLASE", this field is linked to seagrasses species and percentage of seagrass coverage in the attribute table.

SG\_22. Bahía Ascención, Q Roo, seagrasses distribution  
Classes corresponding to seagrass habitats were extracted from the field "CLASE": Class1 "TT", Class2 "HW", Class3 "HW-TT", Class 4 and 5 "Algas and TT".

SG\_23. Nichupte Lagoon seagrass distribution  
No preprocessing was needed for this dataset.

SG\_24. Yalahau-Holbox seagrass distribution  
No preprocessing was needed for this dataset.

SG\_25. Catoche-Xcalak seagrasses distribution  
All polygons classified as sea grasses ("Comunidad de Pastos Marinos") within Name of coverage ("Nom\_Cob") field were selected and exported to a new spatial polygons layer.

SG\_26. Isla de Todos los Santos seagrass distribution  
No preprocessing was needed for this dataset.

#### 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, a set of case-by-case decisions were made on areas with overlapping conflicts. Individual dataset analysis and spatial prioritization decisions were conducted as follows.

Alaska and the Aleutians seagrass distribution  
This layer was prioritized in the Alaska region, although the WCMC dataset is newer, the year reported in seagrasses polygons over Alaska and the Aleutians is more recent in this dataset. WCMC polygons refer to 1997 while polygons in this dataset refer to 2002-2008.

BC Howe Sound Eelgrass distribution  
This layer was preserved in its original shape, this dataset was prioritized over the WCMC seagrass distribution map, as this dataset shows higher spatial detail and is derived from a local field survey.

#### British Columbia ShoreZone Observed Habitat Polygons

This layer was prioritized, although the WCMC dataset is newer, the year reported in seagrasses polygons over British Columbia that intersect this dataset are older in the WCCM dataset. WCMC polygons refer to 2009 while polygon features in British Columbia ShoreZone Observed Habitat Polygons refer to 2011. Furthermore, this dataset has mapped seagrass polygons over areas where WCCM dataset do not show any seagrass distribution.

#### Washington ShoreZone seagrass distribution

Polygons in this layer that overlap Washington coast seagrass distribution dataset were removed, as the second one refers to more recent data and its metadata is better documented than Washington ShoreZone seagrass distribution.

#### Washington coast seagrass distribution

No changes were made to this layer, it preserves all its original polygon features.

#### San Francisco Bay seagrass distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Isla de Todos los Santos seagrass distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Catoche-Xcalak seagrasses distribution

Feature polygons in this layer that overlap Bahía Ascensión, QRoo, seagrasses distribution layer were removed, as the second layer shows more consistency and better documentation for the local area of Bahía Ascensión in the coast of Quintana Roo. Remaining polygon features were exported to a new spatial layer.

#### Bahía Ascensión, QRoo, seagrasses distribution

No changes were made to this layer, it preserves all its original polygon features.

#### Yalahau-Holbox seagrass distribution

Feature polygons overlapping Catoche-Xcalak seagrasses distribution layer were removed and the remain polygons were exported to a new spatial layer.

#### Nichupte Lagoon seagrass distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Seagrass distribution, Veracruz reef system

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Seagrass distribution, Veracruz reef system 2

No changes were made to this layer, it preserves all its original polygon features.

#### Chelem seagrass distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Seagrass distribution, Dzilam, Yucatan

Polygons in this layer that overlap the Distribution of seagrasses in eastern Yucatan layer are removed to prioritize spatial consistency in the second layer that covers a larger area than the Seagrass distribution, Dzilam, Yucatan dataset.

This layer covers the same area as the as Seagrass distribution, Dzilam, Yucatán 2 and the mapping methodology is similar, but Seagrass distribution, Dzilam, Yucatan layer reports higher accuracy (89%) than Seagrass distribution, Dzilam, Yucatán 2 (81%).

#### Aquatic submerged vegetation, Yucatan

A small area that overlaps the Distribution of seagrasses in eastern Yucatan layer was erased from this dataset. Both layers come from the same source institution buy Distribution of seagrasses in eastern Yucatan layer was prioritized as this represent data from a more recent year (2018 and 2020 respectively).

#### Distribution of seagrasses in eastern Yucatan

No changes were made to this layer, it preserves all its original polygon features.

#### Laguna de Términos seagrasses distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Los Petenes, Campeche, seagrasses distribution

No changes were made to this layer, it preserves all its original polygon features.

#### Aquatic submerged vegetation, Campeche

Feature polygons overlapping the Los Petenes, Campeche, seagrasses distribution layer ere were removed, remaining polygons were sported to a new spatial layer.

Los Petenes, Campeche, seagrasses distribution layer was prioritized over Aquatic submerged vegetation, Campeche, as the first one refers to a more recent year and also reports accuracy.

#### Texas Christmas Bay seagrass distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer. Density of Eelgrass in the USA Northeast Atlantic

No changes were made to this layer, it preserves all its original polygon features, and it is prioritized over the WCMC global seagrass distribution map, as data from Density of Eelgrass in the USA Northeast Atlantic is more recent.

#### St. Lawrence wetlands classification (seagrass)

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### New Brunswick Eelgrass Distribution

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### East Canada Eelgrass Inventory

No changes were made to this layer, it preserves all its original polygon features, there is no spatial overlap with any other layer.

#### Global Distribution of Seagrasses

- a) Polygons in this layers that intersect other polygons from Alaska and the Aleutians seagrass distribution were removed and the remaining polygon features were exported to a temporary spatial layer.
- b) Polygons in the previous temporary layer that intersect other polygons from BC Howe Sound Eelgrass distribution were removed and the remaining polygon features were exported to a new temporary spatial layer.
- c) All polygon features in Washington state were removed as they are already mapped by the other two state-level layers for the same region. Remaining polygon features were exported to a new temporary spatial layer.
- d) Areas over Quintana Roo state that overlap the already processed layers in the region were erased. Thus, prioritizing regional or local dataset that offer much higher spatial detail, while the WCMC polygons are much more generalized in the Yucatan peninsula region. A new temporary layer was generated with the resulting polygons after the spatial erase process.
- e) Polygons mapped along the coast of Veracruz were removed as they do not report any feature name and those polygons area already mapped in much more detail in the Seagrass distribution, Veracruz reef system 2 dataset.
- f) Areas over the entire Yucatan Peninsula that overlap the already processed layers in the region were erased. Thus, prioritizing regional or local dataset that offer much higher spatial detail, while the WCMC polygons are much more generalized in the. A new temporary layer was generated with the resulting polygons after the spatial erase process.
- g) Feature polygons that overlap seagrass polygons in the Density of Eelgrass in the USA Northeast Atlantic layer were removed. Remaining polygon features were exported to a new temporary spatial layer.
- h) Merge of all preprocessed spatial layers

#### Step 01

All the preprocessed spatial layers were merged into a final North America Seagrass map.

```
> Alaska_seagrass_distribution_laea_final.shp
> BahiaAscensionQRoo_seagrasses_laea_final.shp
> BC_HoweSound_seagrasses_laea_final.shp
> BC_ShoreZone_seagrasses_laea_final.shp
> Campeche_seagrasses_laea_final.shp
> Catoche_Xcalak_seagrasses_laea_final.shp
> Chelem_seagrasses_laea_final.shp
> DzilamYuc_seagrasses_laea_final.shp
> EastCanada_eelgrass_inventory_laea_final.shp
> EastYucatan_seagrasses_laea_final.shp
> LagTerminos_seagrasses_laea_final.shp
> LosPetenes_seagrasses_laea_final.shp
> Nichupte_seagrasses_laea_final.shp
> NortheastAtlantic_eelgrass_density_laea_final.shp
> Sfbay_seagrass_distribution_laea_final.shp
```



```

> StLawrence_seagrasses_laea_final.shp
> Tabusintac_NB_eelgrass_distribution_final.shp
> TodosSantos_seagrasses_laea_final.shp
> TX_ChristmasBay_seagrasses_laea_final.shp
> VeracruzReef_seagrasses_laea_final.shp
> VeracruzReef2_seagrasses_laea_input.shp
> Washington_coast_seagrasses_laea_final.shp
> Washington_ShoreZone_seagrass_distribution_laea_final.shp
> WCMC_NorthAmerica_seagrasses_polygon_laea_final.shp
> Yalahau-Holbox_seagrasses_laea_final.shp
> Yucatan_seagrasses_laea_final.shp

```

Output = NorthAmerica\_seagrasses\_layers\_merge.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

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\_seagrasses\_polygons\_dissolve.shp

#### Step 04

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.

As a final clean up step, all polygons reported areas smaller than 1 m<sup>2</sup> were removed.

#### Step 05

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-polygon

Point\_and\_Vector\_Object\_Count: 675955

#### 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 Seagrasses Extent  
Entity\_Type\_Definition:  
Vector polygons representing Seagrass areas extent 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: 675955

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-QC  
> MX-BCN  
> MX-CAM  
> MX-ROO  
> MX-TAM  
> MX-VER  
> MX-YUC  
> US-AK  
> US-AL  
> US-CA  
> US-CT  
> US-FL  
> US-LA  
> US-MA  
> US-MD  
> US-ME  
> US-MS  
> US-NC  
> US-NH  
> US-NJ  
> US-NY  
> US-OR  
> US-RI  
> 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:

>-----  
> Algae - Turtle Grass (*Thalassia testudinum*)  
> Beaked Tasselweed - (*Ruppia maritima*)  
> Beaked Tasselweed - (*Ruppia maritima*) - Sago Pondweed  
(*Stuckenia pectinata*)  
> Broadleaf Watermilfoil (*Myriophyllum heterophyllum*) -  
*Utricularia gibba*  
> Caribbean Seagrass (*Halophila decipiens*)  
> Continuous Seagrass  
> Dwarf Eelgrass (*Zostera japonica*)  
> Eelgrass (*Zostera marina*)  
> Eelgrass (*Zostera marina*) - continuous  
> Eelgrass (*Zostera marina*) - Dwarf Eelgrass (*Zostera japonica*)  
> Eelgrass (*Zostera marina*) - Kelp  
> Eelgrass (*Zostera marina*) - patchy  
> Eelgrass (*Zostera marina*) - Surfgrass (*Phyllospadix*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Beaked  
Tasselweed - (*Ruppia maritima*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Leafy  
Bladderwort (*Utricularia foliosa*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern  
Waternymph (*Najas guadalupensis*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern  
Waternymph (*Najas guadalupensis*) - Beaked Tasselweed - (*Ruppia*  
*maritima*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern  
Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera*  
*dubia*) - Hornwort (*Ceratophyllum demersum*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern  
Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera*  
*dubia*) - Hornwort (*Ceratophyllum demersum*) - Carolina Fanwort  
(*Cabomba caroliniana*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Water Stargrass  
(*Heteranthera dubia*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Water Stargrass  
(*Heteranthera dubia*) - Hornwort (*Ceratophyllum demersum*)  
> Eurasian Watermilfoil (*Myriophyllum spicatum*) - Waterthyme  
(*Hydrilla verticillata*)  
> Macroalgae - Turtle Grass (*Thalassia testudinum*)  
> Manatee Grass (*Syringodium filiforme*)  
> Manatee Grass (*Syringodium filiforme*) - Shoal Grass (*Halodule*  
*wrightii*)  
> Mixed Seagrasses  
> Mixed Seagrasses - Macroalgae  
> Not Reported  
> Rockweed (*Fucus*) - Eelgrass (*Zostera marina*)  
> Sand with Seagrasses  
> Seagrass  
> Seagrass - Brown Algae  
> Seagrass - dense  
> Seagrass - dense (>70%)  
> Seagrass - medium  
> Seagrass - medium (20-70%)  
> Seagrass - patchy  
> Seagrass - Red Algae

- > Seagrass - Rockweed
- > Seagrass - sparse
- > Seagrass - sparse (<30%)
- > Seagrass (A. Afuera)
- > Seagrass (Chopas)
- > Seagrass (En Medio)
- > Seagrass (Gallega)
- > Seagrass (Galleguilla)
- > Seagrass (Pájaros)
- > Seagrass (Rizo)
- > Seagrass (Sacrificio)
- > Seagrass (Verde)
- > Seagrass (Zostera spp.)
- > Seagrass Meadows
- > Seagrasses - Macroalgae
- > Shoal Grass (Halodule wrightii)
- > Shoal Grass (Halodule wrightii) - Ruppia maritima
- > Southern Waternymph (Najas guadalupensis)
- > Southern Waternymph (Najas guadalupensis) - Hornwort  
(Ceratophyllum demersum) - Small Pondweed (Potamogeton pusilis)
- > Surfgrass (Phyllospadix)
- > Tape Grass (Valisneria neotropica) - Beaked Tasselweed  
(Ruppia maritima)
- > Tape Grass (Valisneria neotropica) - Beaked Tasselweed  
(Ruppia maritima) - Sago Pondweed (Stuckenia pectinata)
- > Tape Grass (Valisneria neotropica) - Beaked Tasselweed  
(Ruppia maritima) - Water Stargrass (Heteranthera dubia)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Beaked Tasselweed (Ruppia maritima) -  
Water Stargrass (Heteranthera dubia)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Sago Pondweed (Stuckenia pectinata)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis) - Beaked Tasselweed (Ruppia maritima)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis) - Beaked Tasselweed (Ruppia maritima) - Hornwort  
(Ceratophyllum demersum)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis) - Beaked Tasselweed (Ruppia maritima) - Water  
Stargrass (Heteranthera dubia)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis) - Hornwort (Ceratophyllum demersum)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas  
guadalupensis) - Hornwort (Ceratophyllum demersum) - Small  
Pondweed (Potamogeton pusilis)
- > Tape Grass (Valisneria neotropica) - Eurasian Watermilfoil  
(Myriophyllum spicatum) - Southern Waternymph (Najas

guadalupensis) - Hornwort (*Ceratophyllum demersum*) - Waterthyme (*Hydrilla verticillata*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern Waternymph (*Najas guadalupensis*) - Small Pondweed (*Potamogeton pusilis*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*) - Hornwort (*Ceratophyllum demersum*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*) - Small Pondweed (*Potamogeton pusilis*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*) - Small Pondweed (*Potamogeton pusilis*) - Waterthyme (*Hydrilla verticillata*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Water Stargrass (*Heteranthera dubia*)  
 > Tape Grass (*Valisneria neotropicalis*) - Eurasian Watermilfoil (*Myriophyllum spicatum*) - Water Stargrass (*Heteranthera dubia*) - Waterthyme (*Hydrilla verticillata*) - Small Pondweed (*Potamogeton pusilis*)  
 > Tape Grass (*Valisneria neotropicalis*) - Horned Pondweed (*Zannichellia palustris*)  
 > Tape Grass (*Valisneria neotropicalis*) - Sago Pondweed (*Stuckenia pectinata*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Beaked Tasselweed (*Ruppia maritima*) - Water Stargrass (*Heteranthera dubia*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Hornwort (*Ceratophyllum demersum*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Hornwort (*Ceratophyllum demersum*) - Leafy Bladderwort (*Utricularia foliosa*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Sago Pondweed (*Stuckenia pectinata*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*)  
 > Tape Grass (*Valisneria neotropicalis*) - Southern Waternymph (*Najas guadalupensis*) - Water Stargrass (*Heteranthera dubia*) - Hornwort (*Ceratophyllum demersum*) - Small Pondweed (*Potamogeton pusilis*)  
 > Tape Grass (*Valisneria neotropicalis*) - Water Stargrass (*Heteranthera dubia*)  
 > Tape Grass (*Vallisneria americana*)  
 > Turtle Grass (*Thalassia testudinum*)  
 > Turtle Grass (*Thalassia testudinum*) - Macroalgae  
 > Turtle Grass (*Thalassia testudinum*) - Manatee Grass (*Syringodium Filiforme*)

- > 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
- > Turtle Grass (*Thalassia testudinum*) - Shoal Grass (*Halodule wrightii*)
- > Turtle Grass (*Thalassia testudinum*) - Shoal Grass (*Halodule wrightii*) - Manatee Grass (*Syringodium Filiforme*)
- > Twoleaf Watermilfoil (*Myriophyllum heterophyllum*)
- > Water Chestnut (*Trapa natans*)
- > Water Stargrass (*Heteranthera dubia*)

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:

>-----

- > BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- > Botánica Marina del Instituto de Investigaciones Oceanológicas, UABC
- > Environment and Climate Change Canada
- > Fisheries and Oceans Canada (DFO)
- > Frederick T. Short (University of New Hampshire)
- > Herrera-Silveira et al., 2018
- > Herrera-Silveira et al., 2020
- > Howe Sound/Átl'ka7tsem Marine Reference Guide
- > INECC-PNUD México
- > Laboratorio de Producción Primaria, CINVESTAV (Unidad Mérida)
- > Melanie Leblanc (McGill University)
- > Mendoza-Martínez et al., 2018
- > Mendoza-Martínez et al., 2019
- > National Commission for the Knowledge and Use of Biodiversity (CONABIO)
- > Northeast Ocean Data
- > Texas Parks and Wildlife, Coastal Fisheries Division
- > UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
- > Washington State Department of Natural Resources
- > 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
> 2006
> 2009
> 2012
> 2014
> 2017
> 2018
> 2019
> 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:

```

>-----
> Calderón, I., 1996 (Provided by Matt Christensen, University of
British Columbia)
> CAN: BC Ministry of Forests, Lands, Natural Resource Operations
and Rural Development
> CAN: British Columbia Marine Conservation Analysis (BCMCA)
> CAN: British Columbia Parks
> CAN: Environment and Climate Change Canada
> CAN: Moonstone Enterprises
> CAN: SeaChange Marine Conservation Society
> Comité côtier Les Escoumins à la Rivière Betsiamites, 2004
(Provided by Matt Christensen, University of British Columbia)
> Comité ZIP Côte-Nord du Golfe, 2001 (Provided by Matt
Christensen, University of British Columbia)
> Comité ZIP de la rive nord de l'estuaire, 2008 (Provided by
Matt Christensen, University of British Columbia)
> Conseil Régional de l'Environnement Gaspésie et des Îles-de-la-
Madeleine, 2004 (Provided by Matt Christensen, University of
British Columbia)
> CRC Marine Science Series, 16
> Danièle Morin (MRNF), 2009 (Provided by Matt Christensen,
University of British Columbia)
> Frederick T. Short (University of New Hampshire)
> Giguère, M. et al., 2006 (Provided by Matt Christensen,
University of British Columbia)
> Hans-Frederic Ellefsen (MPO), 2009 (Provided by Matt
Christensen, University of British Columbia)
> Harvey, C. & Brouard, D., 1992 (Provided by Matt Christensen,
University of British Columbia)
> Hazel, F., 2002 (Provided by Matt Christensen, University of
British Columbia)
> Jacquaz & Coll, 1990 (Provided by Matt Christensen, University
of British Columbia)
> Kedney, G. & Kaltenback, P., 1996 (Provided by Matt
Christensen, University of British Columbia)

```



- > Leblanc, J., 2002 (Provided by Matt Christensen, University of British Columbia)
- > Lemieux, C. & Lalumière, R., 1995 (Provided by Matt Christensen, University of British Columbia)
- > Lemieux, C., 1995 (Provided by Matt Christensen, University of British Columbia)
- > Melanie Leblanc (McGill University)
- > MEX: Botánica Marina del Instituto de Investigaciones Oceanológicas, UABC
- > MEX: Laboratorio de Producción Primaria - CINVESTAV (Unidad Mérida)
- > MEX: National Commission for the Knowledge and Use of Biodiversity (CONABIO)
- > MEX: Programa Mexicano del Carbono
- > MEX: Programa Mexicano del Carbono - Centro Nayarita de Innovación y Transferencia de Tecnología - Universidad Autónoma de Nayarit - Consejo de Ciencia y Tecnología del Estado de Nayarit - Stanford University - México Economía Limpia
- > MEX: Programa Mexicano del Carbono - CINVESTAV (Unidad Mérida)
- > MEX: Programa Mexicano del Carbono - Instituto Tecnológico de Sonora
- > Naturam Environnement, 1999 (Provided by Matt Christensen, University of British Columbia)
- > Not Reported
- > Pelletier, C., 2003 (Provided by Matt Christensen, University of British Columbia)
- > Raz-Guzmán, Andrea (Instituto de Investigaciones sobre los Recursos Naturales, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, México)
- > Selma Pereira (MPO), 2009 (Provided by Matt Christensen, University of British Columbia)
- > UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) - University of California Press
- > United Nations Educational, Scientific and Cultural Organization (UNESCO)
- > USA: Earth Design Consultants, Inc.
- > USA: Florida Fish and Wildlife Conservation Commission - Fish and Wildlife Research Institute
- > USA: National Geographic Society
- > USA: NOAA Coastal Services Center
- > USA: Northeast Ocean Data
- > USA: Port of San Diego - U.S. Department of the Navy
- > USA: Seattle Pacific University
- > USA: Texas Parks and Wildlife, Coastal Fisheries Division
- > USA: U.S. Army Corps of Engineers
- > USA: United States Geological Survey and Fish and Wildlife Service
- > USA: University of California, Los Angeles
- > USA: Washington State Department of Natural Resources
- > USA: Washington State Department of Natural Resources Submerged Vegetation Monitoring Program
- > Vaillancourt, M.A. & Lafontaine, C., 1999 (Provided by Matt Christensen, University of British Columbia)
- > Vaillancourt, M.A. & Lafontaine, C., 1999. (Provided by Matt Christensen, University of British Columbia)

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:

>-----  
> 1979  
> 1987-2009  
> 1989  
> 1990  
> 1991  
> 1996  
> 1998  
> 2000  
> 2000-2019  
> 2001  
> 2002  
> 2002-2008  
> 2003  
> 2004  
> 2005  
> 2008  
> 2009  
> 2010  
> 2010-2012  
> 2011  
> 2011-2017  
> 2012  
> 2013  
> 2014  
> 2015  
> 2016  
> 2017  
> 2018  
> 2018-2019  
> 2019  
> 2020

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:

>-----  
> Data Collection  
> Field Survey  
> Not Reported  
> Remote Sensing  
> Remote Sensing, Field Survey

> Remote Sensing, Ground-Truthed

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:

>-----  
> 1:2,000 - 1:50,000  
> 1:20,000  
> 1:24,000  
> 1:28,510,000  
> 1:350,000  
> 1:40,000  
> 1:450,000  
> 1:5,000 - 1:3,000,000  
> 1:50,000 - 1:625,000  
> 1:8,000  
> 1:80,000  
> 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:

>-----  
> 7 m  
> 2 m  
> 30 m  
> 6 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 classification of the lagoon bottom was performed on a 30m resolution Landsat8 and Landsat7 image. Maximum likelihood classification method, supervised classification. Map accuracy: 45.8%  
> A classification of the lagoon bottom was performed on a 30m resolution Landsat8 and Landsat7 image. Maximum likelihood

classification method, supervised classification. Map accuracy: 74.5%

> A classification of the seabed was performed on a 2018 Sentinel 2A image. Maximum likelihood classification method, supervised classification using information collected in the field and spectral signatures. Map accuracy: 85%

> Areas in West Galveston Bay and Christmas Bay where seagrass is present. The area was ground truthed for the presence of seagrass in March 2015. Polygons of areas where seagrass is present were digitized in April 2015 through photointerpretation

> British Columbia Marine Conservation Analysis, 2010. Marine Plants - Eelgrass polygons data. In: Marine Atlas of Pacific Canada, British Columbia, Canada

> Classification derived from a 2017 Sentinel 2A image. Maximum likelihood classification method, supervised classification. Map accuracy: 78%

> Classification derived from a 2018 Sentinel 2A image. Maximum likelihood classification method, supervised classification. Map accuracy: 92%

> Classification of the reef bottom based on a WorldView2 image, 2m resolution. Maximum Likelihood classification method, supervised classification and field data. Global accuracy: 92%

> Classification performed on 30m resolution Landsat8 and Landsat7 images. Maximum likelihood classification method, supervised classification. Map accuracy: 73%

> Clinton, P.J., Young, D.R., Specht, D.T., 2002. A hybrid high resolution image classification method for mapping eelgrass distributions in Yaquina Bay Estuary, Oregon

> Creed, J.C. et al, 2003. The Seagrasses of the Caribbean. In: Green, E.P., Short, F.T. (Eds.), World Atlas of Seagrasses. UNEP World Conservation Monitoring Centre, University of California Press, pp. 234-242

> Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), Coastal Services Center (CSC), October 2013

> Derived from field work in 290 sampling sites on the seabed of the Central-West Region of the State of Yucatán, the submerged aquatic vegetation and the type of associated substrate were identified

> Distribution of a perennial meadow of *Phyllospadix* sp. surrounding the Natural Protected Area of Isla de Todos los Santos, Baja California

> Distribution of marine grasses and submerged aquatic vegetation in the Petenes Biosphere Reserve, Campeche, derived from the records obtained from 2011 to 2017 with a Hydroacoustic Echosounder and a 2017 Sentinel 2A image

> Distribution of seagrass was identified with side scan sonar and field information through principal component analysis of 29 acoustic properties. Map accuracy: 89%

> Florida Fish and Wildlife Conservation Commission - Fish and Wildlife Research Institute (2011), Seagrass Florida

> Harding, L.W. & Butler, J.H., 1979. The standing stock and production of eelgrass, *Zostera marina*, in Humboldt Bay, California. Calif. Fish Game 65, 151-158

> Herrera-Silveira, J.A. et al, 2000. Seagrass bed recovery after hydrological restoration in a coastal lagoon with groundwater

discharges in the north of Yucatan. In: Seagrasses: monitoring, ecology, physiology, and management, 219-229

> McRoy, C.P. & Bridges, K.W., 1998. Eelgrass survey of eastern Prince William Sound. US Army Corps of Engineers. Unpublished Final Report, Anchorage, Alaska

> National Geographic Society, 2000. Coral World. 1:28,510,000. 1 pp

> Phillips, R.C. & Echeverria, S.W., 1990. *Zostera asiatica* Miki on the Pacific coast of North America. Pacific Sci. 44, 130-134

> Polygons representing the distribution of the seagrasses in the eastern coast of Yucatan, derived from Hydroacoustic Echosounder records in 2018-2019 and two Sentinel 2A images from 2018

> Port of San Diego and U.S. Department of the Navy, Southwest Division (USDoN, SWDIV), 2000. San Diego Bay 2000 Eelgrass Survey

> 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]

> Results obtained by Mélanie Leblanc PhD research. Connections Between Eelgrass, Geese, and Cree Harvest and Culture in Eastern James Bay. Produced from Landsat 8 and ground truth data

> Ruíz-Rentería, F. et al, 1998. Puerto Morelos, Quintana Roo, Mexico. In: Kjerfve, B. (Ed.), CARICOMP- Caribbean Coral Reef, Seagrass and Mangrove Sites. UNESCO, 57-66

> San Francisco baywide eelgrass layer with density attributes developed from data collected in October and November of 2009. Data were developed for the California Department of Transportation and the National Marine Fisheries Service

> Seagrass distribution derived from field data and satellite information (WorldView-2) using spectral algorithms (Maximum Likelihood) and manual editing. Map accuracy: 77%

> Spratt, J.D., 1989. The distribution and density of eelgrass, *Zostera marina*, in Tomales Bay, California. California Fish and Game, 75 (4), 204-212

> Strittholt, J.R. & Frost, P.A., 1996. Determining abundance and distribution of Eelgrass (*Zostera* spp.) in Tillamook Bay Estuary, Oregon using multispectral airborne imagery. Tillamook Bay National Estuary Project. 13 pp

> Survey of Eelgrass for Bowen Island municipality

> Survey of Eelgrass for Gambier Island local trust area

> Survey of Eelgrass for Porteau Cove provincial park

> Survey of Eelgrass in West Howe sound

> The layer presents the information on the distribution of eelgrass (*Zostera marina*) beds in James Bay, Chaleur Bay, Estuary and Gulf of St. Lawrence according to a literature review of documents produced between 1987 and 2009

> The map represents the spatial distribution and extension of the benthic habitats of the marine ecosystems of the Mexican Caribbean, covering the shallow waters of the Mesoamerican reef system between Cabo Catoche and Xcalak

> The Observed Habitat Polygons show the various types of particular habitat that have been observed or calculated by biologists as well as an expectation of different species found in the habitats

> The purpose of mapping the distribution of eelgrass (Submerged Aquatic Vegetation-SAV) is to determine areas where eelgrass is

present throughout coastal New England waters in order to support coastal and ocean planning

> The Saint-Lawrence Wetlands Mapping Project is a multi-year project that mapped portions of shores of the St-Lawrence river, mapped using remote-sensed imagery from 1990/1991, 1996/97, 2000, and 2002

> The ShoreZone Inventory describes the physical and biological characteristics of intertidal and shallow subtidal areas. It was completed by the Nearshore Habitat Program in the WA State Department of Natural Resources, Aquatic Resources Division

> The SVMP has conducted annual monitoring of the status and trends of native seagrass in greater Puget Sound since 2000. This is the central component of the 2000-2019 Puget Sound Eelgrass monitoring dataset

> These data were derived from satellite imagery (Ikonos-2 and Quickbird-2) acquired in June/August 2002-2008. The dataset serves as baseline information for the spatial extent and distribution of Eelgrass (*Zostera marina*)

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:

>-----  
> Létourneau, G & M. Jean (1996) 'Cartographie des marais, marécages et herbiers aquatiques le long du Saint-Laurent par télédétection aéroportée', Environment and Climate Change Canada  
> Longley, Kate (2014) 'Eelgrass Beds, Northeast United States', SeaPlan, Boston, MA, USA  
> Mendoza-Martínez et al. (2018) 'Estado Actual del Conocimiento del Ciclo del Carbono y sus Interacciones in México', Serie Síntesis Nacionales, Programa Mexicano del Carbono en colaboración con el Instituto Tecnológico de Sonora  
> Mendoza-Martínez et al. (2019) 'Almacenes de carbono en biomasa de pastos marinos de una laguna arrecifal y su relación con variables ambientales', In: Estado Actual del Conocimiento del Ciclo del Carbono y sus Interacciones en México  
> Not Reported  
> Palafox-Juárez et al. (2013) 'Vegetación acuática sumergida de la Región Centro-Poniente del estado de Yucatán', 1:450,000. Ed: 1. Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional (Unidad Mérida), México  
> Pérez-Espinosa et al. (2019) 'Distribución espacial de los pastos marinos y la vegetación acuática sumergida en los Petenes, Campeche', 1:350,000. Ed: 1. Universidad Autónoma Metropolitana Unidad Iztapalapa, Ciudad de México, México  
> Pérez-Espinosa et al. (2020) 'Distribución espacial de los pastos marinos y las macroalgas en la zona costera Este del estado de Yucatán', 1:20,000. Ed: 1. Universidad Autónoma Metropolitana Unidad Iztapalapa, Ciudad de México, México  
> 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  
> WA-DNR (2020) 'Submerged Vegetation Monitoring Program 2000-2019 Database', Washington Department of Natural Resources, Aquatic Resources Division, Olympia, WA, 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: SG\_01  
Range\_Domain\_Maximum: SG\_26

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: 3251310080

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](mailto:info@cec.org)

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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](mailto: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