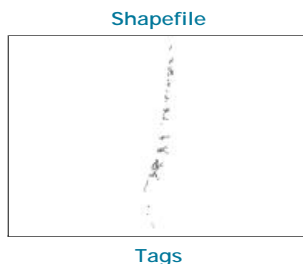


Tidal wetland landward migration zones for Oregon outer coast estuaries: 2.5 ft (0.75 m) sea level rise



estuary, climate change, sea level rise, tidal wetland, salt marsh, tidal marsh, tidal swamp, landward migration, coastal squeeze

Summary

This project maps potential future tidal wetlands (landward migration zones) for emergent, scrub-shrub and forested tidal wetlands of the 23 major estuaries of Oregon's outer coast, under 6 sea level rise (SLR) scenarios. Each dataset name indicates the SLR scenario mapped: for example, "Oregon_LMZs_SLR_0pt0ft_20170824" indicates 0.0 ft SLR (no SLR, i.e. baseline or initial conditions) and "Oregon_LMZs_SLR_4pt7ft_20170824" indicates 4.7 ft (1.42 m) SLR. See the full project report for important details and recommended uses of the data.

Description

General description:

- Landward migration zones ("LMZs") are areas that could become future tidal wetlands (emergent, shrub or forested classes) under sea level rise.
- This project's LMZ maps are based on elevation and projected sea level rise; they do not take into account rates of sediment accretion. However, for areas compared, results are similar to models that do account for sediment accretion, as described in the project report.
- Mapped LMZs are at elevations appropriate to support emergent, shrub or forested tidal wetlands, but they may lack a connection to a tidal water body at the time of data creation (e.g. they might be behind a dike or tide gate). That is, the mapping shows areas that would be vegetated tidal wetlands, if they were reconnected to the tides.
- The LMZ mapping does not include algae beds, seagrass beds, or other lower intertidal wetland classes. Their distribution cannot be mapped using elevation-based methods because it is controlled not just by elevation, but also by other factors like water clarity and substrate type. However, the mapping does show the transition of tidal marsh to mudflat with rising sea level.
- The LMZ mapping does not exclude developed areas such as roads, parking lots, urban, industrial or residential areas. However, the attribute "imperv" identifies portions of LMZs within areas mapped as impervious in a dataset provided by Oregon Department of Land Conservation and Development; these impervious areas are likely to be developed. Developed areas within LMZs may be at risk for inundation under the SLR scenario depicted, but they are unlikely to be suitable as future tidal wetlands.
- The general approach for mapping LMZs is to map land surfaces between two elevation datums: mean tide level (lower boundary) and the maximum extent of tidal influence (upper boundary); see "Mapping boundaries" below for details. The method of defining the upper boundary was established during Oregon's 2014 Estuary Habitat Mapping project (see www.coastlatlas.net/documents/cmecs/EPSCM_CoreGISMethods.pdf) and uses LIDAR DEMs, NOAA Extreme Water Level models, and field-based ground-truthing.
- Where current vegetated tidal wetland extends below mean tide level (MTL), we included it in the mapping. In other words, the lower boundary for the mapping is either MTL or the existing lower boundary of tidal wetland (whichever is higher).
- Products are distributed in the form of shapefiles. Each shapefile's name indicates the sea level rise scenario, in meters. For example, "LMZ_V7_SLR0pt00" indicates the 0.00 m SLR scenario (i.e. no SLR), which represents conditions at the time of dataset creation. The 0.00 m SLR scenario is the baseline (no sea level rise) to which all future SLR scenarios are compared; "LMZ_V7_SLR0pt48" indicates the 0.48 m (1.6 ft) SLR scenario; and "LMZ_V7_SLR2pt50" indicates the 2.5 m (8.2 ft) SLR scenario. The final version of the LMZs is V7, completed 11/2/16.
- The mapping covers all 23 estuaries of substantial size on Oregon's outer coast. From north to south, these are: Necanicum River, Nehalem River, Tillamook Bay, Netarts Bay, Sand Lake, Nestucca Bay, Salmon River, Siletz Bay, Yaquina Bay, Beaver Creek, Alsea Bay, Yachats River, Siuslaw River, Umpqua River, Coos Bay, Coquille River, New River Area, Sixes River, Elk River, Rogue River, Pistol River, Chetco River, and Winchuck River.

Credits

Authors: Laura S. Brophy and Michael J. Ewald, Estuary Technical Group, Institute for Applied Ecology, Corvallis, Oregon, USA
 Project Manager: Fran Recht, Pacific States Marine Fisheries Commission, Portland, Oregon, USA
 Prepared for: MidCoast Watersheds Council, Newport, Oregon, USA

Funded by: Oregon Watershed Enhancement Board, Salem, Oregon, USA and U.S. Fish and Wildlife Service, Portland, Oregon, USA

Use limitations

This product is for informational purposes only and is not intended for navigational, legal, engineering, or surveying purposes. This product is provided with the understanding that conclusions drawn from the information are the responsibility of the user. Users must read the project report to learn about appropriate uses and limitations of the data.

Extent

West -124.769099 **East** -123.614581
North 46.059205 **South** 41.987904

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:500,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE biota, elevation, environment, oceans, geoscientificInformation, inlandWaters

*** CONTENT TYPE** Downloadable Data

PLACE KEYWORDS United States of America, Oregon, Clatsop, Coos, Curry, Douglas, Lane, Lincoln, Tillamook

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#place>

[Hide Thesaurus ▲](#)

PLACE KEYWORDS Alsea Bay, Beaver Creek, Chetco River, Coos Bay, Coquille River, Elk River, Necanicum River, Nehalem River, Nestucca Bay, Netarts Bay, New River, Floras Creek, Pistol River, Rogue River, Salmon River, Sand Lake, Siletz Bay, Siuslaw River, Sixes River, Tillamook Bay, Umpqua River, Winchuck River, Yachats River, Yaquina Bay

STRATUM KEYWORDS intertidal, estuarine, land surface, surface

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#stratum>

[Hide Thesaurus ▲](#)

TEMPORAL KEYWORDS modern, recent

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#temporal>

[Hide Thesaurus ▲](#)

THEME KEYWORDS wetlands, aquatic habitat, wildlife habitat, marsh

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#bioscience>

[Hide Thesaurus ▲](#)

THEME KEYWORDS bare earth, Digital Elevation Model, sea level, LiDAR

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#elevation>

[Hide Thesaurus ▲](#)

THEME KEYWORDS bay, coast, coastal basin, coastal environment, coastal plain, coastline, conservation, estuary, natural resource, sea level rise, sea level change, floodplain, lowland, tidal flat, tide, water, surface water

THESAURUS ►

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#geoscience>

[Hide Thesaurus ▲](#)

THEME KEYWORDS estuaries, high tide, inundation, marsh, slough, tide, wetland

THESAURUS

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#hydrography>

[Hide Thesaurus ▲](#)

THEME KEYWORDS estuary, marsh, swamp, tidal

THESAURUS

TITLE <http://www.oregon.gov/geo/Pages/thesaurus.aspx#lclu>

[Hide Thesaurus ▲](#)

[Hide Topics and Keywords ▲](#)

Citation

TITLE Tidal wetland landward migration zones for Oregon outer coast estuaries: 2.5 ft (0.75 m) sea level rise

CREATION DATE 2016-11-02 12:00:00

PUBLICATION DATE 2017-08-24 12:00:00

PRESENTATION FORMATS * digital map

[Hide Citation ▲](#)

Citation Contacts

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Laura S. Brophy

ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology

CONTACT'S POSITION Director

CONTACT'S ROLE principal investigator

CONTACT INFORMATION

PHONE

VOICE 541-753-3099

ADDRESS

TYPE physical

DELIVERY POINT 563 SW Jefferson Ave.

CITY Corvallis

ADMINISTRATIVE AREA Oregon

POSTAL CODE 97333

COUNTRY US

E-MAIL ADDRESS laura@appliedeco.org

[Hide Contact information ▲](#)

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Michael J. Ewald

ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology

CONTACT'S POSITION Geospatial Analyst

CONTACT'S ROLE originator

CONTACT INFORMATION

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

[Hide Contact information ▲](#)

RESPONSIBLE PARTY

ORGANIZATION'S NAME MidCoast Watersheds Council

INDIVIDUAL'S NAME Evan Hayduk

CONTACT'S ROLE publisher

CONTACT INFORMATION

PHONE

VOICE 541-265-9195

ADDRESS

TYPE both

DELIVERY POINT 23 N. Coast Hwy.

CITY Newport

ADMINISTRATIVE AREA OR

POSTAL CODE 97365

COUNTRY US

E-MAIL ADDRESS evan@midcoastwatershedscouncil.org

[Hide Contact information ▲](#)

[Hide Citation Contacts ▲](#)**Resource Details ►**

DATASET LANGUAGES * English (UNITED STATES)
 DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed
 SPATIAL REPRESENTATION TYPE * vector

* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.3.1.4959

CREDITS

Authors: Laura S. Brophy and Michael J. Ewald, Estuary Technical Group, Institute for Applied Ecology, Corvallis, Oregon, USA
 Project Manager: Fran Recht, Pacific States Marine Fisheries Commission, Portland, Oregon, USA
 Prepared for: MidCoast Watersheds Council, Newport, Oregon, USA
 Funded by: Oregon Watershed Enhancement Board, Salem, Oregon, USA and U.S. Fish and Wildlife Service, Portland, Oregon, USA

ARCGIS ITEM PROPERTIES

* NAME Oregon_LMZs_SLR_2pt5ft_20170824
 * SIZE 33.967
 * LOCATION file://\LAPTOP-2U5RIAC5\C\$\Users\Laura
 Brophy\Documents\GIS_current\GPC_projects\LMZ\FINAL_GIS_PRODUCTS\LMZs\Oregon_LMZs_SLR_2pt5ft_20170824.shp
 * ACCESS PROTOCOL Local Area Network

[Hide Resource Details ▲](#)**Extents ►****EXTENT****DESCRIPTION**

Oregon outer coast estuaries (Oregon, USA):

Alsea Bay
 Beaver Creek
 Chetco River
 Coos Bay
 Coquille River
 Elk River
 Necanicum River
 Nehalem River
 Nestucca Bay
 Netarts Bay
 New River
 Pistol River
 Rogue River
 Salmon River
 Sand Lake
 Siletz Bay
 Siuslaw River
 Sixes River
 Tillamook Bay
 Umpqua River
 Winchuck River
 Yachats River
 Yaquina Bay

TEMPORAL EXTENT

DATE AND TIME 2016-11-02 12:00:00

EXTENT**GEOGRAPHIC EXTENT****BOUNDING RECTANGLE**

EXTENT TYPE Extent used for searching
 * WEST LONGITUDE -124.769099
 * EAST LONGITUDE -123.614581
 * NORTH LATITUDE 46.059205
 * SOUTH LATITUDE 41.987904
 * EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE 228157.403871
 * EAST LONGITUDE 465711.403871
 * SOUTH LATITUDE 113078.000000
 * NORTH LATITUDE 1588077.600066
 * EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)**Resource Points of Contact ►**

POINT OF CONTACT

INDIVIDUAL'S NAME Laura S. Brophy
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Director
 CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

PHONE

VOICE 541-753-3099

ADDRESS

TYPE physical
 DELIVERY POINT 563 SW Jefferson Ave.
 CITY Corvallis
 ADMINISTRATIVE AREA Oregon
 POSTAL CODE 97333
 COUNTRY US
 E-MAIL ADDRESS laura@appliedeco.org

[Hide Contact information ▲](#)

[Hide Resource Points of Contact ▲](#)

Resource Maintenance ►

RESOURCE MAINTENANCE

UPDATE FREQUENCY as needed

[Hide Resource Maintenance ▲](#)

Resource Constraints ►

CONSTRAINTS

LIMITATIONS OF USE

This product is for informational purposes only and is not intended for navigational, legal, engineering, or surveying purposes. This product is provided with the understanding that conclusions drawn from the information are the responsibility of the user. Users must read the project report to learn about appropriate uses and limitations of the data.

[Hide Resource Constraints ▲](#)

Spatial Reference ►

ARCGIS COORDINATE SYSTEM

- * TYPE Projected
- * GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983
- * PROJECTION NAD_1983_Oregon_Statewide_Lambert_Feet_Intl
- * COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 2992

X ORIGIN -118489100

Y ORIGIN -97381100

XY SCALE 37592196.316242374

Z ORIGIN -100000

Z SCALE 10000

M ORIGIN -100000

M SCALE 10000

XY TOLERANCE 0.0032808398950131233

Z TOLERANCE 0.001

M TOLERANCE 0.001

HIGH PRECISION true

LATEST WELL-KNOWN IDENTIFIER 2992

WELL-KNOWN TEXT PROJCS["NAD_1983_Oregon_Statewide_Lambert_Feet_Intl",GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Lambert_Conformal_Conic"],PARAMETER["False_Easting",1312335.958005249],PARAMETER["False_Northing",0.0],PARAMETER["Central_Meridian",-120.5],PARAMETER["Standard_Parallel_1",43.0],PARAMETER["Standard_Parallel_2",45.5],PARAMETER["Latitude_Of_Origin",41.75],UNIT["Foot",0.3048],AUTHORITY["EPSG",2992]]

REFERENCE SYSTEM IDENTIFIER

- * VALUE 2992
- * CODESPACE EPSG
- * VERSION 8.6.2

[Hide Spatial Reference ▲](#)

Spatial Data Properties ►

VECTOR ►

- * LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS

FEATURE CLASS NAME Oregon_LMZs_SLR_2pt5ft_20170824
 * OBJECT TYPE composite
 * OBJECT COUNT 46

Hide Vector ▲

ARCGIS FEATURE CLASS PROPERTIES ►

FEATURE CLASS NAME Oregon_LMZs_SLR_2pt5ft_20170824
 * FEATURE TYPE Simple
 * GEOMETRY TYPE Polygon
 * HAS TOPOLOGY FALSE
 * FEATURE COUNT 46
 * SPATIAL INDEX FALSE
 * LINEAR REFERENCING FALSE

Hide ArcGIS Feature Class Properties ▲

Hide Spatial Data Properties ▲

Data Quality ►

DATA QUALITY REPORT - COMPLETENESS OMISSION ►

MEASURE DESCRIPTION

As required in the project's Scope of Work, LMZs are mapped for the following 23 major outer coast estuaries of Oregon: Alsea Bay, Beaver Creek, Chetco River, Coos Bay, Coquille River, Elk River, Necanicum River, Nehalem River, Nestucca Bay, Netarts Bay, New River, Floras Creek, Pistol River, Rogue River, Salmon River, Sand Lake, Siletz Bay, Siuslaw River, Sixes River, Tillamook Bay, Umpqua River, Winchuck River, Yachats River, Yaquina Bay. The Scope of Work did not include mapping of LMZs for other, smaller estuaries.

Hide Data quality report - Completeness omission ▲

DATA QUALITY REPORT - ABSOLUTE EXTERNAL POSITIONAL ACCURACY ►

DIMENSION horizontal

MEASURE DESCRIPTION

5 m

EVALUATION METHOD

LIDAR-based digital elevation models from Oregon DOGAMI (<http://www.oregongeology.org/lidar/>) and NOAA's tsunami DEMs (<https://www.ngdc.noaa.gov/mgg/inundation/tsunami/general.html>) were resampled to 5 m to enable efficient processing across the Oregon coast.

Hide Data quality report - Absolute external positional accuracy ▲

DATA QUALITY REPORT - ABSOLUTE EXTERNAL POSITIONAL ACCURACY ►

DIMENSION vertical

MEASURE DESCRIPTION

Vertical positional accuracy is the same as the source digital elevation models (DEMs), which are the LIDAR-based DEMs from Oregon DOGAMI (<http://www.oregongeology.org/lidar/>) and NOAA's tsunami DEMs. See the metadata for these DEMs:

http://www.oregongeology.org/lidar/metadata/Oregon_Digital_Elevation_Model_Mosaic_04112017.xml

<https://www.ngdc.noaa.gov/mgg/inundation/tsunami/general.html>

EVALUATION METHOD

See the source layer metadata cited above.

Hide Data quality report - Absolute external positional accuracy ▲

Hide Data Quality ▲

Lineage ►

LINEAGE STATEMENT

Mapping process steps and data sources are summarized below. See the project report for further details.

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:01:00

DESCRIPTION

Approach: We used elevation-based methods to map the potential extent of vegetated tidal wetlands in the emergent, shrub, and forested classes, at current sea level and under SLR scenarios. The areas that would be vegetated tidal wetlands (emergent, shrub or forested) under SLR scenarios are called "Landward Migration Zones" or "LMZs." We identified the elevation range for vegetated tidal wetlands as described in "Mapping boundaries" below, and moved that range upslope by SLR increments as described in "SLR scenarios" below. Our scope did not include mapping of mudflats, algae beds, seagrass beds, or other lower intertidal wetland classes, although we did identify areas that convert to mudflats (see "Conversion to mudflats" below). The distribution of algae and seagrass beds may not be mappable using strictly elevation-based methods, because it is controlled not just by elevation, but also by other factors like water clarity and substrate type.

RATIONALE

See process steps below, and project report, for rationale.

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Geospatial Analyst
 CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

Hide Contact information ▲

PROCESS CONTACT

INDIVIDUAL'S NAME Laura S. Brophy
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Director
 CONTACT'S ROLE principal investigator

CONTACT INFORMATION ►

PHONE

VOICE 541-753-3099

ADDRESS

TYPE physical
 DELIVERY POINT 563 SW Jefferson Ave.
 CITY Corvallis
 ADMINISTRATIVE AREA Oregon
 POSTAL CODE 97333
 COUNTRY US
 E-MAIL ADDRESS laura@appliedeco.org

Hide Contact information ▲

SOURCE DATA ►

RELATIONSHIP TO THE PROCESS STEP used

DESCRIPTION

Topographic data source 1: DOGAMI LIDAR DEM. Our primary source for land surface elevation (topography) was the LIDAR-derived Bare Earth Model (Digital Elevation Model) from the Oregon Department of Geology and Mineral Industries (<http://www.oregongeology.org/lidar/>).

SOURCE MEDIUM NAME online link

SOURCE CITATION ►

TITLE Oregon Lidar-Derived Digital Elevation Model Mosaic

RESOURCE LOCATION ONLINE

LOCATION <http://www.oregongeology.org/lidar/>

FUNCTION PERFORMED download

Hide Source citation ▲

Hide Source data ▲

SOURCE DATA ►

RELATIONSHIP TO THE PROCESS STEP used

DESCRIPTION

Topographic data source 2: NOAA tsunami DEMs (NOAA topobathy data). Some parts of the lower bays were inundated well

above MTL when the DOGAMI LIDAR (topographic data source 1) was acquired, making it hard for us to map a continuous lower boundary based on MTL. So, we obtained a topobathy layer from NOAA ("tsunami DEM" at <https://www.ngdc.noaa.gov/mgg/inundation/tsunami/>). Within nonvegetated parts of the lower bays, we chose the lower of either the DOGAMI or NOAA DEMs to improve our results mapping a continuous MTL boundary.

SOURCE MEDIUM NAME online link

SOURCE CITATION ►

TITLE NOAA tsunami DEMs

RESOURCE LOCATION ONLINE

LOCATION <https://www.ngdc.noaa.gov/mgg/inundation/tsunami/>

FUNCTION PERFORMED download

[Hide Source citation ▲](#)

[Hide Source data ▲](#)

SOURCE DATA ►

RELATIONSHIP TO THE PROCESS STEP used

DESCRIPTION

2012 West Coast Sea Level Rise Study, National Academies of Science. We used this source for the sea level rise scenarios for our LMZ mapping. Our initial analysis mapped LMZs for SLR increments of 0.23 m, 0.48 m, and 1.42 m above current sea level. These SLR scenarios represents the upper end of the range of uncertainty for the years 2030, 2050 and 2100 respectively, for Newport, OR, provided by the 2012 West Coast Sea Level Rise Study. We also added mapping of future tidal wetlands under three additional scenarios: 0.75 m, 2.50 m, and 3.50 m, for the following reasons: The 0.75 m scenario provides an intermediate point between the 0.48 and 1.42 m scenarios; and the 2.50 and 3.50 m scenarios provide a glimpse of possible future conditions beyond 1.42 m SLR, since sea level is unlikely to stop rising at that point. Based the West Coast Sea Level Rise Study and additional new data published in 2017 (NOAA Technical Report NOS CO-OPS 083), the 0.75, 2.50 and 3.50 cm scenarios represent intermediate-high SLR scenarios for the years 2070, 2130 and 2160, respectively.

SOURCE MEDIUM NAME online link

SOURCE CITATION ►

TITLE Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future

RESOURCE LOCATION ONLINE

LOCATION www.nap.edu/catalog/13389

FUNCTION PERFORMED information

[Hide Source citation ▲](#)

[Hide Source data ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:02:00

DESCRIPTION

Tidal datum adjustments within estuaries: Tidal datums were used for the lower and upper boundaries of LMZs. As described in process steps below, MTL served as the lower boundary for LMZs, and the 50% exceedance elevation (an estuary-specific increment above MHHW) served as the upper boundary for LMZs. We used VDatum to determine the elevations of tidal datums (MTL, MHHW) within each estuary, relative to NAVD88 (the LIDAR-based DEM elevation datum). MTL is directly referenced in VDatum, while the 50% exceedance value for each estuary was added as a constant increment above MHHW (and MHHW is directly referenced in VDatum).

RATIONALE

These methods match those used for the 2014 Estuary Habitat Mapping project undertaken by the Oregon Coastal Management Program, Oregon Department of Land Conservation and Development (DLCD/OCMP; see www.coastalatlas.net/documents/cmecs/EPSCM_CoreGISMethods.pdf).

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald

ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology

CONTACT'S POSITION Geospatial Analyst

CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

[Hide Contact information ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:03:00

DESCRIPTION

Mapping component 1: Landward migration zones ("LMZs"). We mapped upslope areas that could become future vegetated tidal wetlands (LMZs). These areas are at a suitable elevation to become vegetated tidal wetlands under the SLR scenarios -- that is, they are between the lower and upper boundaries described in the "Mapping boundaries" process steps below, for the particular SLR scenario.

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Geospatial Analyst
 CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

[Hide Contact information ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:04:00

DESCRIPTION

Mapping component 2: Conversion to mudflats. Our mapping revealed areas that would be too low to support emergent, shrub or forested vegetation under SLR scenarios (these are below MTL under the SLR scenario being mapped). These areas are considered losses from current vegetated tidal wetland area.

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Geospatial Analyst
 CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

[Hide Contact information ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:05:00

DESCRIPTION

Mapping boundaries 1: Lower boundary for mapped tidal wetlands and mudflat mask. The lower boundary for mapped tidal wetlands was Mean Tide Level (MTL), as modified using the mudflat mask described below. This boundary was based on our team's field observations, as well as literature (Thorne et al. 2015). MTL values for each estuary were obtained from NOAA tide stations and VDatum. Mudflat mask: After obtaining the MTL boundary using methods described below, we masked out non-vegetated areas in the lower bays, on the assumption that if they are currently too low to be emergent marsh, they would remain non-vegetated with SLR. That is, we removed these non-vegetated areas from the mapping of "initial condition" LMZs (no sea level rise = 0.0 ft SLR). These "initial condition" LMZs approximate the extent of current tidal wetlands in the emergent, shrub and forested vegetation classes. The mudflat mask was used only for initial condition.

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Geospatial Analyst
 CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com

[Hide Contact information ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2016-11-02 12:06:00

DESCRIPTION

Mapping boundaries 2: Upper boundary for mapped tidal wetlands. The upper boundary for mapped tidal wetlands was the 50% exceedance elevation, obtained NOAA's extreme water level model page (<https://tidesandcurrents.noaa.gov/est/>). This is the same boundary used in the 2014 Estuary Habitat Mapping project undertaken by the Oregon Coastal Management Program, Oregon Department of Land Conservation and Development (DLCD/OCMP; see www.coastalatlas.net/documents/cmecs/EPSM_CoreGISMethods.pdf). Linear interpolation was used to derive 50% exceedance values for estuaries for which NOAA does not publish extreme water level modeling. The 50% exceedance elevation was expressed as an increment above MHHW. MHHW values for each estuary were obtained from NOAA tide stations and VDatum.

PROCESS CONTACT

INDIVIDUAL'S NAME Michael J. Ewald
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Geospatial Analyst
 CONTACT'S ROLE processor

CONTACT INFORMATION ►

ADDRESS

E-MAIL ADDRESS mewald@geomaticsresearch.com*Hide Contact information ▲**Hide Process step ▲**Hide Lineage ▲*

Distribution ►

DISTRIBUTOR ►

CONTACT INFORMATION

ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Director
 INDIVIDUAL'S NAME Laura Brophy
 CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

PHONE

VOICE 541-753-3099

ADDRESS

E-MAIL ADDRESS laura@appliedeco.org*Hide Contact information ▲**Hide Distributor ▲*

DISTRIBUTION FORMAT

* NAME Shapefile

TRANSFER OPTIONS

* TRANSFER SIZE 33.967

Hide Distribution ▲

Fields ►

DETAILS FOR OBJECT Oregon_LMZs_SLR_2pt5ft_20170824 ►

* TYPE Feature Class

* ROW COUNT 46

FIELD FID ►

* ALIAS FID
 * DATA TYPE OID
 * WIDTH 4
 * PRECISION 0
 * SCALE 0
 * FIELD DESCRIPTION
 Internal feature number.

* DESCRIPTION SOURCE
 Esri

* DESCRIPTION OF VALUES

Sequential unique whole numbers that are automatically generated.

Hide Field FID ▲

FIELD Shape ►

- * ALIAS Shape
- * DATA TYPE Geometry
- * WIDTH 0
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Feature geometry.
- * DESCRIPTION SOURCE
Esri
- * DESCRIPTION OF VALUES
Coordinates defining the features.

Hide Field Shape ▲

FIELD estuary ►

- * ALIAS estuary
- * DATA TYPE String
- * WIDTH 200
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION

The estuary in which the feature is located.

DESCRIPTION SOURCE

Estuary names are those used by the Oregon Coastal Management Program (OCMP), Oregon Department of Land Conservation and Development, with one exception: we use "New River Area" to refer to the estuary called "Twomile Creek South, Fourmile Creek, New River, Floras Creek" by OCMP.

Hide Field estuary ▲

FIELD imperv ►

- * ALIAS imperv
- * DATA TYPE String
- * WIDTH 15
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION

Identifies portions of LMZs located on impervious surfaces mapped in a spatial dataset of impervious surfaces provided by the Oregon Coastal Management Program (OCMP), Oregon Department of Land Conservation and Development. The Identity (analysis) operation was used to populate this field, with each LMZ dataset as the input layer and the impervious surfaces dataset as the identity layer.

A value of "Y" indicates the feature is located within the impervious surfaces mapping. A value of "N" indicates the feature is not located within the impervious surfaces mapping.

The impervious surfaces dataset was produced at OCMP by sub-setting the Oregon coastal zone area from the national raster dataset listed below. OCMP converted the pixels into vector data, and applied a smoothing algorithm (PAEK—Acronym for Polynomial Approximation with Exponential Kernel, which calculates a smoothed polygon that will not pass through the input polygon vertices. (smoothing tolerance of 100m).

DESCRIPTION SOURCE

The source raster data for the dataset provided by OCMP is found at https://www.mrlc.gov/nlcd11_data.php (see "NLCD 2011 Percent Developed Imperviousness (741MB)"). This is the 2011 percent developed imperviousness layer for the conterminous United States for all pixels. Citation for this source raster data: Xian, G., Homer, C., Dewitz, J., Fry, J., Hossain, N., and Wickham, J., 2011. The change of impervious surface area between 2001 and 2006 in the conterminous United States. Photogrammetric Engineering and Remote Sensing, Vol. 77(8): 758-762.

Hide Field imperv ▲

FIELD area_ac ►

- * ALIAS area_ac
- * DATA TYPE Double
- * WIDTH 16
- * PRECISION 15
- * SCALE 3
- * FIELD DESCRIPTION

area of the feature in acres

[Hide Field area_ac ▲](#)

FIELD area_ha ►

* ALIAS area_ha
 * DATA TYPE Double
 * WIDTH 16
 * PRECISION 15
 * SCALE 3

FIELD DESCRIPTION

area of the feature in hectares

[Hide Field area_ha ▲](#)

[Hide Details for object Oregon_LMZs_SLR_2pt5ft_20170824 ▲](#)

OVERVIEW DESCRIPTION ►

ENTITY AND ATTRIBUTE OVERVIEW

Features are Landward Migration Zones (LMZs) for the sea level rise scenario indicated in the shapefile name. Attributes show feature area in acres ("area_ac") and in hectares ("area_ha"). The attribute "imperv" indicates whether the feature is located within an area mapped as an impervious surface in an Impervious Surfaces dataset provided by the Oregon Department of Land Conservation and Development, derived from the National Land Cover Database ("Y" = within an area mapped as impervious; "N" = not within an area mapped as impervious).

[Hide Overview Description ▲](#)

[Hide Fields ▲](#)

Metadata Details ►

* METADATA LANGUAGE English (UNITED STATES)
 * METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
 SCOPE NAME * dataset

* LAST UPDATE 2017-11-22

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0
 METADATA STYLE FGDC CSDGM Metadata
 STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2017-08-29 17:09:10
 LAST MODIFIED IN ARCGIS FOR THE ITEM 2017-11-22 16:18:11

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes
 LAST UPDATE 2017-11-22 16:17:20

ITEM LOCATION HISTORY

ITEM COPIED OR MOVED 2017-08-29 17:09:10
 FROM C:\Users\Laura
 Brophy\Documents\GIS_current\GPC_projects\LMZ\FINAL_GIS_PRODUCTS\LMZs\metadata\test\Oregon_LMZs_SLR_2pt5ft_20170824
 TO \\LAPTOP-2U5RIAC5\C\$\Users\Laura
 Brophy\Documents\GIS_current\GPC_projects\LMZ\FINAL_GIS_PRODUCTS\LMZs\Oregon_LMZs_SLR_2pt5ft_20170824

[Hide Metadata Details ▲](#)

Metadata Contacts ►

METADATA CONTACT

INDIVIDUAL'S NAME Laura S. Brophy
 ORGANIZATION'S NAME Estuary Technical Group, Institute for Applied Ecology
 CONTACT'S POSITION Director
 CONTACT'S ROLE principal investigator

CONTACT INFORMATION ►

PHONE
 VOICE 541-752-3099

ADDRESS

TYPE physical
 DELIVERY POINT 563 SW Jefferson Ave.
 CITY Corvallis
 ADMINISTRATIVE AREA Oregon

POSTAL CODE 97333
COUNTRY US
E-MAIL ADDRESS laura@appliedeco.org

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

Metadata Maintenance ►

MAINTENANCE
UPDATE FREQUENCY as needed

[Hide Metadata Maintenance ▲](#)

Thumbnail and Enclosures ►

THUMBNAIL
THUMBNAIL TYPE JPG

[Hide Thumbnail and Enclosures ▲](#)

FGDC Metadata (read-only) ▼