

Non-exclusive Distribution License

I grant the Texas Digital Library (hereafter called "TDL"), my home institution (hereafter called "Institution"), and my academic department (hereafter called "Department") the non-exclusive rights to copy, display, perform, distribute, and publish the content I submit to this repository ("Work") and make the Work available in any format in perpetuity as part of an Institution, Department or TDL repository communication or distribution effort.

I understand that once the Work is submitted, a bibliographic citation to the Work will remain visible in perpetuity, even if the Work is updated or moved.

I understand that the Work's copyright owner(s) will continue to own copyright outside these non-exclusive granted rights.

I warrant that:

- I am the copyright owner of the Work, or
- I am one of the copyright owners and have permission from the other owners to submit the Work, or
- My Institution or Department is the copyright owner and I have permission to submit the Work, or
- Another party is the copyright owner and I have permission to submit the Work.

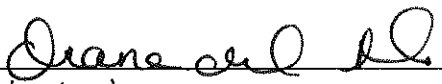
Based on this, I further warrant that to my knowledge:

- The Work does not infringe any copyright, patent, or trade secrets of any third party, and
- The Work does not contain and libelous matter, nor invade the privacy of any person or third party, and
- That no right in the Work has been sold, mortgaged, or otherwise disposed of, and is free from all exclusive claims.

I agree to hold Institution, Department, TDL, and their agents harmless for any liability arising from any breach of the above warranties or any claim of intellectual property infringement arising from the exercise of these non-exclusive granted rights.

Please note: You are NOT surrendering copyright. The license agreement only grants non-exclusive distribution rights to the Texas A&M-Corpus Christi Repository. Any rights to publication or further distribution are retained by the author.

Diana C. Del Angel
(printed name)


(signature)

3/12/2012
(date)

Mary and Jeff Bell Library Electronic Thesis/Dissertation Submission Information

Please complete the following form, sign it, and submit it along with an electronic copy of your thesis/dissertation (note that you will need to print it, sign it, and scan it back into electronic format with your signature on it). The best format for us to receive your thesis/dissertation in is .pdf but .doc, .docx, or .rtf are also acceptable. Please do not include the signature page in the electronic file you submit.

THESIS/DISSERTATION INFORMATION

Author (last name, first name): Del Angel, Diana

Title: DUNE-BEACH MORPHODYNAMIC INTERACTION ALONG A SEMI-ARID, WAVE-DOMINATED BARRIER ISLAND: SOUTH PADRE ISLAND, TEXAS

Keywords (please provide at least three keywords that identify the topic of your work): Beach and Dune Morphology Coastal Lidar South Texas Sediment Transport

Abstract: Beach and dune volume changes, a sediment transport model, and a morphometric model were used to investigate dune development and to understand the influence of beach and dune morphology on dune accretion rates on South Padre Island, Texas. Dune volumes were calculated using lidar-derived digital elevation models for the years 2000, 2005, and 2009. Dune volume between the years 2000 and 2005 increased throughout the study area, averaging $3.5 \text{ m}^3/\text{m}/\text{yr}$, although there was large alongshore variability ($-13.6 \text{ m}^3/\text{m}/\text{yr}$ to $30 \text{ m}^3/\text{m}/\text{yr}$). Minimal dune erosion occurred from 2000-2005, making the 2000-2005 dune volume changes a good estimate of the long-term aeolian accretion rates. In contrast, dune volume changes from 2005-2009 are not a good estimate of long-term accretion rates because most areas experienced storm surge erosion averaging $-8.3 \text{ m}^3/\text{m}/\text{yr}$. The dune accretion average from 2000-2005 is in good agreement with the results of the sediment transport model that coupled a locally measured wind velocity time series and a semi-empirical aeolian transport relationship. The morphometric model shows that dune accretion rates are influenced by the present dune morphology and beach width. From calculation of profile volume and estimates of dune accretion rate by dune type (washover terrace, dune terrace and dune ridge) it was determined that a washover terrace would require 43 years to develop into a foredune ridge, if the space, vegetation and sediment supply are available. Due to the shoreline retreat rate and hurricane frequency, overwash will continue to be a recurrent process shaping South Padre Island.

Description (optional, enter any other description or comments here):
