

# *Resume*

Richard L. Watson, Ph.D., PG

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***SPECIALIZATION** -- Marine and coastal geology, sedimentation, hydrodynamics of sediment transport, nearshore current systems, tidal hydrodynamics, and sea level rise.*

## **EDUCATION**

Arts Bachelor, Lehigh University, 1965; Master of Arts, University of Texas at Austin, 1968; Doctor of Philosophy, University of Texas at Austin, 1975.

## **PROFESSIONAL EXPERIENCE**

Studied sedimentation and tidal hydrodynamics in Great Bay, Little Egg Harbor, and Beach Haven Inlets, N.J. for the New Jersey Bureau of Geology, 1964-65.

Research was carried out for one year on Padre Island, Texas studying the origin of the shell beaches and their relationship to the littoral drift system of the Texas coast.

Employed as a geologist for the U.S. Army Corps of Engineers, Galveston District, summer 1968. Worked in Coastal Studies Section on littoral drift problems at inlets, on sedimentation within the Houston Ship Channel, and installed tide gauges and hurricane surge gages all over the Texas coast.

Participated in a cruise on the R.V. Eastward, 1971, to collect cores and bathymetric data along the north coast of Jamaica.

Invited field trip co-leader for Padre Island (see ref. Hunter, Watson, Hill and Dickinson).

Organized a program to educate the public in the Corpus Christi, Texas area as to the importance of protecting the natural dunes from vehicular and other destruction. The program was successful.

Consultant for Southwest Research Institute - Ocean Science and Engineering Laboratory, Corpus Christi, Texas, 1973 to write the final reports for four oceanographic studies of the Louisiana continental shelf.

Research Associate - The University of Texas Marine Science Institute, Port Aransas, Texas from 1972 to 1975. During 1974-75 I supervised all contract research in the Geology Program. Duties included supervision of field surveys, computer analysis of field data, report and proposal writing, and supervision of report preparation.

#### UTMSI CONTRACTS INCLUDED THE FOLLOWING

A study of the sedimentation and hydrodynamics of the newly (1972) opened Corpus Christi Water Exchange Pass under contract with the U.S. Army Corps of Engineers Coastal Engineering Research Center. Studies included production of precision bathymetric maps from fathometer and sled surveys to determine monthly changes in the channel, its mouths and the adjacent beaches. These changes were correlated with quantitative studies of the tidal hydrodynamics of the channel, including measurement of friction in its various reaches and the relationship between discharge and water surface slope. These data were used to evaluate existing inlet stabilization theories. Quantitative computations of the littoral drift system from long term daily wave records were used to analyze changes in the beaches adjacent to the jetties and to estimate the volume of sediment bypassing the channel mouth.

In conjunction with the study described above, we analyzed rates of channel erosion and filling for the Texas Parks and Wildlife Department to aid them in their management of the inlet.

Under contract with the Corpus Christi Office of Marine Geology, I have compiled all existing data both quantitative and qualitative about the littoral drift system of the Texas Coast. All available wave data for sites along the coast were used to compute quantitative estimates of the monthly and annual littoral drift for as many sites as possible.

Under contract with the Southwest Region of the National Park Service, we studied the long term effect of vehicular traffic on backshore vegetation and the stability of the main foredune line. Changes were correlated with traffic intensity and evaluation of the natural plant community in each area.

Co-convenor with E. William Behrens of a Workshop on Coastal Sedimentology, Engineering Geology and Related Environmental Studies, held at U.T. Marine Science Institute, 25-27 September, 1975.

Visiting assistant professor in the Department of Geology at the University of South Florida for the year 1976. Courses taught included sedimentology, earth processes, introduction to physical geology, marine geology, and geomorphology.

Extensive field, laboratory, and library research on the geologic history and sedimentation of wind -tidal flats of southern Laguna Madre for a tidal boundary dispute between the upland property owners and the state of Texas, 1977-79. The state settled in favor of my client on the first day of court.

Preparation of a report for RPI on the erosional history of Mustang and Padre Islands in conjunction with the IXTOC oil spill clean-up, 1979.

Bathymetric surveying and mapping of the canal system at Padre Isles, N. Padre Island, 1979.

Controlled aerial photography of the city of Port Aransas, Texas, 1980.

Very extensive, field, laboratory and library research on the geologic and hydrologic history of the wind-tidal flats of the Kenedy Ranch, Kenedy County, Texas for a tidal boundary dispute between the state of Texas and the upland owner, 1987-95. After years in court, the Supreme Court of Texas returned a judgment in favor of my clients settling the rules for tidal boundaries in the State of Texas.

Study of the tidal discharge at the mouth of Oso Bay, Nueces County, Texas in conjunction with Randy Thompson of Archie Walker Engineering for the City of Corpus Christi, 1991.

Expert witness for the John G. and Marie Stella Kenedy Memorial Foundation at the trial in the District Court Travis Co., Texas 200th Judicial District pertaining to a land boundary dispute between the Kenedy Foundation and the State of Texas. November-December, 1995. After years in court, the Supreme Court of Texas returned a judgment in favor of my clients.

Review feasibility studies for re-opening Packery Channel Pass into extreme northern Laguna Madre. Educate the public about the requirements of successful inlets on the south Texas coast and the many problems with Packery Channel through presentations at business clubs, associations, talk radio and television, April 1996 through July 1997. Funded by City of Port Aransas, TX.

Review plans for stabilizing the entrance channel to Island Moorings Marina and Development with geotube jetties and other structures. For Airport and Channel Corporation, January 1997.

Prepare report on the groundwater hydrology of Mustang Island, Texas for the City of Port Aransas, Texas, 1998.

Prepare report on shoaling in the Leggett Light Channel from Aransas Bay, Texas to Little Bay near Rockport Beach. Work completed for the Aransas County Navigation District No. 1. 1999.

Prepared report on Beach Erosion Caused by Permanent Sand Loss Through Rollover Fish Pass, Bolivar Peninsula, Texas, For J. Martin Green and Alan McNeill, Attorneys at Law. Served as expert witness on lawsuit against the Parks and Wildlife Department and the owners of Rollover Fish Pass. 1999. Substantial settlement in favor of my clients.

Prepared a report on Severe Beach Erosion at Surfside, Texas Caused by Engineering Modifications to the Coast and Rivers, 2003, for home owners at Surfside Texas. Serving as an expert witness in litigation with the state.

Prepared a report on Dredge Material Disposal on the John G. and Marie Stella Kenedy Foundation Lands, Kenedy County Texas, April 2004. This report considers the beneficial use of dredged material from maintenance dredging of the Gulf Intracoastal Waterway on the wind-tidal flats of the Kenedy Ranch.

Faculty member and presenter at CLE International Texas Coastal Law conference, Houston, Texas May 19-20, 2005. Prepared report and presentation entitled *Coastal Law and the Geology of a Changing Shoreline*.

Speaker at Coastal Texas 2020 Technical Erosion conference, Sept. 14-16, 2005 in Houston, Texas. The Technical Erosion Conference was convened by the Texas General Land Office (GLO). Presented a paper titled *Severe Erosion of Texas Beaches Caused by Engineering Modifications to the Coast and Rivers*.

[Prepared a web page and documents to educate local citizens about the importance of protecting the Natural Dune Seawall at Port Aransas, Texas.](#)

Invited to present “Protect the Natural Dune Seawall: Our First Line of Defense Against Hurricanes” at the University of Texas Marine Science Institute at Port Aransas, Texas, January 12, 2006.

Faculty member and presenter at CLE International Texas Coastal Law conference, Galveston, Texas May 18-19, 2006. Prepared report and presentation entitled [\*Coastal Law and the Geology of a Changing Shoreline, 2006\*](#). Presentation and paper are updated from the previous year with the addition of beach management practices at Port Aransas, Texas.

Ex-Officio member of the temporary Beach Maintenance Committee appointed by the City Council of Port Aransas from May to November 2006. My position was to educate and guide the committee, city staff and GLO representatives in finding better beach management practices to protect and enhance our natural dune seawall.

Invited speaker at Del Mar College in Corpus Christi, Texas. Presented *Severe Erosion of Texas Beaches Caused by Engineering Modifications to the Coast and Rivers*. November, 3, 2006.

Invited speaker at the Harte Research Institute of the Texas A&M University, Corpus Christi, Texas. Presented *Severe Erosion of Texas Beaches Caused by Engineering Modifications to the Coast and Rivers, January 19, 2007*.

Invited speaker at the American Shore and Beach Preservation Association - Texas General Land Office Conference in Galveston, Texas on October 24, 2007. The paper was titled "*Balancing Growth of the Natural Dune Seawall with Maintenance of Tourist Beaches.*"

Dr. Watson presented an invited paper at the Geological Society of American national convention in Denver on the 28th of October, 2007. The keynote session is titled "*Identifying America's Most Vulnerable Oceanfront Communities: A Geological Perspective.*" **Dr. Watson's** paper was titled *Severe Beach Erosion at Surfside, Texas Caused by Engineering Modifications to the Coast and Rivers*.

Dr. Watson presented a talk at Sargassum Symposium 2008, a three day meeting of coastal scientists, city managers, the Texas General Land Office and beach maintenance and equipment experts and manufactures. His talk was titled:  
**Good and bad beach maintenance on an eroding shoreline**

[Click here to watch a video of the presentation.](#)

[You can click here to download a narrated copy of the presentation. It is about 20 mb, so it will take time to download. Download the file \*\*sargassum.pps\*\*](#)

[Or you can click here to play the slide show directly.](#)

Served as an expert witness for the Brown McCarroll and Baker Botts law firms who were representing two wind farm companies Babcock and Brown and Iberdrola respectively. The Coastal Habitat Alliance brought suit in federal court to stop construction of these two large wind farms on the Kenedy Ranches in Kenedy Co., Texas. My July 10, 2008 report was titled: [Geologic framework of the eolian sand plain and the Central Flats of Laguna Madre and circulation between northern and southern Laguna Madre.](#) This report rebutted and disproved many of the allegations

brought by the Coastal Habitat Alliance. Additional reports and affidavits were prepared for this case. I was present at most of the depositions of plaintiff witnesses to help provide questions and information for our attorneys. A few weeks before trial, Judge Yeakel dismissed the case, finding in favor of my clients. Civil Action No. A-07-CV-985LY in the United States District Court for the western district of Texas, Austin Division. Coastal Habitat Alliance Plaintiff v. Jerry Patterson et al., Defendants.

Dr. Watson presented a talk titled *Was Hurricane Ike a wake-up call, or are we going back to sleep?* on January 15 and February 17, 2009 at the Corpus Christi museum of science and technology. It was standing room only with over 160 people present.

Invited participant and speaker in the 2009 Gulf Coast Marine Conference in Lafayette, LA sponsored by the National Oceanic and Atmospheric Administration, the National Weather Service, and National Ocean Service. My presentation was titled *Effects of Hurricane Ike on the upper Texas coast and the underlying long-term shoreline erosion caused by man-made changes to the coast and rivers.*

Presented an invited lecture in the Public Lecture Series at the University of Texas Marine Science Institute at Port Aransas, TX on March 12, 2009. The lecture was titled *Ike wiped entire towns off of the map. Are we safer in Port Aransas?* The talk was given to a standing room overflow crowd.

Presented an invited lecture at the Sargassum Conference 2009 held at the University of Texas Marine Science Institute at Port Aransas, Texas on April 30, 2008. The talk was titled *What has Hurricane Ike taught us about beach and dune management?*

Published an invited article titled "[Evaluation of coastal response to Hurricane Ike through pre-storm and post-storm aerial photography](#)" in *Shore and Beach* Vol. 77, No. 2, 49-59. This entire issue of *Shore and Beach*, the Journal of the American Shore and Beach Preservation Association is dedicated to description and analysis of the damage to the Louisiana and Texas coasts by Hurricane Ike which came ashore on September 13, 2008.

Presented an invited lecture on Hurricane Ike to the Builders Association of Corpus Christi on May 6, 2009.

On June 4-5, 2009 The Texas General Land Office held the Texas Coastal Conference 2009 in Galveston, Texas. Dr. Watson gave an invited presentation titled *What has hurricane Ike taught us about beach and dune management.* You can download and watch this narrated powerpoint presentation at the following link. The file is about 20 mb, so it is best to download it rather than just click on it, unless you have a very fast internet connection. [Download the presentation here.](#)

Frequently invited to give presentations to area Rotary, Kiwanis and other service clubs.

### ***SUBSIDIARY LICENSES AND CERTIFICATES***

## **U.S. Coast Guard 100 ton Master's License.**

Thirty years of experience as captain and navigator of small vessels to 110 ft. and 200 tons in coastal and ocean service. Over 100,000 miles of ocean experience. This includes commercial fishing vessels, sail and motor yachts and oil field service vessels. Entries in many countries including about 20 transits of the Panama Canal. Professional compass adjustor on yachts, commercial vessels, and military vessels including U.S.C.G. vessels and naval vessels. This nautical experience is invaluable in planning and accomplishing marine scientific field work.

## **Airplane Private Pilot Single Engine Land.**

US , Mexico and Central America. Own Cessna 182.

## **SCUBA certification**

### ***SUBSIDIARY EXPERIENCE***

Extensive experience in designing and fabricating research equipment. Ability to service most mechanical and simple electronic equipment. Experience in digital photography, computer programming, spreadsheet construction, computer drafting & drawing and internet.

### ***PUBLICATIONS AND REPORTS***

Behrens, E.W. and R.L. Watson, 1967. Sorting of Bivalves, an indication of longshore drift, abs., *Texas Journal of Science*.

Behrens, E.W., and R.L. Watson, 1969. Differential sorting of pelecypod valves in the swash zone, *Journal of Sedimentary. Petrology*, V. 39, No. 1, 159-165.

Watson, R.L., 1967. Is there a longshore drift convergence on Central Padre Island, abs., *Transactions of the Gulf Coast Assoc. of Geological Societies.*, V.17, 150.

Watson, R.L., 1968. *Origin of shell beaches, Padre Island, Texas*, Master's Thesis, The University of Texas at Austin, 121p.

Watson, R.L., 1969. Modified Rubey's law accurately predicts sediment settling velocities, *Water Resources Research*, V. 5, No. 5, 1147-1150.

Watson, R.L., and Behrens, E.W., 1971, Nearshore surface currents, southeastern Texas Gulf Coast, *Contributions in Marine Science*, V. 15, 133-143.

Watson, R.L., 1971. [Origin of Shell Beaches, Padre Island, Texas](#), *Journal of Sedimentary Petrology*, V. 41, No. 4, 1105-1111.

Hunter, R.E., R.L. Watson, G.W. Hill, and K.A. Dickinson, 1972. Modern depositional Environments and Processes, Northern and Central Padre Island, Texas in: *Padre Island National Seashore Field Guide*, Gulf Coast Association of Geological Societies, 1-27.

Behrens, E.W., and R.L. Watson, 1973. Corpus Christi Water Exchange Pass: case history of sedimentological effects and hydraulics during the first year of operations, (Final Report, Coastal Engineering Research Center Contract DACW72-72-C-0027).

Behrens, E.W., R.L. Watson, P.D. Carangelo, W.H. Sohl, and H.S. Finkelstein, 1974. Beach impact study, Padre Island National Seashore, in: *Transactions of Southwest Regional Natural Science Conference National Park Service*, Nov. 19-21. Div. Natural Sciences, Southwest Region, National Park Service, Dept. Interior 137-140.

Behrens, E.W., R.L. Watson, P.D. Carangelo, W.H. Sohl, and H.S. Finkelstein, 1975. Effect of vehicular and pedestrian traffic on backshore vegetation and dune development, Final report for contract CX 700040146 for studies in the Padre Island National Seashore with the Southwest Region National Park Service, Santa Fe, New Mexico.

Watson, R.L., 1975. The littoral drift system of the Texas coast, Final report on contract research with the Corpus Christi Office of Marine Geology, U.S.G.S.

Watson, R.L., 1975. *The relationship between littoral drift rate and the longshore component of wave energy flux*, Ph.D. dissertation, The University of Texas at Austin, 106p.

Behrens, E.W., R.L. Watson, and C. Mason, 1977. Hydraulics and Dynamics of Corpus Christi Water Exchange Pass, Texas, *GITI REPORT 8*, U.S. Army Corps of Engineers Coastal Engineering Center, Ft. Belvoir, VA, 126p.

Watson, R.L., and E.W. Behrens, 1976. Hydraulics and dynamics of New Corpus Christi Pass, Texas: a case history, 1973-75, *GITI REPORT 9*, U.S. Army Corps of Engineers Coastal Engineering Research Center, Ft. Belvoir, VA, 175p.

Behrens, E.W., and R.L. Watson, 1977. [Corpus Christi water exchange pass 1972 to 1976](#), in: *Coastal Sediments '77, 5th Symposium of the Waterway, Port, Coastal and Ocean Division*, Amer. Soc. Civ. Engrs., 790-796.

Oetking, Back, Watson, and Merks. 1979. Physical studies of the nearshore continental shelf of South Central Louisiana: currents and hydrography., in: Ward, Bender, and Reish, eds., *The Offshore Ecology Investigation, Effects of Oil Drilling and Production in a Coastal Environment*, Rice University Studies, 119-143.

Oetking, Back, Watson, and Merks. 1979. Surface and shallow subsurface sediments of the nearshore continental shelf of South Central Louisiana, in: Ward, Bender, and Reish, eds. *The Offshore Ecology Investigation, Effects of Oil Drilling and Production in a Coastal Environment*, Rice University Studies, 181-200.

Watson, Richard L. 1979. [Geological history of south Padre Island wind-tidal flats](#). report prepared for the law firm of McGinnis, Lochridge & Kilgore, Austin, Texas.

Watson, Richard L., 1979. Bathymetric surveying and mapping of the canal system at Padre Isles Subdivision, North Padre Island, Texas.

Watson, Richard L., 1979, [Long and short term erosional history of Mustang and Padre Islands with probable impact due to oil spill clean up procedures](#). Report prepared for RPI in order to evaluate effects of IXTOC oil spill clean up on Texas beaches.

Watson, Richard L., 1980, Controlled aerial photography of City of Port Aransas for City of Port Aransas, Texas., scale 1 inch = 200 feet.

Watson, Richard L., Tunnell, John W., Jr., Lothrop, William N., and Ratliff, Shannon H., Esq. 1990, Shoreline determination along gently sloping shores: a multidisciplinary approach in the Texas Laguna Madre. *The Coastal Society 12th conference, San Antonio, Texas* . abs.

Watson, Richard L., Tunnell, John W., Lothrop, William N., and Ratliff, Shannon, H., Esq., 1990. Shoreline determination along gently sloping shores: a multidisciplinary approach; in: *Proc. 12th Int. Conf. of the Coastal Society*, pp. 755-764.

Watson, Richard L., 1991. [Oso bay tide and discharge study](#), in: Watson, Richard L. and Thompson, Randy, 1979, *Hydrologic Study of Water Exchange Structures Blind Oso Habitat Enhancement Program*. Research

Report submitted by Archie Walker Engineering to City of Corpus Christi, TX.

Watson, Richard L., 1987-1995, Numerous reports submitted to McGinnis, Lochridge & Kilgore in conjunction with an ongoing investigation of the geologic history and hydrology of the wind-tidal flats of Kenedy County, Texas for the lawsuit between the John G. and Marie Stella Kenedy Memorial Foundation and the State of Texas.

1988, Preliminary report on investigations of the recent geological history of the supra-tidal flats of Kenedy County, Texas.

1989, Sedimentation rates Kenedy Ranch supra-tidal flats.

1990, [Postglacial submergence south Texas coast.](#)

1991, Volumetric rate of sedimentation of supra-tidal flats versus probable sediment supply, Kenedy County, Texas.

1991, Historical topography of the Kenedy Ranch supra-tidal flats.

1995, Revision of radiocarbon age dates and sedimentation rates based on latest radiocarbon age calibration methods.

Watson, Richard L., 1996-1997. Numerous Reports, over 30 slide presentations, television appearances, radio talk show appearances, and newspaper articles and editorials with regard to evaluating the feasibility study on Re-opening Packery Channel. Employed by the City of Port Aransas.

Watson, Richard L., 1998. [Shallow Water Wells and Groundwater Port Aransas, Mustang Island, Texas.](#) Prepared for The City of Port Aransas, TX.

Watson, Richard L., 1999. [Shoaling Analysis, Leggett Light Channel.](#) For Aransas County Navigation District No. 1., Rockport, TX. 13p.

Watson, Richard L., 1999. [Severe Beach Erosion Caused by Permanent Beach Sand Loss Through Rollover Fish Pass, Bolivar Peninsula, Texas.](#) 62p. Prepared for J. Martin Green and Alan McNeill, Attorneys at Law. <http://www.texascoastgeology.com/papers/rollover.pdf>

Watson, Richard L., 2003. [Severe Beach Erosion at Surfside, Texas Caused by Engineering Modifications to the Coast and Rivers,](#) 34p.

Watson, Richard L., 2004. Dredge Material Disposal on the John G. and Marie Stella Kenedy Memorial Foundation Lands, Kenedy County, Texas, April 2004., 69p.

Watson, Richard L., 2005. [Coastal Law and the Geology of a Changing Shoreline](#). Report prepared for Texas Coastal Law, Juggling Conflicting Demands and Inconsistent Application of the Rules. May 19-20, 2005, Omni Hotel, Houston., Prepared for CLE International, 31p.

Watson, Richard L., 2005. [Severe Erosion of Texas Beaches Caused by Engineering Modifications to the Coast and Rivers. abs.](#) Coastal Texas 2020 Technical Erosion Conference, Sept. 14-16, Houston Texas. Convened by the Texas General Land Office (GLO).

Watson, Richard L., 2005. [Protect the Natural Dune Seawall and Prevent Hurricane Destruction at Port Aransas, Texas](#), 11p.

Watson, Richard L., 2005-2007. [Web page with information about protecting the Natural Dune Seawall at Port Aransas, Texas.](#)

Watson, Richard L. 2005-2007. [Compilation of aerial photography of Texas Inlets and Barrier Islands.](#)

Watson, Richard L., 2006. [Coastal Law and the Geology of a Changing Shoreline, 2006.](#) Report prepared for CLE Texas Coastal Law Conference at the Tremont House, Galveston, TX, May 18-19, 2006.

Dr. Watson presented an invited talk at [Sargassum Symposium 2008](#), a three day meeting of coastal scientists, city managers, the Texas General Land Office and beach maintenance and equipment experts and manufactures. His talk was titled: [Good and bad beach maintenance on an eroding shoreline.](#)

Watson, Richard L., 2008. [Geologic framework of the eolian sand plain and the Central Flats of Laguna Madre and circulation between northern and southern Laguna Madre.](#) Report prepared for the law firms Babcock & Brown and Baker Botts in conjunction with defending two large wind farms on the Kenedy Ranch from a stop work injunction in Federal court.

Watson, Richard L., 2009. [Evaluation of coastal response to Hurricane Ike through pre-storm and post-storm aerial photography.](#) *Shore and Beach* Vol. 77, No. 2, 49-59