

# Nobuhisa Kobayashi

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## Education

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|---------------------------------------|-------|------|----------------------------------|
| Massachusetts Institute of Technology | Ph.D. | 1979 | Hydrodynamics and Coastal Engrg. |
| Kyoto University, Japan               | MCE   | 1976 | Civil Engineering                |
| Kyoto University, Japan               | BCE   | 1974 | Civil Engineering                |

## Professional Experience

**September 1991 – Present:** Professor, Department of Civil and Environmental Engineering, University of Delaware. Director (during 2001-2017) and Associate Director (during 1989-2001) of Center for Applied Coastal Research. Joint Appointment in Physical Ocean Science and Engineering Program, College of Marine and Earth Studies. Research interests and teaching subjects include Coastal Engineering, Sediment Transport Mechanics, Coastal Structures, Offshore Engineering, Transport and Mixing Processes, and Hydraulic Engineering.

**September 1986 - August 1991:** Associate Professor, Department of Civil Engineering, University of Delaware. Joint Appointment in the College of Marine Studies. Visiting Lecturer at Ogata Wave Observatory, Disaster Prevention Research Institute, Kyoto University, Japan during 1988-1991. Research interests and teaching subjects include Coastal Engineering, Sediment Transport Mechanics, Arctic Engineering, Offshore Engineering, Hydraulic Engineering, and Transport and Mixing Processes.

**September 1981 - August 1986:** Assistant Professor, Department of Civil Engineering, University of Delaware. Joint appointment in the College of Marine Studies since July 1984. Research interests and teaching subjects included Sediment Transport Mechanics, Coastal Engineering, Arctic Engineering, Hydraulic Engineering, Fluid Mechanics, Transport and Mixing Processes, and Surface Water Hydrology.

**July 1979 - August 1981:** Senior Consulting Engineer, Brian Watt Associates, Inc., Houston, Texas. Worked on oceanographic and ice criteria, erosion prediction, slope protection design and wave overtopping problems associated with offshore oil and gas exploration and production systems for the Arctic.

**July 1978 - June 1979:** Research Assistant, Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics, Massachusetts Institute of Technology.

## **Honors**

- ASCE Outstanding Reviewer 2013 in recognition of outstanding service as a reviewer for the Journal of Waterway, Port, Coastal and Ocean Engineering, American Society of Civil Engineers awarded in 2014.
- 2013 Honorary Certificate for Dedication to Teaching and High Contributions to Research and Technical Applications in the Field of Coastal and Ports Engineering awarded in the 6th International Short Course and Conference on Applied Coastal Research in Portugal.
- 2010 International Coastal Engineering Award established by the American Society of Civil Engineers in 1977.
- U.S. Army Corps of Engineer's Certificate of Appreciation for Patriotic Civilian Service for the Interagency Performance Evaluation Task Force following the aftermath of Hurricanes Katrina and Rita awarded in August, 2007
- First Visiting Distinguished Researcher of Port and Airport Research Institute, Japan since April, 2005.
- 2003 John G. Moffatt – Frank E. Nichol Harbor and Coastal Engineering Award established by the American Society of Civil Engineers in 1977
- Fellowship, Japan Society for the Promotion of Science in January 2001

## **Professional Activities**

### **Membership in Professional Societies**

Founding Member of the Coasts, Oceans, Ports and Rivers Institute, ASCE since 2000  
Honorary Member of the Coastal Education and Research Foundation since 2001  
Member of American Society of Civil Engineers

## Professional Society Involvement

- Chair of 36th International Conference on Coastal Engineering in Baltimore in 2018.
- Invited speaker of 35th International Conference on Coastal Engineering in Antalya, Turkey in November, 2016.
- External advisory committee member for Ph.D. program on coastal hydraulics, environmental hydraulics and hydrology involving 30 Ph.D. students in three institutions in Portugal and Switzerland since 2014.
- Invited lecturer of 37th Ocean Engineering Conference in Taiwan in November 2015.
- Invited lecturer of 7th International Short Course and Conference on Applied Coastal Research held in Florence, Italy in September, 2015.
- Invited lecturer of 36th Ocean Engineering Conference in Taiwan in December 2014.
- Invited lecturer of 8th National Coastal Engineering symposium in Turkey in November 2014.
- Invited lecturer of 6th International Short Course and Conference on Applied Coastal Research held in Lisbon, Portugal in June 2013.
- Invited Keynote speaker of 35th Ocean Engineering Conference in Taiwan in November 2013.
- Invited Keynote speaker of 34th Ocean Engineering Conference in Taiwan in November 2012.
- COPRI Liaison to ASCE International Activities Committee (2012-2014).
- Invited Keynote speaker of 23rd Conference of Korean Society of Coastal and Ocean Engineers in May 2012.
- Co-Chair of Coastal Structures 2011 Conference in Japan.
- Invited speaker of 20th Anniversary Conference of Korean Society of Coastal and Ocean Engineers in November, 2009.
- Invited lecturer of 3rd International Short Conference on Applied Coastal Research held in Lecce, Italy in June, 2008.
- Invited speaker of 4th International Workshop on Coastal Disaster Prevention held in Yokohama, Japan in December, 2007.
- Chair of Coastal Structures Committee of Coasts, Oceans, Ports and Rivers Institute, ASCE since 2007.
- Member of International Scientific Advisory Committee of Coastlab Conferences since 2006.
- Associate Editor of Journal of Coastal Research since 2000.
- Co-Chair of Coastal Structures'07 Conference held in Venice, Italy in 2007.
- Invited lecturer of 2nd International Short Course and Workshop on Coastal Processes and Port Engineering held in Cosenza, Italy in June, 2006.
- Invited speaker of 2nd International Workshop on Coastal Disaster Prevention held in Tokyo, Japan in January 2006.
- Invited speaker of Japan-US Joint Seminar on Future Direction on Coastal Engineering at Port and Airport Research Institute, Japan in December, 2004.

- Co-Chair of Coastal Structures'03 Conference held in Portland, Oregon in August, 2003.
- Member of Awards Committee, Coasts, Oceans, Ports and Rivers Institute, ASCE (2002-2003) .
- Panel Reviewer of NSF CAREER Program for Fluid Dynamics and Hydraulics (October, 2001)
- Member of Waterway, Port, Coastal and Ocean Engineering Division Executive Committee, ASCE (1995-1999; Chair during 1997-1998).
- Member, Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE (1982-1999; Editor during 1992-1994).
- Member of Editorial Board of Journal of Coastal Research (1987-2000).
- Member of Coastal Engineering Research Council, ASCE (1995-1999).
- Member of Task Committee for Formation of Coasts, Oceans, Ports and Rivers Institute, ASCE (1999-2000).
- Member of Task Committee on Products, Services and Marketing for Formation of Environmental and Water Resources Institute, ASCE (1997-1998).
- Member of Awards Committee, Waterway, Port, Coastal and Ocean Engineering Division, ASCE (1996-1999).
- Co-Chair of Coastal Structures'99 Conference held in Spain in June 1999.
- Member of International Scientific Advisory Group for Conferences on Coastlines, Structures and Breakwaters, Institution of Civil Engineers, U.K. (1996-1998).
- Co-Chair of Task Committee on Forces on Inclined and Vertical Wall Structures, ASCE (1993-1995).
- Co-Chair of International Workshop on Coastal Hydrodynamics, Sediments, and Structures held at Pusan, Korea (November 1994).
- Member of Waves and Wave Forces Committee, ASCE (1987-1997).
- Member of Tidal Hydraulics Committee, ASCE (1984-1991; Chairman, 1986).
- Chairman of Task Committee on Sea Level Rise and Its Effects on Bays and Estuaries, ASCE (1987-1990).
- Member, Task Committee on Microcomputer Applications, ASCE (1988-1990).
- Reviewer of Journal of Hydraulic Engineering, ASCE, Journal of Geophysical Research, AGU, Journal of Fluid Mechanics, Journal of Coastal Engineering, Journal of Ocean Engineering, Journal of Cold Regions Science and Technology, Journal of Fluids and Structures, Continental Shelf Research, Marine Technology Society Journal, International Journal for Numerical Methods in Fluids, Journal of Engineering for the Maritime Environment, Journal of Ocean Engineering International, Coastal Engineering Journal, Measurement Science and Technology, Journal of Applied Ocean Research, Journal of Hydraulic Research, Journal of Offshore Mechanics and Arctic Engineering, KSCE Journal of Civil Engineering, National Science Foundation's Proposals, and National Sea Grant Program's Proposals, Marine Geology, Geomorphology, Geophysical Research Letter.
- Panel Reviewer of NSF Research Initiation Grants for Hydraulics, Hydrology and Water Resources Program (February 1985).

- Organizer of Workshop on Rational Design of Mound Structures held at University of Delaware (March 1989); Co- Editor of Special Issue on Rational Design of Mound Structures published by Journal of Coastal Research in 1990.

### **Current Departmental Service**

- Awards Committee
- Laird Fellowship Review Committee

### **Consulting**

- Brian Watt Associates, Inc., Houston, Texas (October 1981 – December 1981)
- Sohio Construction Company, San Francisco, California (July 1982 – December 1982)
- Ralph M. Parsons Company, Pasadena, California (November 1985-December 1985)
- Coastal and Offshore Engineering and Research, Inc., Newark, Delaware (November 1985-March 1986)
- U.S. Environmental Protection Agency and Exxon Engineering and Research Company (June 1989)
- Rummel, Klepper & Kahl Consulting Engineers, Baltimore, (December 1992-April 1993)
- CTI Engineering Co., Ltd., Japan (November 1993-April 1994)
- W. F. Baird & Associates, Canada (December 1993-September 1995)
- Moffatt & Nichol Engineers, Baltimore (July 1995 – October 1995)
- Coastal and Hydraulic Laboratory, USAE Waterways Experiment Station (January 1998 – February 1998)
- Han-Padron Associates, New York (July 1999)
- Earth Tech, Milwaukee (October 2000)
- Duffield Associates, Wilmington (October 2001)
- Nishimatsu Construction Company, Japan (1989-2003)
- Delaware Department of Transportation (March 2004)
- Duffield Associates, Wilmington (June-November 2004)
- URS Corporation, Boca Raton, Florida (October 2004)
- U.S. Department of Justice (November-December 2010)
- FUDO TETRA Corporation, Japan (1991-present)
- Alpha Hydraulic Engineering Consultant Co., Ltd., Japan (2006-present)
- Tainan Hydraulics Laboratory, Taiwan (2013-2017)
- Catholic Kwandong University, Korea (2013-present)

# **Publications**

## **Editors of Book**

1. Kobayashi, N. and Losada, M.A. (1990), Rational Design of Mound Structures, Special Issue No. 7, Journal of Coastal Research.
2. Kobayashi, N. and Demirbilek, Z. (1995), Wave Forces on Inclined and Vertical Wall Structures, American Society of Civil Engineers.
3. Takahashi, S., Isobe, M., Kobayashi, N. and Shimosako, K. (2013), Coastal Structures 2011, Volumes 1 and 2, World Scientific, Singapore.

## **Chapters in Books**

1. Dexter, S.C., Dalrymple, R.A. and Kobayashi, N. (1988), "The Marine Environment," Materials for Marine Systems and Structures, edited by Hasson, D.F. and Crowe, C.R., Academic Press, 35-87.
2. Kobayashi, N. and Reimnitz, E. (1988), "Thermal and Mechanical Erosion of Slopes and Beaches," Arctic Coastal Processes and Slope Protection Design, edited by Chen, A. and Leidersdorf, C., ASCE, 46-62.
3. Kobayashi, N. (1995), "Numerical Models for Design of Inclined Structures," Wave Forces on Inclined and Vertical Wall Structures, edited by Kobayashi, N. and Demirbilek, Z., ASCE, 118-139.
4. Kobayashi, N. (1999), "Wave Runup and Overtopping on Beaches and Coastal Structures," Advances in Coastal and Ocean Engineering, World Scientific, 5, 95-154.
5. Kobayashi, N. (2003), "Numerical Modeling as a Design Tool for Coastal Structures," Advances in Coastal Structure Design, ASCE, 80-96.
6. Yamada, F., Kobayashi, N., and Kakinoki, T. (2006). "Quadratic Profile Approach for Morphological Changes on Intertidal Mudflat," Estuarine and Coastal Fine Sediment Dynamics, Elsevier, 385-405.
7. Kobayashi, N. (2009). "Efficient Wave and Current Models for Coastal Structures and Sediments," Nonlinear Wave Dynamics, edited by Lynett, P., World Scientific, 67-87.
8. Kobayashi, N., Payo, A., and Johnson, B.D. (2009). "Suspended Sand and Bedload Transport on Beaches." Handbook of Coastal and Ocean Engineering, World Scientific, Singapore, Chapter 28, 807-823.

## **Articles in Professional Magazine**

1. Kobayashi, N. (1993), "By Waves and Currents," July issue of Science Asahi, 67.
2. Kobayashi, N. (2014), "Disaster Mitigation Measures after Hurricane Katrina," Kowan, Ports and Harbors Association of Japan, Vol. 91, 22-23.

## Refereed Journal Publications

1. Iwasa, Y. and Kobayashi, N. (1978), "Statistical Laws and Indices of Topological Structure of Channel Networks by Means of Magnitude Theory," *Journal of Japan Society of Civil Engineers*, 273, 35-46 (in Japanese).
2. Iwasa, Y. and Kobayashi, N. (1978), "Statistical Laws of Geomorphology of Drainage Basins Based on Magnitude and Their Relationship with Stream Order Theory," *Journal of Japan Society of Civil Engineers*, 273, 47-58 (in Japanese).
3. Kobayashi, N. (1982), "Sediment Transport on a Gentle Slope due to Waves," *Journal of Waterway, Port, Coastal and Ocean Division, ASCE*, 108(3), 254-271.
4. Kobayashi, N. and Reece, A.M. (1983), "Irregular Wave Overtopping on Gravel Islands," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 109(4), 429-444.
5. Kobayashi, N. (1985), Closure to "Irregular Wave Overtopping on Gravel Islands," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 111(1), 147-150.
6. Kobayashi, N. and Jacobs, B.K. (1985), "Riprap Stability Under Wave Action," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 111(3), 552-566.
7. Kobayashi, N. and Jacobs, B.K. (1985), "Stability of Armor Units on Composite Slope," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 111(5), 880-894.
8. Kobayashi, N. and Seo, S.N. (1985), "Fluid and Sediment Interaction Over a Plane Bed," *Journal of Hydraulic Engineering, ASCE*, 111(6), 903-921.
9. Kobayashi, N. and Madsen, O.S. (1985), "Turbulent Flows Over a Wavy Bed," *Journal of Geophysical Research*, 90(C4), 7323-7331.
10. Kobayashi, N. and Madsen, O.S. (1985), "Formation of Ripples in Erodible Channels," *Journal of Geophysical Research*, 90(C4), 7332-7340.
11. Kobayashi, N. (1985), "Formation of Thermoerosional Niches into Frozen Bluffs due to Storm Surges on the Beaufort Sea Coast," *Journal of Geophysical Research*, 90(C6), 11983-11988.
12. Kobayashi, N. and Aktan, D. (1986), "Thermoerosion of Frozen Sediment Under Wave Action," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 112(1), 140-158.
13. Kobayashi, N. (1986), Closure to "Riprap Stability Under Wave Action," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 112(6), 673-681.
14. Kobayashi, N. and Otta, A.K. (1987), "Hydraulic Stability Analysis of Armor Units," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 113(2), 171-186.
15. Kobayashi, N., Otta, A.K. and Roy, I. (1987), "Wave Reflection and Runup on Rough Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 113(3), 282-298.
16. Kobayashi, N. (1987), Closure to "Stability of Armor Units on Composite Slope," *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*, 113(3), 305-307.

17. Kobayashi, N. (1987), "Analytical Solution for Dune Erosion by Storms," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 113(4), 401-418.
18. Kobayashi, N. and Frankenstein, S. (1987), "Wave Drift Force on Ice Floe," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 113(5), 476-492.
19. Kobayashi, N. and Greenwald, J.H. (1988), "Waterline Oscillation and Riprap Movement," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 114(3), 281-296.
20. Kobayashi, N. and Han, K. S. (1988), "Erosion at Bend of Gravel Causeway due to Waves," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 114(3), 297-314.
21. Kobayashi, N. (1988), Closure to "Hydraulic Stability Analysis of Armor Units," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 114(3), 396-399.
22. Kobayashi, N. (1988), "Review of Wave Transformation and Cross-Shore Sediment Transport Processes in Surf Zones," *Journal of Coastal Research*, 4(3), 435-445.
23. Kobayashi, N. (1989), Closure to "Wave Reflection and Run-up on Rough Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 115(1), 143-148.
24. Kobayashi, N., DeSilva, G.S. and Watson, K.D. (1989), "Wave Transformation and Swash Oscillation on Gentle and Steep Slopes," *Journal of Geophysical Research*, 94(C1), 951-966.
25. Kobayashi, N. and Wurjanto, A. (1989), "Wave Overtopping on Coastal Structures," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 115(2), 235-251.
26. Kobayashi, N. and Wurjanto, A. (1989). "Wave Transmission Over Submerged Breakwaters," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 115(5), 662-680.
27. Kobayashi, N. (1989), Closure to "Erosion at Bend of Gravel Causeway due to Waves," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 115(5), 724-725.
28. Kobayashi, N. and Wurjanto, A. (1990), "Numerical Model for Waves on Rough Permeable Slopes," *Special Issue No. 7 on Rational Design of Mound Structures*, *Journal of Coastal Research*, 149-166.
29. Kobayashi, N., Wurjanto, A. and Cox, D. T. (1990), "Irregular Waves on Rough Permeable Slopes," *Special Issue No. 7 on Rational Design of Mound Structures*, *Journal of Coastal Research*, 167-184.
30. Sakai, S. and Kobayashi, N. (1990), "Breaking Condition of Shoaling Waves on Opposing Current," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 116(2), 302-306.
31. Kobayashi, N., Cox, D. T. and Wurjanto, A. (1990), "Irregular Wave Reflection and Runup on Rough Impermeable Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 116(6), 708-726.



32. Kobayashi, N., Cox, D. T. and Wurjanto, A. (1991), "Permeability Effects on Irregular Wave Runup and Reflection," *Journal of Coastal Research*, 7(1), 127-136.
33. ASCE Task Committee on Sea Level Rise and Its Effects on Bays and Estuaries (1992), "Effects of Sea Level Rise on Bays and Estuaries," *Journal of Hydraulic Engineering*, ASCE, 118(1), 1-10 (Chair of this Task Committee).
34. Losada, M.A., Kobayashi, N. and Martin, F.L. (1992), "Armor Stability on Submerged Breakwaters," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 118(2), 207-212.
35. Kobayashi, N. and Wurjanto, A. (1992), "Irregular Wave Setup and Run-up on Beaches," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 118(4), 368-386.
36. Kobayashi, N., Raichle, A.W. and Asano, T. (1993), "Wave Attenuation by Vegetation," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 119(1), 30-48.
37. Kobayashi, N. (1993), Closure to "Effects of Sea Level Rise on Bays and Estuaries," *Journal of Hydraulic Engineering*, ASCE, 119(5), 660.
38. Wurjanto, A. and Kobayashi, N. (1993), "Irregular Wave Reflection and Run-up on Permeable Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 119(5), 537-557.
39. Mase, H. and Kobayashi, N. (1993), "Low-Frequency Swash Oscillation," *Journal of Japan Society of Civil Engineers*, 461(II-22), 49-57.
40. Bruun, P., Gravesen, H., Kobayashi, N. and Losada, M. (1993), "Discussion of Aspects of Report by Working Group 12 of PTC II of PIANC published as Supplement to Bulletin 78/79, Analysis of Rubble Mound Breakwaters," *Permanent International Association of Navigation Congress, Bulletin No. 81*, 61-67.
41. Kobayashi, N. and Raichle, A.W. (1994), "Irregular Wave Overtopping of Revetments in Surf Zones," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 120(1), 56-73.
42. Kobayashi, N. and Karjadi, E.A. (1994), "Surf-Similarity Parameter for Breaking-Solitary Wave Runup," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 120(6), 645-650.
43. Raubenheimer, B., Guza, R.T., Elgar, S. and Kobayashi, N. (1995), "Swash on a Gently Sloping Beach," *Journal of Geophysical Research*, 100(C5), 8751-8760.
44. Kobayashi, N., Tega, Y. and Hancock, M.W. (1996), "Wave Reflection and Overwash of Dunes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 122(3), 150-153.
45. Cox, D.T., Kobayashi, N. and Okayasu, A. (1996), "Bottom Shear Stress in the Surf Zone," *Journal of Geophysical Research*, 101(C6), 14337-14348.
46. Kobayashi, N. and Karjadi, E.A. (1996), "Obliquely Incident Irregular Waves in Surf and Swash Zones," *Journal of Geophysical Research*, 101(C3), 6527-6542.
47. Kobayashi, N., Karjadi, E.A. and Johnson, B.D. (1997), "Dispersion Effects on Longshore Currents in Surf Zones," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 123(5), 240-248.

48. Baquerizo, A., Losada, M.A., Smith, J.K. and Kobayashi, N. (1997), "Cross-Shore Variation of Wave Reflection from Beaches," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 123(5), 274-279.
49. Cox, D.T. and Kobayashi, N. (1997), "A Kinematic Undertow Model with a Logarithmic Boundary Layer," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 123(6), 354-360.
50. Kang, H.Y., Kobayashi, N. and Ryu, C.R. (1997), "Tide, Swash Infiltration and Groundwater Behavior," *Korean Journal of Ocean Engineering and Technology*, 11(3), 153-162.
51. Kobayashi, N., Herrman, M.N., Johnson, B.D. and Orzech, M.D. (1998). "Probabilistic Distribution of Surface Elevation in Surf and Swash Zones," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 124(3), 99-107.
52. Cox, D.T. and Kobayashi, N. (1998), "Application of a Undertow Model to Irregular Waves on Plane and Barred Beaches," *Journal of Coastal Research*, 14(4), 1314-1324.
53. Melby, J.A. and Kobayashi, N. (1998). "Progression and Variability of Damage on Rubble Mound Breakwaters." *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 124(6), 286-294.
54. Kobayashi, N., Vidrine, J.C., Nairn, R.B. and Solomon, S.M. (1999), "Erosion of Frozen Cliffs due to Storm Surge on Beaufort Sea Coast," *Journal of Coastal Research*, 15(2), 332-344.
55. Kobayashi, N. (1999). "Numerical Modeling of Wave Runup on Coastal Structures and Beaches," *Marine Technology Society Journal*, 33(3), 33-37.
56. Kobayashi, N., Tomasicchio, G.R. and Brunone, B. (2000). "Partial Standing Waves on a Steep Slope," *Journal of Coastal Research*, 16(2), 379-384.
57. Cox, D.T. and Kobayashi, N. (2000). "Identification of Intense, Intermittent Coherent Motions under Shoaling and Breaking Waves." *Journal of Geophysical Research*, 105(C6), 14223-14236.
58. Melby, J.A. and Kobayashi, N. (2000). Closure to "Progression and Variability of Damage on Rubble Mound Breakwaters." *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 126(5), 270-272.
59. Kobayashi, N. and Karjadi, E.A. (2001). "Obliquely Incident Wave Reflection and Runup on Steep Rough Slope," *Journal of Coastal Research*, 17(4), 919-930.
60. Kobayashi, N. and Johnson, B.D. (2001). "Sand Suspension, Storage, Advection and Settling in Surf and Swash Zones," *Journal of Geophysical Research*, 106(C5), 9363-9376.
61. Kobayashi, N. and Tega, Y. (2002). "Sand Suspension and Transport on Equilibrium Beach," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 128(6), 238-248.
62. Kobayashi, N., Pozueta, B. and Melby, J.A. (2003). "Performance of Coastal Structures against Sequences of Hurricanes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 129(5), 219-228.
63. Yamada, F. and Kobayashi, N. (2004). "Annual Variations of Tide Level and Mudflat Profile," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 130(3), 119-126.

64. Kobayashi, N. and Lawrence, A.R. (2004). "Cross-shore Sediment Transport under Breaking Solitary Waves," *Journal of Geophysical Research*, 109, C03047, doi:10.1029/2003JC002084.
65. Fukumoto, T. and Kobayashi, N. (2005). "Bottom Stratification and Water Exchange in Enclosed Bay with Narrow Entrance," *Journal of Coastal Research*, 21(1), 135-145.
66. Kobayashi, N., Zhao, H. and Tega, Y. (2005). "Suspended Sand Transport in Surf Zones," *Journal of Geophysical Research*, 110, C12009, doi:10.1029/2004JC002853.
67. de los Santos, F.J., Kobayashi, N., Meigs, L.E. and Losada, M.A. (2005). "Irregular Wave Runup and Setup on Porous Structures," *Journal Ingenieria Civil*, 140, 75-83 (in Spanish).
68. Kobayashi, N., Meigs, L.E., Ota, T. and Melby, J.A. (2007). "Irregular Breaking Wave Transmission over Submerged Porous Breakwaters," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 133(2), 104-116.
69. Kobayashi, N., Agarwal, A. and Johnson, B.D. (2007). "Longshore Current and Sediment Transport on Beaches," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 133(4), 296-304.
70. Yamada, F. and Kobayashi, N. (2007). "Intertidal Multiple Sand Bars in a Low-Energy Environment," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 133(5), 343-351.
71. Kobayashi, N. and de los Santos, F.J. (2007). "Irregular Wave Seepage and Overtopping of Permeable Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 133(4), 245-254.
72. Puleo, J.A., Farhadzadeh, A. and Kobayashi, N. (2007). "Numerical Simulation of Swash Zone Fluid Accelerations," *Journal of Geophysical Research*, 112, C07007, doi:10.1029/2006JC004084.
73. Kobayashi, N., de los Santos, F.J. and Kearney, P.G. (2008). "Time-Averaged Probabilistic Model for Irregular Wave Runup on Permeable Slopes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 134(2), 88-96.
74. Kobayashi, N., Payo, A., and Schmied, L. (2008). "Cross-Shore Suspended Sand and Bedload Transport on Beaches," *Journal of Geophysical Research*, 113, C07001, doi:10.1029/2007JC004203.
75. Figlus, J. and Kobayashi, N. (2008). "Inverse Estimation of Sand Transport Rates on Nourished Delaware Beaches," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 134(4), 218-225.
76. Payo, A., Kobayashi, N., Muñoz-Pérez, J. and Yamada, F. (2008). "Scarping Predictability of Sandy Beach under Laboratory Conditions." *Journal Ciencias Marinas*, 34(1), 1-11 (in English and Spanish).
77. Yamada, F., Kobayashi, N., Sakanishi, Y. and Tamaki, A. (2009). "Phase Averaged Suspended Sediment Fluxes on Estuarine Intertidal Mudflat." *Journal of Coastal Research*, 25(2), 350-358.
78. Kobayashi, N., Buck, M., Payo, A. and Johnson, B.D. (2009). "Berm and Dune Erosion during a Storm." *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 135(1), 1-10.

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67. Jung, H. and Kobayashi, N. (2011). “Numerical Modeling of Erosion and Recovery of Rehoboth and Dewey Beaches in Delaware.” Research Report No. CACR-11-01, Center for Applied Coastal Research, University of Delaware.
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69. Gralher, C., Kobayashi, N. and Do, K. (2012). “Experiment on Wave Overtopping and Overwash of Bare and Vegetated Dunes.” Research Report No. CACR-12-05, Center for Applied Coastal Research, University of Delaware.
70. Kobayashi, N. (2013). “Cross-shore Numerical Model CSHORE 2013 for Sand Beaches and Coastal Structures.” Research Report No. CACR-13-01, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
71. Ayat, B. and Kobayashi, N. (2013). “Expansion of Numerical Model CSHORE to Predict Erosion and Overwash of Wooded Dunes.” Research Report No. CACR-13-07, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
72. Garcia, R., Kobayashi, N., Quan, R., Weitzner, H., and Aydogan, B. (2013). “Physical Model Testing of Negril Breakwater in Jamaica.” Model Testing Report No. CACR-2013. Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
73. Weitzner, H. and Kobayashi, N. (2014). “Modeling of Grassed Levee Erosion by Wave Action.” Research Report No. CACR-14-01, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
74. Garcia, R. and Kobayashi, N. (2014). “Damage Variations of Trunk and Head of Low-crested Breakwater.” Research Report No. CACR-14-02, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
75. Quan, R., Kobayashi, N. and Ayat, B. (2014). “Experiment on Pile Fence to Enhance Dune Resiliency.” Research Report No. CACR-14-03, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
76. Quan, R. and Kobayashi, N. (2014). “Numerical Modeling of Wave Overtopping and Overwash of Dune Fronted with Pile Fence.” Research Report No. CACR-14-09, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.

77. Kobayashi, N. (2015). "Hydraulic Response and Armor Layer Stability on Coastal Structures." Research Report No. CACR-15-07, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
78. Chávez Cárdenas, X. and Kobayashi, N. (2015). "Experiment on Sliding and Floating of Wooden Blocks in Swash Zone on Sand Beach." Research Report No. CACR-15-08, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
79. Zhu, T. and Kobayashi, N. (2017). "Flooding of Indian River Bay and Rehoboth Bay through Indian River Inlet and by Wave Overtopping of Barrier Beach." Research Report No. CACR-17-01, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.
80. Kim, H.D., Kobayashi, N., and Chávez Cárdenas, X. (2017). "Experimental and Numerical Study on Rock Seawall in Swash Zone to Reduce Wave Overtopping and Overwash of Sand Beach." Research Report No. CACR-17-02, Center for Applied Coastal Research, University of Delaware, Newark, Delaware.

## **SPONSORED RESEARCH**

**Title:**           **Mechanics of Coastal Suspended Sediment Transport**

Sponsor:       University of Delaware Research Foundation

Amount:       \$8,500

Duration:      January 15, 1982 - June 30, 1983

**Title:**           **Coastal Engineering Study of Bethany Beach**

Sponsor:       Department of Natural Resources and Environmental Control, State of Delaware

Amount:       \$24,926

Duration:      January 1, 1982 - December 31, 1982

PI's:           Robert A. Dalrymple, Nobuhisa Kobayashi

**Title:**           **Development of Design Guidelines of Sand-Bag Retained Islands Against Waves**

Sponsor:       Union Oil Science & Technology

Amount:       \$5,046

Duration:      October 1, 1982 - July 31, 1983

**Title:**           **Modeling of Erosion Control Measures**

Sponsor:       Sea Grant College Program, NOAA

Amount:       \$58,147

Duration:      February 1, 1983 - January 31, 1985

PI's:           Robert A. Dalrymple, Nobuhisa Kobayashi

**Title:** **Indian River Inlet Study**  
**Sponsor:** Department of Natural Resources and Environmental Control, State of Delaware  
**Amount:** \$3,201  
**Duration:** June 1, 1983 - December 31, 1983  
**PI's:** Robert A. Dalrymple, Nobuhisa Kobayashi

**Title:** **Exxon Agreement No. PR-8045**  
**Sponsor:** Exxon Production Research Company  
**Amount:** \$5,046  
**Duration:** July 1, 1983 - June 30, 1984

**Title:** **Computer-Managed Experiments for CE 471**  
**Sponsor:** College of Engineering, University of Delaware  
**Amount:** \$6,000  
**Duration:** July 27, 1984 - Spring, 1985  
**PI's:** Nobuhisa Kobayashi and Robert A. Dalrymple

**Title:** **Beach Erosion Study of Fenwick Island**  
**Sponsor:** Department of Natural Resources and Environmental Control, State of Delaware  
**Amount:** \$25,000  
**Duration:** August 27, 1984 - August 31, 1985  
**PI's:** Robert A. Dalrymple and Nobuhisa Kobayashi

**Title:** **Analysis and Experiment on Hydraulic Stability of Riprap Under Irregular Wave Attack**  
**Sponsor:** National Science Foundation  
**Amount:** \$82,357  
**Duration:** November 1, 1984 - June 30, 1987

**Title:** **Impacts of Sea Level Rise: A Coastal Engineering Approach**  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$111,200  
**Duration:** February 1, 1985 - January 31, 1987  
**PI's:** Robert A. Dalrymple, Nobuhisa Kobayashi, John H. Trowbridge

**Title:** **Sediment Study of Summit North Marina**  
**Sponsor:** Office of State Park Planning and Development, State of Delaware  
**Amount:** \$21,168  
**Duration:** April 1, 1985 - January 31, 1986  
**PI's:** Nobuhisa Kobayashi, Robert A. Dalrymple, John H. Trowbridge



**Title:** **Interaction of Sea Waves with Discrete Ice Floes**  
**Sponsor:** U.S. Army Cold Regions Research and Engineering Laboratory  
**Amount:** \$25,000  
**Duration:** January 1, 1986 - August 31, 1987

**Title:** **Wave Runup and Sediment Transport in Swash Zone on Beaches**  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$55,268  
**Duration:** February 1, 1987 - January 31, 1989

**Title:** **Development of a Computer Program for Rubble Structure Design**  
**Sponsor:** U.S. Army Coastal Engineering Research Center  
**Amount:** \$25,000  
**Duration:** April 1, 1988 - July 31, 1989

**Title:** **Surf Beat and Cross-Shore Sediment Transport in Surf Zone on Natural Beaches**  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$105,983  
**Duration:** February 1, 1989 - January 31, 1991

**Title:** **Irregular Wave Reflection, Runup and Armor Movement on Rough Permeable Slopes of Breakwaters and Revetments**  
**Sponsor:** National Science Foundation  
**Amount:** \$130,787  
**Duration:** July 1, 1989 - June 30, 1992

**Title:** **Review on Oil Spills and Their Effects**  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$7,969  
**Duration:** September 1, 1989 - August 31, 1990

**Title:** **Development of Computer Programs for Irregular Waves on Coastal Structures**  
**Sponsor:** U.S. Army Coastal Engineering Research Center  
**Amount:** \$30,000  
**Duration:** March 1, 1990 - March 31, 1992

**Title:** **Nonlinear Wave Interaction in Surf Zones**  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$114,201  
**Duration:** February 1, 1991 - January 31, 1993

**Title:** **Documentation of Computer Programs for Predicting Long Wave Runup**  
**Sponsor:** National Science Foundation

Amount: \$36,851  
Duration: March 1, 1991 - March 31, 1993  
PI's: Nobuhisa Kobayashi, Stephan T. Grilli

**Title: Nearshore Wave and Circulation Modelling**  
Sponsor: University Research Initiative, Army Research Office  
Amount: \$2,000,000  
Duration: July 1, 1992 - December 31, 1997  
PI's: Robert A. Dalrymple, Nobuhisa Kobayashi, Ib A. Svendsen, James T. Kirby, Philip L.-F. Liu

**Title: Development of Computer Programs for Design of Coastal Structures in Surf Zones**  
Sponsor: U.S. Army Coastal Engineering Research Center  
Amount: \$30,000  
Duration: June 1, 1993 - September 30, 1995

**Title: Hydraulic Study for Delaware Route 54 Improvement Project**  
Sponsor: Department of Transportation, State of Delaware  
Amount: \$25,000  
Duration: July 1, 1993 - June 30, 1995

**Title: Vortex Dynamics and Suspension of Sediment Particles**  
Sponsor: Augmentation Awards for Science and Engineering Training, U.S. Army Research Office  
Amount: \$90,000  
Duration: July 1, 1994 – June 30, 1998  
PI's: Nobuhisa Kobayashi, Robert A. Dalrymple

**Title: Breaking Wave Velocities and Shear Stress in Surf and Swash Zones**  
Sponsor: National Science Foundation  
Amount: \$105,974  
Duration: September 1, 1994 - August 31, 1997

**Title: Swash Dynamics under Obliquely Incident Waves**  
Sponsor: Sea Grant College Program, NOAA  
Amount: \$110,000  
Duration: February 1, 1995 - January 31, 1997

**Title: Probabilistic Modeling of Swash on Beaches**  
Sponsor: Sea Grant College Program, NOAA  
Amount: \$114,000  
Duration: February 1, 1997 - January 31, 1999

**Title: Nearshore Water Level Changes during SuperDuck Experiment**  
Sponsor: Sea Grant College Program, NOAA

Amount: \$18,000  
Duration: May 1, 1997 - April 30, 1998

**Title: Transformation of Irregular Breaking Waves on Beaches and Coastal Structures**  
Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$30,000  
Duration: April 1, 1998 - September 30, 1998

**Title: Wave Runup Variability on Beaches**  
Sponsor: Sea Grant College Program, NOAA  
Amount: \$20,000  
Duration: February 1, 1999 - January 31, 2001

**Title: Prediction of Damage Progression and Failure for Life Cycle Analysis of Rubble Mound Breakwaters**  
Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$37,000  
Duration: March 16, 1999 – September 30, 2000

**Title: Cross-Shore Sand Transport on Beaches**  
Sponsor: National Science Foundation  
Amount: \$207,682  
Duration: August 1, 1999 - July 31, 2003

**Title: Coupled Wave and Structure Model for Flexible RIB System**  
Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$30,000  
Duration: May 1, 2000 – September 30, 2000

**Title: Numerical Model for Sediment Suspension and Advection in Surf Zones**  
Sponsor: Sea Grant College Program, NOAA  
Amount: \$120,460  
Duration: February 1, 2001 – January 31, 2003

**Title: Prediction of Life Cycle Damage on Rubble Mound Breakwaters and Jetties**  
Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$81,000  
Duration: April 1, 2001 – September 30, 2002

**Title: Development of Numerical Models for Design of Shore-RIB**  
Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$30,000  
Duration: December 1, 2001 – September 30, 2002

**Title:** Longshore Sediment Transport in Surf and Swash Zones  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$211,866  
**Duration:** February 1, 2003 – January 31, 2005  
**PI's:** Nobuhisa Kobayashi and Fabrice Veron

**Title:** Dynamic Revetments and Gravel Beaches  
**Sponsor:** U.S. Army Coastal and Hydraulics Laboratory  
**Amount:** \$80,000  
**Duration:** April. 1, 2003 – September 30, 2005

**Title:** Coastal Engineering Assessment of Storm-Induced Scour Problem for Proposed Indian River Inlet Bridge  
**Sponsor:** Delaware Department of Transportation  
**Amount:** \$7,260  
**Duration:** March 1, 2004 – August 31, 2004

**Title:** Safety Grate Design for Stormwater Pipes  
**Sponsor:** Delaware Department of Transportation  
**Amount:** \$37,715  
**Duration:** April 1, 2004 – January 31, 2006

**Title:** Morphological Modeling of Intertidal Mudflats  
**Sponsor:** Sea Grant College Program, NOAA  
**Amount:** \$128,376  
**Duration:** February 1, 2005 – January 31, 2007

**Title:** Hurricane Katrina Hydrodynamic Forces and Overtopping at Levees in New Orleans  
**Sponsor:** U.S. Army Coastal and Hydraulics Laboratory  
**Amount:** \$40,000  
**Duration:** November 1, 2005 – September 30, 2006

**Title:** Numerical Morphology Model for Dune Erosion and Overwash  
**Sponsor:** U.S. Army Coastal and Hydraulics Laboratory  
**Amount:** \$480,000  
**Duration:** April 1, 2006 – December 31, 2008

**Title:** Utilization of Risk Analysis Data  
**Sponsor:** U.S. Army Coastal and Hydraulics Laboratory  
**Amount:** \$8,000  
**Duration:** September 1, 2006 – September 30, 2006

**Title:** Critical Review of Numerical Models for Coastal Structures and New Time-Averaged Model CSHOREP for Practical Applications

Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$50,000  
Duration: June 1, 2007 – December 31, 2007

**Title: Extension of Cross-shore Numerical Model CSHORE for Damage Progression of Coastal Structures**

Sponsor: U.S. Army Coastal and Hydraulic Laboratory  
Amount: \$40,000  
Duration: July 15, 2008 – December 31, 2008

**Title: Numerical Simulation of Morphology and Coastal Protection**

Sponsor: Kwandong University, Korea  
Amount: \$25,000  
Duration: October 12, 2007 – August 31, 2008

**Title: Modeling Relevant Physics of Systems for Estimating Risk (MORPHOS)**

Sponsor: U.S. Army Corps of Engineers  
Amount: \$500,000  
Duration: July 1, 2009 – December 31, 2011

**Title: Stability and Functional Design of Overtopped Rubble Mound Breakwaters**

Sponsor: U.S. Army Coastal and Hydraulic Laboratory  
Amount: \$60,000  
Duration: June 1, 2010 – February 28, 2011

**Title: Innovative Technologies for Safer European Coasts in a Changing Climate**

Sponsor: European Commission, Research Directorate  
Amount: 80,784 Euro (a small fraction of a 6.53 M Euro EU project consisting of 31 institutions)  
Duration: December 1, 2009 – February 28, 2014

**Title: Risk-Based Design of Coastal Structures**

Sponsor: U.S. Army Coastal and Hydraulics Laboratory  
Amount: \$150,000  
Duration: April 1, 2011 – September 30, 2014

**Title: CSHORE Model Development for Application of Cases of Minor and Major Wave Overwash of Dunes and Coastal Structures**

Sponsor: U.S. Army Corps of Engineers  
Amount: \$51,000  
Duration: August 1, 2013 – September 30, 2014

**Title:** Numerical Simulation of Artificial Reef  
**Sponsor:** Kwandong University, Korea  
**Amount:** \$35,000  
**Duration:** November 1, 2013 – August 31, 2015

**Title:** Evaluating State-of-the-Art Methods and Modeling Techniques for Rubble Mound Structures  
**Sponsor:** U.S. Army Corps of Engineers  
**Amount:** \$35,000  
**Duration:** July 30, 2015 – September 30, 2017

**Title:** Barrier Beach Breaching and Bay Flooding  
**Sponsor:** Delaware Sea Grant College Program, NOAA  
**Amount:** \$225,000  
**Duration:** February 1, 2016 – January 31, 2018  
**PI's:** Nobuhisa Kobayashi and Fengyan Shi

**Title:** Beach Erosion Countermeasures due to Coastal Structure Construction  
**Sponsor:** Catholic Kwandong University  
**Amount:** \$32,000  
**Duration:** February 10, 2016 – March 1, 2017

## Instructional Activities

### Scheduled Teaching

The following undergraduate course has been taught every year since 2011:

|          |                                     |
|----------|-------------------------------------|
| CIEG 471 | Introduction to Coastal Engineering |
|----------|-------------------------------------|

The following graduate courses are taught once every two years

|          |                              |
|----------|------------------------------|
| CIEG 679 | Sediment Transport Mechanics |
| CIEG 871 | Coastal Structures           |
| CIEG 870 | Offshore Design              |

## Acknowledged Teaching and Advising Efforts

- I was nominated for an Excellence in Undergraduate Academic Advising and Mentoring Award in 2016 by Faculty Senate Committee on Student and Faculty Honors.
- I was nominated for an Excellence in Teaching Award, University of Delaware in 1987.
- My teaching efforts in CE 870, Offshore Design, for the Fall Semester, 1986, were congratulated by the Dean, College of Engineering.
- My teaching efforts in CE 471, Introduction to Coastal Engineering for the Spring Semester, 1989 were congratulated by the Dean, College of Engineering.

## Graduate Advising

The following graduate students completed or are working on their Ph.D theses under my supervision:

1. Andojo Wurjanto (1988-1992)
2. Daniel T. Cox (1989-1995)
3. Entin A. Karjadi (1989-1997): Post-Doctoral Fellow (1997-1999)
4. Jeffrey A. Melby (1990-1999)
5. Bradley D. Johnson (1996-2000)
6. Jennifer L. Irish (2004 – 2005)
7. Yukiko Tega (1999 – 2004)
8. Francisco J. de los Santos Ramos (2004-2006, co-supervised with Miguel Losada for Ph.D. from University of Granada, Spain)
9. Jens Figlus (2007-2010)
10. Ali Farhadzadeh (2009-2010)
11. Kideok Do (2011 – 2014, co-supervised with Kyung-Duck Suh for Ph.D. from Seoul National University, Korea)
12. Xavier Chávez Cárdenas (2014-2017, co-supervised with Rodolfo Silva Casarin for Ph.D. from Universidad Nacional Autónoma de México, Mexico City)
13. Tingting Zhu (2017-present)

The following graduate students completed or are working on their Master's theses under my supervision since 1982:

1. Seung-Nam Seo (1982-1983)
2. Brian K. Jacobs (1982-1983)
3. Demet Aktan (1983-1984)
4. Roy Indrajit (1983-1986)
5. Ashwini K. Otta (1984-1986)
6. Susan Frankenstein (1984-1986)
7. Jeffrey H. Greenwald (1984-1986)
8. Kyung-Seok Han (1985-1987)

9. Gunamuni S. DeSilva (1985-1987)
10. Keith D. Watson (1985-1987)
11. Andojo Wurjanto (1986-1988)
12. David G. Cannon (1986-1988)
13. Michael S. Strzelecki (1986-1988)
14. Entin A. Karjadi (1986-1989)
15. Leslie C. Lockerman (1986-1988)
16. Daniel T. Cox (1987-1989)
17. Shuji Kaku (1987-1990)
18. Cheol S. Shin (1988-1991)
19. Randall A. Wise (1989-1991)
20. W. Gray Smith (1989-1991)
21. Andrew W. Raichle (1990-1992)
22. Paston Sidauruk (1991-1993)
23. Michael T. Poff (1991-1993)
24. Mark W. Hancock (1992-1994)
25. Bradley D. Johnson (1993-1996)
26. Yukiko Tega (1993-1995)
27. Jonica C. Vidrine (1994-1996)
28. Michael N. Herrman (1994-1996)
29. Mark D. Orzech (1995-1997)
30. Peter G. Kearney (1997-2001)
31. Prasert Vangsanittrakul (1998-2001)
32. Michael A. Giovannozzi (1999-2001)
33. Supasit Kongdee (2000-2002)
34. Beatriz Pozueta (2000-2002)
35. Andrew Lawrence (2001-2003)
36. Leslie E. Meigs (2002-2004)
37. Haoyu Zhao (2002-2004)
38. Arpit Agarwal (2003-2005)
39. Mayu Kagawa (2004-2005)
40. George E. Alexander (2004-2005)
41. Lauren Schmied (2004-2006)
42. Jens Figlus (2005-2006)
43. Mitchell Buck (2005-2007)
44. Ali Farhadzadeh (2006-2009)
45. Elizabeth Hicks (2008-2010)
46. Hoo-Young Jung (2009-2011)
47. Christine Grahler (2010-2012)
48. Jill Peitropaolo (2010-2012)
49. Heather Weitzner (2012-2014)
50. Rolando Garcia (2012-2014)
51. Rebecca Quan (2013-2015)
52. Tingting Zhu (2015-2017)
53. Hyun Dong Kim (2015-2017)
54. Wanyi Xing (2015-2017)



55. Sravani Mallavarapu (2016-present)

## Visiting Scientists

The following visiting scientists conducted or are performing joint research with me at the University of Delaware

1. Shigeki Sakai (Iwate University, Japan; 1987-1988)
2. Michio Sato (Kagoshima University, Japan; 1988)
3. Miguel A. Losada (University of Cantabria, Spain; 1988-1989)
4. Hajime Mase (Kyoto University, Japan; 1989-1990, Summer 1991, Summer 1992)
5. Cheong-Ro Ryu (National Fisheries University of Pusan, Korea; 1989-1990)
6. Hwa-Woon Lee (National Pusan University, Korea; 1989-1990)
7. Toshiyuki Asano (Kagoshima University, Japan; Summer 1990 and Summer 1991)
8. Kazuo Nadaoka (Tokyo Institute of Technology, Japan; Spring 1992)
9. Akio Okayasu (Yokohama National University, Japan; 1993)
10. J. Richard Weggel (Drexel University, USA; 1993-1994)
11. Maruti D. Kudale (Central Water & Power Research Station, India; 1994-1995)
12. Vijay T. Desai (Central Water & Power Research Station, India; 1995)
13. Takashi Tomita (Nagoya University, Japan; 1995-1996)
14. Mathias Polschinski (Technical University of Braunschweig, Germany; Summer 1995)
15. Nobuhito Mori (Central Research Institute of Electric Power Industry, Japan; Summer 1995)
16. Man-Hwa Chung (Maritime and Port Administration, Korea; 1995-1996)
17. Miguel A. Losada (University of Cantabria, Spain; 1996-1997)
18. Stephen Cavanagh (Imperial College, University of London; Summer, 1996)
19. Hong-Yoon Kang (Pukyong National University, Korea; 1996-1997)
20. Roberto Tomasicchio (University of Perugia, Italy; Fall, 1997)
21. Fumihiko Yamada (Kumamoto University, Japan; Spring, 1999)
22. Dingyong Yu (Ocean University of Qingdao; China; 2000-2001)
23. Jose A. Revilla (University of Cantabria, Spain; 2000)
24. Hiroaki Hosoi (Nagoya University, Japan; 2001-2002)
25. Akihida Tada (Nagasaki University, Japan; Fall, 2001)
26. Fumihiko Yamada (Kumamoto University, Japan; 2002-2003)
27. Takao Ota (Tottori University, Japan; 2002-2003)
28. Akira Kawamori (Alpha Hydraulic Engineering, Japan; 2003)
29. Liqiang Wang (Water Resources Planning, Liaoning, China; 2003-2004)
30. Junji Miyamoto (Kyoto University, Japan; Summer, 2003)
31. Francisco J. de los Santos Ramos (University of Granada, Spain; 2004)
32. Andres Payo (University of Granada, Spain; 2005-2007)
33. Ali Farhadzadeh (Tarbiat Modarres University, Iran; 2005-2006)
34. Bradley D. Johnson (U.S. Army Coastal and Hydraulics Lab.; 2006-2010)
35. Bum-shick Shin (Kwandong University, Korea; 2006)

36. Kyu-Han Kim (Kwandong University, Korea; summer 2006)
37. Rosanna Gencarelli (University of Calabria, Italy; 2006-2007)
38. Caterina Ricottilli (University of Calabria, Italy; 2006-2007)
39. Chanik Park (Kwandong University, Korea; 2006-2007)
40. Huaxing Liu (Ocean University of China, China; 2007-2008)
41. Vicente J. Iranzo (Ecole Speciale de Travaux Publics in Paris, France; Spring, 2009)
42. Christine Gralher (University of Hannover, Germany; 2009-2010)
43. Yuichiro Shirakawa (Kumamoto University, Japan; Fall, 2009)
44. In-cheol Lee (Pukyong National University, Korea; 2010-2011)
45. Takehisa Saitoh (Kanazawa University, Japan; 2010-2011)
46. Kyutae Shim (Myongji University, Korea; 2010-2011)
47. Gregorio Iglesias (University of Santiago de Compostela, Spain, Fall, 2010)
48. Kideok Do (Seoul National University, Korea, 2011-2013)
49. Berna Ayat (Yildiz Technical University, Turkey, 2012-2013)
50. Burak Aydogan (Yildiz Technical University, Turkey, 2013-2014)
51. Xavier Chávez Cárdenas (Universidad Nacional Autónoma de México, 2014-2015)
52. Panchen Shen (Southwest Jiaotong University, China, 2015-2016)
53. Kyu-Han Kim (Catholic Kwandong University, Korea, Spring 2016)
54. Z. Tugce Yuksel (Yildiz Technical University, Turkey, 2017-2018)
55. Hamid Goharnejad (Islamic Azad Univerwity, Iran, 2018-2019)