

# WENRUI HUANG, PH.D., P.E.

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## PROFESSIONAL EXPERIENCE.

### (A) Positions:

Associate Professor, Department of Civil and Environmental Engineering, FAMU, 8/2003-present.  
Assistant Professor, Department of Civil and Environmental Engineering, FAMU., 8/97-7/03  
Senior Hydrologist, Northwest Florida Water Management District, Havana, Florida. (01/1997 - 07/1997)  
Associate Hydrologist, Northwest Florida Water Management District, Havana, Florida. (08/1993 - 12/1996)

**Professional License:** Professional Engineer in Civil and Sanitary Engineering.

### (B) Pertinent Teaching, Research and Related Activities:

**Teaching Areas:** Coastal and estuarine dynamics, surface water quality and hydrodynamic modeling, environmental hydraulics, hydraulic experimentation, physical model of hydraulic systems, coastal structures.

#### **Research Areas:**

- 3D Coastal and estuarine environmental modeling (surface hydrodynamic, sediment, and water quality modeling)
- Neural network applications in hydrological and environmental forecasting (river flow, water levels, salinity...)
- Computational fluid dynamics and model development.

In the past several years, Dr. Huang's research has been sponsored by Northwest Florida Water Management District, NOAA, U.S. Army Corps of Engineers, and USEPA

### (D) Publications

#### Publications in Peer-Reviewed Journals

Huang, W., B. Xu, and A. Chan-Hilton, 2004. Forecasting flow in Apalachicola River using neural network. *International Journal of Hydrological Process* vol 18, pg 2545-2564.

Huang, W., K. Jones, and Q. Yang, 2003. A field experiment study of transient stratified flow in an estuary. *Journal of Engineering Mechanics, ASCE*. Vol 129 (10), pg 1220-1223.

Huang, W., C. Murray, N. Kraus, J. Rosati, 2003. Development of a regional neural network model for water level predictions in coastal inlets. *Journal of Ocean Engineering*, Vol 30, pg 2275-2295.

Huang, W., H. Sun, S. Nnaji, and K. Jones, 2002. Tidal hydrodynamics in a multiple inlet estuary: Apalachicola Bay. *International Journal of Coastal Research*, vol 18 (4), pg 674-684.

Huang, W., and M. Spaulding, 2002. Modeling residence time response to freshwater input in Apalachicola Bay, Florida, USA. *International Journal of Hydrological Processes*, vol 16, pg 3051-3064.

Huang, W., K. Jones, and T. Wu, 2002. Modeling surface wind effects on subtidal salinity in Apalachicola Bay. *Journal of Estuarine, Coastal and Shelf Science*. Vol 55, pg 33-46.

Huang, W. and S. Foo, 2002. Neural network modeling of salinity variation in Apalachicola River. *Journal of Water Research. International Water Association*. Vol. 36, pg 356-362.

Huang, W. and W. Jones, 2002. Characteristics of long-term transport in Apalachicola estuary. *Journal of American Water Resource Association*. Vol 37, No.3, pages 1-14.

- Huang, W. and M. Spaulding, 2002. Reducing horizontal diffusion errors in sigma-coordinate coastal ocean models with 2<sup>nd</sup> order Lagrangian interpolation methods. *Journal of Ocean Engineering*. Vol.29, pg 495-512.
- Mortazavi-B. Iverson-R-L. Huang-W. 2001. Dissolved organic nitrogen and nitrate in Apalachicola Bay, Florida: spatial distribution and monthly budgets. *International journal of Marine Ecology Progress*. Vol 214, pg 79-91.
- Huang, W., M. Spaulding, 2000." Correlation of sub-tidal salinity and freshwater inflow in a tidal river". *Journal of Waterway, Port, and Ocean Engineering*, ASCE. Vol. 126, No. 5, September/October.
- Mortazavi-B. Iverson-R-L. Landing-W-M. Huang-W. 2000. Phosphorus budget of Apalachicola Bay: a river-dominated estuary in the northeastern Gulf of Mexico. , *Marine Ecology Progress*. 2000 Jun 5. Vol 198. P 33-42.
- Mortazavi B, Iverson RL, Landing WM, Lewis FG, Huang W. 2000, "Control of Phytoplankton Production and Biomass in a River-Dominated Estuary: Apalachicola Bay, FL, USA" , *Marine Ecology Progress*, Vol. 198. P 19-31.
- Livingston, R., Lewis, G, Woodsum, G., Niu, X., B. Galperin, W. Huang, 2000. Modeling oyster response to variation in freshwater input, *Journal of Estuaries, Coastal and Shelf Science*. vol. 50, page655-672,
- Mortazavi B,Iverson RL, Huang W, Lewis FG, and Caffrey J, 2000. Nitrogen budget of Apalachicola Bay, a bar-built estuary in the northeastern Gulf of Mexico. *Journal of Marine Ecology Progress Series*, March, vol 195, pages 1-14.
- Huang, W., M. Spaulding, 1996. "Modeling Horizontal Diffusion with sigma coordinate system". *Journal of Hydraulic Engineering* , ASCE. June, vol. 122. No.6, Pg 349-354.
- Huang, W., M. Spaulding. 1995. " Numerical Modeling of CSO-Induced Pollutant Transport in Mt. Hope Bay", *Journal of Environmental Engineering*, ASCE, July. Vol. .12, No. 7, p492-498.
- Huang, W., M. Spaulding, 1995. "3D Model of Estuarine Circulation and Water Quality Induced by Surface Discharges". *Journal of Hydraulic Engineering*, ASCE, April, Vol. 121, No. 4, p300-312.

#### Refereed National and International Conference Proceedings

- Huang, W. , 2002. Sensitivity of a 2<sup>nd</sup> order turbulence model in a stratified river. Proceedings of ASCE 15<sup>th</sup> Engineering Mechanics Conference, June 18-22, 2002, New York , pg 1-7.
- Huang, W., 2002. Finite-difference analysis of horizontal gradient in sigma coordinate coastal hydrodynamic models. Proceedings of 7<sup>th</sup> International Conference on Estuarine and coastal modeling, ASCE. pg 600-613.
- Huang, W. 2001. Neural network modeling of Apalachicola River flow. Proceedings of International Conference: World Water and Environmental Congress, ASCE. May 20-24, Florida, pg 1-8.
- Huang, W., W.K., Jones, and T.S. Wu, 2000. " Modeling Tidal circulation in a barrier-island estuary". Proceedings of the 6<sup>th</sup> Estuarine and Coastal Modeling Conference. M.L. Spaulding, (ed.), ASCE, New York. pg 1216-1232
- Huang, W., 1998. "Sensitivity Study of  $k-\epsilon$  Turbulence Model in a Normalized Open Channel". Proceedings of the 12<sup>th</sup> Engineering Mechanics Conference (ASCE), La Jolla, CA, 5/17-5/20. pg1904-1907.
- Huang, W., T.S. Wu, J. Saquibal, W.K. Jones. 1998. "An Experimental Study Of Transient Stratified Flow In Apalachicola River", Proceedings of the 12<sup>th</sup> Engineering Mechanics Conference (ASCE), La Jolla, CA. pg. 1780-1784.
- Jones, W.K., W.Huang, 1996. "Modeling Freshwater Delivery From Apalachicola River into the Bay". Proceedings of the 4<sup>rd</sup> Estuarine and Coastal Modeling Conference. M.L. Spaulding, (ed.), ASCE, New York. pg 552- 559.
- Huang, W., M. Spaulding, 1994. "3-D Modeling of Circulation and Salinity in Taunton River and Mt. Hope Bay", Proceedings of the 3<sup>rd</sup> Estuarine and Coastal Modeling Conference, ASCE, M.L. Spaulding, (ed.), New York. pg. 500-512.
- Huang, W., W.K. Jones, T.S. Wu, 1995. "3-D Modeling Hydrodynamics and freshwater transport in Choctawhatchee

Bay". Proceedings of 2nd International Conference on Hydro-science and Engineering, Beijing, China. (Co-sponsored by ASCE and Chinese Hydraulic Engineering Society ), pg.497-505.

[Spaulding, M., W. Huang, 1989. "Application of a 2D Boundary-fitted-coordinate Hydrodynamic Model", Proceedings of the 1st Estuarine and Coastal Modeling Conference, M.L. Spaulding, (ed.), ASCE. pg.27-39.

#### Selected Technical Report:

Huang, W. and C. Murray, 2003. Application of an Artificial Neural Network to Predict Tidal Currents in an Inlet. ERDC/CHL CHETN-IV-58, March 2003. US Army Corps of Engineers.

Christensen, J., M. Monaco, R. Livingston, F. Lewis, W. Huang, 1998. Potential Impact of freshwater inflow on Apalachicola Bay. NOAA/NOS Strategic Environmental Assessment Division, Silver Spring, MD. 70 pp

Huang, W., W.K. Jones, 1997. "3D Modeling Hydrodynamics And Salinity for low flow season in Apalachicola Bay ". Water Resources Special Report 97-1, Northwest Florida Water Management District, Florida, 112 pp.

#### **(E) Professional Activities**

##### ASCE National Committee Membership:

- Member of Turbulence Flow Committee, American Society of Civil Engineers, 2002-2006
- Member of ASCE/EWRI Computational Hydraulics Committee (2001 -present): Task Committee on "3D Surface Water Hydrodynamic Model Validation" Monograph

##### Society Affiliations

- American Society of Civil Engineers (1988-present),
- International Association of Hydraulic Research (2001-present),
  - American Society of Engineering Education (2002-present).

##### Reviewing Papers for Refereed Journals and National Conference Proceedings

- Reviewer for *Journal of Computing in Civil Engineering*, ASCE, since 2002.
- Reviewer for *Journal of Hydraulic Engineering*, ASCE, since 1996.
- Reviewer for *Journal of Engineering Mechanics*, ASCE, since 1999.
- Reviewer for *Journal of American Water Resource Association*, since 2001.
- Reviewer for *Journal of Marine Technology*, since 1999.
- Reviewer for *Journal of Environmental Engineering*, ASCE, since 1995.
- Reviewer for *Coastal and Estuarine Modeling, ASCE Conference Proceedings. 1994,1996, 1998,2002*

#### **EDUCATION.**

**Ph.D.**, Ocean Engineering / Coastal Environmental Modeling, University of Rhode Island, 1993

**MS**, Civil/Coastal Engineering, Hohai University, 1986;

**BS**, Civil/Coastal Engineering, Hohai University, 1981