

## **Puspa L. Adhikari, PhD**

Dept. of Marine & Earth Sciences  
Florida Gulf Coast University

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### **Education:**

**Ph.D., Oceanography and Coastal Sciences** (*Chemical Oceanography, Minor in Statistics*) – **2015**

Louisiana State University, Baton Rouge

Dissertation: "Polycyclic Aromatic Hydrocarbon Dynamics in the Northern Gulf of Mexico".

**M.S., Aquaculture and Fisheries** (*Aquatic Chemistry*) – **2011**

University of Arkansas at Pine Bluff

Thesis: "Characterization of Effluents from Commercial Baitfish Holding Facilities in Arkansas".

**M.S., Environmental Sciences** (*Environmental Chemistry*) – **2005**

Tribhuvan University, Kathmandu, Nepal

Thesis: "The effects of water chemistry on Plankton Assemblages in Kulekhani Reservoir, Nepal".

**B.S., Environmental Sciences** (*Minor in Chemistry and Biology*) – **2003**

Tri-Chandra Multiple College, Tribhuvan University, Kathmandu, Nepal

### **Research Interest:**

Chemical oceanography, Environmental analytical chemistry, Petroleum geochemistry & chemical fingerprinting, Organic geochemistry – fate and transport of organic matter and contaminants in aquatic systems, Sediment biogeochemistry, Radiochemistry – utilization of artificial and natural radioisotopes to study environmental processes.

### **Professional Experience:**

**Assistant Professor** (2018-present)

Department of Marine and Earth Sciences, Florida Gulf Coast University, Fort Myers, FL.

**Postdoctoral Research Associate** (2015 - 2018)

Department of Environmental Sciences, Louisiana State University, Baton Rouge, LA

**Graduate Research Assistant** (2011 - 2014, 2015)

Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA

**Graduate Teaching Assistant** (2014 - 2015)

Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA

**Supervised Teaching Assistant** (2013 - 2014)

Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA

**Graduate Research Assistant** (2009 - 2011)

Department of Aquaculture and Fisheries, University of Arkansas at Pine Bluff, Pine Bluff, AR

**Lecturer** (2005 - 2009)

Milestone International College, Lalitpur, Nepal

**High School Science and Environment Teacher** (2000 - 2009)

Eureka High School, Kathmandu, Nepal

### **Awards and Honors:**

**Outstanding Student Dissertation Award** (2015): College of the Coast and Environment, Louisiana State University, Baton Rouge.

**Dr. Theodore "Ted" Ford Scholarship Award for Outstanding PhD Student** (2014): College of the Coast and Environment, Louisiana State University, Baton Rouge.

**Graduate School Economic Development Fellowship** (2014): Louisiana State University, Baton Rouge.

**GOMURC Student Presenter Award** (2014): Gulf of Mexico University Research Collaborative (GOMURC), Petersburg, Florida.

- Dana Russell Memorial Grant-in-Aid Award** (2013): American Association of Petroleum Geologists Foundation, Tulsa, Oklahoma.
- GOMURC Student Travel Award** (2013): Gulf of Mexico University Research Collaborative (GOMURC), Petersburg, Florida.
- Student Travel Award** (2015): The Graduate School, Louisiana State University, Baton Rouge, Louisiana.
- CEGO Travel Fund** (2015): Coast and Environment Graduate Organization (CEGO), Louisiana State University, Baton Rouge, Louisiana.
- Winner National Science Fair for Mentoring High School Students** (2007): Nepal Academy of Science and Technology (NAST), Lalitpur, Nepal.
- Runner-up National Young Scientist Fair for Mentoring High School Students** (2006): Eureka High School, Kathmandu, Nepal.
- Research Grant for Outstanding MS Student** (2005): Central Department of Environmental Sciences, Tribhuvan University, Kirtipur, Nepal.

### Publications:

14. Overton, E.B., Wetzel, D.L., Wickliffe, J.K., **Adhikari, P.L., 2020.** Spilled Oil Composition and the Natural Carbon Cycle: The True Drivers of Environmental Fate and Effects of Oil Spills. In Scenarios and Responses to Future Deep Oil Spills (pp. 33-56). *Springer*, Cham.
13. **Adhikari, P.L.,** Maiti, K., Bam, W. **2019.** Fate of particle-bound polycyclic aromatic hydrocarbons in the river-influenced continental margin of the northern Gulf of Mexico. *Marine Pollution Bulletin* 141, 350-362.
- 12) Bam, W., Hooper-Bui, L.M., Strecker, R.M., **Adhikari, P.L,** Overton, E.B. **2018.** Coupled Effects of Oil Spill and Hurricane on Saltmarsh Terrestrial Arthropods. *PLOS ONE* 13(4): e0194941.
- 11) Meyer, B.M., **Adhikari, P.L.,** Olson, G.M., Overton, E.B., Miles, M.S. **2018.** Louisiana coastal marsh environments and MC252 oil biomarker chemistry. Editor(s): Scott A. Stout, Zhendi Wang, In Oil Spill Environmental Forensics Case Studies. Butterworth-Heinemann, *Elsevier*. Pages 737-756.
- 10) **Adhikari, P.L.,** Wong, R.L. and Overton, E.B., **2017.** Application of enhanced gas chromatography/triple quadrupole mass spectrometry for monitoring petroleum weathering and forensic source fingerprinting in samples impacted by the Deepwater Horizon oil spill. *Chemosphere* 184, 939-950.
- 9) **Adhikari, P.L.,** Shrestha, S., Bam, W., Xie, L., Perschbacher, P. **2017.** Evaluation of Spatial-Temporal Variations of Water Quality and Plankton Assemblages and Its Relationship to Water Use in Kulekhani Multipurpose Reservoir, Nepal. *Journal of Environmental Protection*, 8, 1270-1295.
- 8) **Adhikari, P.L.,** Maiti, K., Overton, E.B., Brad, E.R., Marx, B.D. **2016.** Distribution and Accumulation Rates of Polycyclic Aromatic Hydrocarbons in the Gulf of Mexico Sediments. *Environ. Pollution*, 212, 413-423.
- 7) **Adhikari, P.L.,** Maiti, K., Somiddho, B. **2016.** <sup>238</sup>U-<sup>234</sup>Th disequilibria as a tracer of vertical flux of Polycyclic Aromatic Hydrocarbon in the Northern Gulf of Mexico. *Marine Pollution Bulletin*, 107, 179-187.
- 6) Maiti, K, Bosu, S., D'Sa, E.J, **Adhikari, P.L.,** Sutor, M., K. Longnecker. **2016.** Export Fluxes in Northern Gulf of Mexico-Comparative Evaluation of Direct, Indirect and Satellite-based Estimates. *Marine Chemistry*, 184, 60-77.
- 5) Tarr, M.A., Ray, P.Z., Overton, E.B., Olson, G.M., **Adhikari, P.L.,** Reddy, C.M. **2016.** Weathering of Oil Spill in the Marine Environment. *Oceanography*, 29, 126-135.
- 4) Shrestha, S., **Adhikari, P.L., 2016.** Investigating Temporal Variation in Water Quality and Benthic Macroinvertebrates in Taudaha Lake, Kathmandu, Nepal. *Journal of Water Resource and Protection*, 8, 1283-1296.
- 3) **Adhikari, P.L.,** Maiti, K., Overton, E.B. **2015.** Vertical Fluxes of Polycyclic Aromatic Hydrocarbons in the Northern Gulf of Mexico. *Marine Chemistry*, 168, 60-68.
- 2) **Adhikari, P.L.,** White, J.R., Maiti, K., Nguyen, N. **2015.** Phosphorous speciation and sedimentary phosphorous release from the Northern Gulf of Mexico sediments: Implication for Hypoxia. *Estuarine*,

*Coastal and Shelf Science*, 164, 77-85.

- 1) **Adhikari, P. L.**, Stone, N., Kelly, A.M., Thomforde, H.K. **2012**. Characteristics of effluents from baitfish holding sheds in central Arkansas. *North American Journal of Aquaculture*, 74:3, 376-384.

Manuscripts in review or in preparation:

**Adhikari, P.L.**, Bam, W., Metian, M., Besson, M., Jacob, H., Swarzenski, P.W. **2020**. Experimental design to study microplastics in aquatic organisms: constraints and considerations. In *Plastic in the Environment: Pattern and Process* (Editor: Michael S. Bank). Springer Nature Press (*in revision*).

**Adhikari, P.L.**, Bacosa, H., Agurob, M.C.G., Dimapalao, M.K., Gorre, J.R., Lubguban, A.A., **2020**. Polycyclic aromatic hydrocarbons in marine environment; insights on the distribution, sources, impacts and remediation in Asia. *Asian Journal of Microbiology, Biotechnology & Environmental Sciences* (*in review*).

**Adhikari, P.L.**, Pangeni, D, Wong, R.L. and Overton, E.B. **2020**. Application of response factors obtained from parent polycyclic aromatic hydrocarbons to quantify their alkylated homologs using a gas chromatography/triple quadrupole mass spectrometry in multiple reaction monitoring (MRM). *Analytical Chemistry* (*in prep*).

**Adhikari, P.L.**, Meyer, B.M., Overton, E.B., Miles, M.S. **2020**. Evaluation of Molecular Ratios as Geochemical Proxies for Source Characterization and Tracking Weathering Processes of Hydrocarbons in Coastal-Marine Sediments Impacted by Deepwater Horizon Oil Spill. *Environmental Forensics* (*in prep*).

Funded Grants/Proposal:

Parsons, M., **Adhikari, P.L.** **2020**. Persistence of toxins from harmful algal blooms in coastal marine sediments. *Florida Fish and Wildlife Conservation Commission, Red tide initiative*. **\$79, 999**.

Thomas, S., **Adhikari, P.L.**, **2020**. Sediment characterization, bathymetry and sediment mapping of three Lakes in Naples. *The City Of Naples via Wood North America*. **\$24,924**.

Douglass, J., **Adhikari, P.L.**, Urakawa, H., Bartleson, R., **2019**. Enhanced water quality and seagrass monitoring in the Caloosahatchee Estuary. *U.S. Environmental Protection Agency*. **\$264,735**.

Muller, J., **Adhikari, P.L.**, Parsons, M., Savarese, M. **2019**. Acquisition of a SAGE Well Detector to Support Geoscience Education and Student and Faculty Research at Florida Gulf Coast University. *National Science Foundation (NSF) MRI*. **\$180,166**.

**Adhikari, P.L.**, Muller, J., Parsons, M. **2019**. The history and management of red tide (harmful algal blooms) in Southwest Florida. FGCU Scholarship-Research Venture Fund. **\$19,912**.

**Adhikari, P.L.** 2019. Application of Radium isotopes to tract Submarine Groundwater Discharge. *FGCU Foundation*. **\$5,000**.

**Adhikari, P.L.** **2019**. Analysis of micro-plastics and micro-plastic-derived contaminants in South West Florida coastal-marine Sediments. Professional Development Enhancement Award Program, FGCU. **\$1,000**.

Gupta, I., **Adhikari, P.L.** **2018**. Mass Spectrometry Calibration of Lighter Hydrocarbons from Live Well Fluids. Halliburton. **\$101, 462**.

Bargu, S., Maiti, K., **Adhikari, P.L.**, et al., **2016**. Impacts of ocean acidification on natural phytoplankton communities, oyster development and trophic interactions: Transfer of micro plastic derived contaminates to oysters – *National Sea Grant College Program (NOAA)*. **\$20,000**.

**Adhikari, P.L.** **2013**. Vanadium/Nickel Ratio as a Proxy for Oil Contaminated Sediments in the Northern Gulf of Mexico. AAPG's Search and Discovery website. Dana Russell Memorial Grant-in-Aid - *American Association of Petroleum Geologists Foundation (AAPG)*. **\$1,500**.

Analytical Expertise:

*Instrumentations and Analytical Techniques*

GC-MS/MS, GC-MS, Alpha/Beta/Gamma/RaDecc Detectors, Spectrophotometer, Nutrient Analyzer,

Elemental Analyzer, Scintillation Counter, Soxhlet/Sonication for Organic Extraction, Sequential Phosphorus Extraction, Various Sampling/Oceanographic Field Instruments and Data Loggers

*Statistical and Geospatial Software*

ArcGIS, SAS, SAS Enterprise Minor, SAS Enterprise Guide, SPSS

**Research Cruises:**

**R/V Hogarth** (October 9-11, 2019; February 13-15, 2019; September 26-28, 2018), Educational Cruises

**R/V Pelican** (July 7-10, 2014), CARTHE Pelagic Sampling Cruise

**R/V Pelican** (June 24-29, 2013), CARTHE Benthic Sampling Cruise

**R/V Walton Smith** (April 2-18, 2013), Gulf of Mexico Research Initiative (GoMRI) Research Cruise

**R/V Walton Smith** (April 7-19, 2012), Gulf of Mexico Research Initiative (GoMRI) Research Cruise

**Course Taught/Teaching:**

Current Topic: Oil Spill in Marine Environment (FGCU)

Senior Project Presentation Environmental Studies (FGCU)

Marine Chemistry (FGCU)

Environmental Chemistry (FGCU)

Introduction to Oceanography (LSU)

Chemical Oceanography (LSU- *Guest Lecturer, Supervised Teaching*)

**Graduate/ Undergraduate/High School Mentoring:**

**Undergraduate & Graduate Student Mentoring/Advising:** Trinity Allan (2020-Present), Emily Stuller (2020-present), Aneesa Dial (2019-present), Zachary Tabaac (2019-present), Sarah Newton (2019-Present), James Javaruski (2018-present), Wokil Bam (2017-present) MaKuachukwu Mbaegbu (2018-2019), Austin Lysfjord (2018-2019), Julian Halil (2018-2019), Robert M Petras (2018-2019), Kareem Abdo (2016-2017), Amy Mallozzi (2016-2017), Alexis Starr (2014), Charles Corbin (2012) and Jason Preston (2011).

**High School Student Mentoring:** Designed and helped a high school student to conduct a science project, and to prepare scientific presentation for local and national conference.

**Teaching:** Taught high school science and environment classes in Nepal for 10 years, lectured college level environmental education for four years, and mentored high school students participating in national science fairs/competitions.

**Select Recent Presentations:**

Javaruski, J., **Adhikari, P.L. 2020.** Historic Reconstruction of Polycyclic Aromatic Hydrocarbon Pollution in Southwest Florida Coastal Sediments. *Ocean Sciences Meeting*, February 16-21, San Diego, California.

**Adhikari, P.L.,** Maiti, K., Overton, E.B., **2020.** Application of Natural Radioisotope Tracers to Understand Transport and Accumulation of PAHs in Marine Environments. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, February 3-6, Tampa, Florida.

Javaruski, J., **Adhikari, P.L.,** Muller, J. **2020.** Application of Brevetoxin in Coastal-Marine Sediments as a Proxy for Reconstruction of Historic Red Tide Events in Southwest Florida. *29<sup>th</sup> Southwest Florida Water Resources Conference*, January 4, Fort Myers, Florida.

Overton E.B., Meyer, B.A., Miles, M.S., **Adhikari, P.L.,** Turner, R.E. **2020.** Understanding the Fates and Chemical Compositions of Weathered Oil in Coastal Marshes after the 2010 Deepwater Horizon Oil Spill, *IOSC 2020, MAY 11-14, 2020*, New Orleans, Louisiana.

**Adhikari, P.L.,** Pageni, D., Overton, E.B, Wong, R. **2019.** Evaluation of relative response factors of alkylated PAH homologs using gas chromatography – triple quadrupole mass spectrometry. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, February 4-7, New Orleans, Louisiana.

**Adhikari P.L.,** Petras, R.M., Gupta, I., Rowe, M., Mbaegbu, M. **2018.** Real time measurement of gas composition from live well fluids at drilling site. *Goldschmidt Conference*, August 12-17, Boston, MA.

- Adhikari, P.L.,** Overton, E.O., Miles, M.S., Meyer, B. **2018.** Evaluation of Molecular Ratios as Geochemical Proxies for Source Characterization and Tracking Weathering Processes of Hydrocarbons in Coastal Sediments Impacted by Deepwater Horizon Oil spill. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, February 5-8, New Orleans, Louisiana, USA.
- Adhikari, P.L.,** Maiti, K. **2017.** Distribution and transport of particle-bound polycyclic aromatic hydrocarbons in a river-influenced continental margin: the northern Gulf of Mexico. *American Geophysical Union (AGU) Fall Meeting*, December 11-15, New Orleans, Louisiana, USA.
- Adhikari, P.L.,** Overton, E.O., Miles, M.S., Wong, R.L. **2017.** How much oil is actually removed by evaporation, photo-oxidation and microbial weathering? *The International oil Spill Conference (IOSC)*, May 15-18, Long Beach, California, USA.
- Adhikari, P.L.,** Wong, R.L., Overton, E.B. **2017.** Application of High Resolution Gas Chromatography/Triple Quadrupole Mass Spectrometry in Multiple Reaction Monitoring Mode (HRGC/MRM) in Petroleum Forensics: Insights from the Sediments Impacted by the *Deepwater Horizon* Oil Spill. *The International oil Spill Conference (IOSC)*, May 15-18, Long Beach, California, USA.
- Maiti, K., **Adhikari, P.L.** **2017.**  $^{210}\text{Pb}$ - $^{210}\text{Po}$  as tracer of contaminant transport in a river dominated coastal system. *Goldschmidt Conference*, August 13-18, Paris, France. (*Invited talk*).
- Adhikari, P.L.,** Overton, E.O., Miles, M.S., Meyer, B.B. **2017.** Effects of tropical storms in distribution and redistribution of *Deepwater Horizon* oil residues in the coastal Louisiana marshes. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, February 6-9, New Orleans, Louisiana, USA.
- Bam, W., Hooper-Bui, L.M., Strecker, R.M., **Adhikari, P.L.,** Overton, E.B. **2017.** Coupled effects of oil spill and hurricane on saltmarsh terrestrial arthropods. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, February 6-9, New Orleans, Louisiana, USA.

#### **Scientific and Professional Organizations:**

American Association for the Advancement of Science (AAAS)  
American Geophysical Union (AGU), The Oceanography Society (TOS)  
Association for the Sciences of Limnology and Oceanography (ASLO)  
Environmental Graduates in Himalayan (EGH), Resources Himalaya Foundation

#### **Professional Services:**

##### *Manuscripts Reviewed for*

Marine Chemistry, Marine Pollution Bulletin, Plos One ,Environmental Pollution, FEMS Microbiology Reviews, Water Research, Continental Shelf Research, Environmental Chemistry, Journal of Coastal Research, Microchemical Journal, Ecotoxicology and Environmental Safety, Soil and Sediment Contamination An International Journal, African Journal of Food Science.