



Jeffery P. Morin, Ph.D.
Oceanographer

CAPABILITIES

Dr. Morin has supported marine observations and exploration in the Gulf of Mexico and in various international regions for more than 15 years. He has extensive understanding of remote data collection ranging from ADCP current measurements to HF frequency wave radar and Lidar wind measurements. He has consulted in an advisory capacity with several energy operators and worked with various institutions including Texas A&M University, University of South Carolina, Florida State University, the National Science Foundation, National Oceanographic and Atmospheric Administration and Environmental Protection Agency.

EXPERIENCE

MARINE VENTURES INTERNATIONAL, INC.
CONSULTANT 2018 TO PRESENT

RPS OCEAN SCIENCE
SENIOR SCIENTIST, OCEANOGRAPHER - 2012 - 2018

Oversight of ADCP data collection service agreements with various operators in the Gulf of Mexico (GOM) and internationally with 24 current total operating systems which are primarily composed of Ocean Observer 38 kHz ADCPs (TRDI); also included are integration of Horizontal ADCPs (H-ADCP), real time and autonomous upward looking seabed units, etc. Data collection is both part of NDBC real time transmission and further QA/QC processing for structural and environmental research objectives.

- Develop and reorganize documentation and client reporting mechanism for RPS Ocean Sciences servicing and maintenance,
- Design elements and procedures for new data QA/QC report submitted to clients, intended for future analysis and final decommissioning of individual instruments,
- Developing feedback mechanism to incorporate quality control analysis into system maintenance procedures and scheduling,
- Responsible for training and mentoring service technicians in standard maintenance and system installation and configuration.

Managed introduction of radar based wave measurement systems on Floating Offshore Platforms in the Gulf of Mexico (Shell E&P).

- Oversight of commissioning, instrument operation and long-term quality control,
- Consultation with asset operators and onshore metocean specialist in data utilization for operations and incorporation in structural fatigue analysis,
- Observational investigation in efficacy of oil spill detection algorithms (Damped scatter return in image analysis).

Completed (March 2018), oversight of design project for installation of ADCP data collection systems on Tension leg platform (TLP) production assets (Life Extension).

- Designed subsea appurtenance structure and ROV assisted hull attachment,
- Designed topside lifting apparatus. Design incorporated hydraulic fluid powered circuitry alternative,
- Responsible for project fabrication and assembly oversight and negotiation.



Project collaboration with L3 Maripro in an effort to design a data acquisition system for communications cable laying vessel (T3 Connectivity). Design required installation of a 75 kHz Ocean Observer ADCP in the vessel hull and integration of control and measurement data into the vessel network infrastructure. Data collection will be integrated with Makai Lay tension control software to optimize cable outlay and prevent loops in the cable route (Project Start – Q3, 2018).

Designed and integrated a sea bottom acoustic communications system to facilitate collection of lower water column velocity profiles. Data collection was accomplished with a 300 kHz ADCP and transmitted to the surface via a Sonardyne Compatt LBL (low base line position beacon). Results were published in the Sonardyne magazine "Soundings".

ADCP directional error evaluation and solution. Identified and assessed errors associated with calibration of magnetometer-based motion reference unit on preferred ADCPs for the data collection associated with the Department of Interiors Notice to Lessees G09 (2009). Incorporation of a magnetically impervious, tiny optical gyro in transmission based profile transformations produce directionally correct velocity profiles.

RPS EVANS HAMILTON
SENIOR SCIENTIST, OCEANOGRAPHER 2010 - 2012

Norfolk, Virginia. Coastal wave and currents data analysis for the City of Norfolk's Coastal Planning study. Performed analysis of long-term current profiles and seasonal wave trends. Results are incorporated into the City of Norfolk's coastal management considerations through a private engineering firm. Data collection began in 2006.

Soyo, Angola. Two-year data collection and analysis at the mouth of the Congo for Angola LNG. Performed analysis and synthesis of current profile, current survey, bathymetry, wave statistics, and turbidity from autonomous bottom mounts and moorings in the navigational channel supporting the recently completed LNG facility. Results of analysis include:

- Identified a volume pulse phenomenon involving the large estuarine area south of Soyo, Angola resulting in a periodic silting event associated with cyclic variability in freshwater outflow from the Congo River,
- Reported silting event for consideration in maintenance dredging operations,
- Developed a turbidity-based mass transport relationship utilizing current profiles collected via deployed ADCP at the opening of the navigational channel. Results indicated balanced mass transport predominates except in wet season months where an overwhelming net flow into the channel area occurs.

Brunswick, Georgia. Analysis of current, water level, CTD, and bathymetric data collected over an average lunation in the Turtle River Estuary. Results of analysis have been incorporated into a synthesis recommendation report utilized to plan sediment removal from the area associated with a Superfund project.

COASTAL PROCESSES AND SEDIMENT DYNAMICS LABORATORY, DEPARTMENT OF GEOLOGY,
UNIVERSITY OF SOUTH CAROLINA
RESEARCH ASSOCIATE 2006 - 2010

Oversight of Coastal Physics (Coastal Processes and Sediment Dynamics, CPSD) laboratory and field operations. Managed an on-going, real-time data collection effort associated with the South East Coastal



Ocean Observing Regional Association (SECOORA). Configured, deployed, and maintained real-time data collection stations:

- ADCP wave stations in Myrtle Beach and Charleston, SC,
- Spatial oxygen monitoring of hypoxia on South Carolina coast as part of SEACOOS coastal data collection system,
- Imaging sonar system (Imagenex) at R2 Navy platform off Georgia in conjunction with Skidaway Institute of Oceanography as part of the NSF Regional Ocean–Benthic Observatory Test bed,
- High Frequency Radar system (WERA, Helzel Messtechnik GmbH) in cooperation with scientists at Skidaway Institute tracking surface currents and waves off the southern coast of South Carolina and northern coast of Georgia.

Fabricated, deployed and recovered Benthic Boundary Layer (BBL) data collection platforms in NC, SC, and GA (1-year deployment duration). Platforms were composed of the following:

- Sontek Hydra ADVs point, and Nortek 2 MHz short range current profilers collecting flow characteristic data,
- Aquatec 4 transducer, Acoustic backscatter (ABS) data collection system, and Imagenex 2D fanbeam imaging systems collecting particulate concentration and mobility data,
- WetLabs fluorometer determining chlorophyll concentration variability,
- TRDI 5 beam ADCP establishing downward surface mixing.

BBL platforms data sets allowed for calculation of time series chlorophyll resuspension and settling rates in relation to critical shear stress to determine physical forcing control on water column primary productivity. Analyzed sonar image data from platform and autonomous instrument deployments.

Findings included:

- Wave characteristics correlate with seabed ripple wavelength and orientation. Ripple characteristics scaled with dimensionless shields number,
- Bed form morphology alters boundary layer pressure field and advective processes,
- Resuspension processes influence solute and particle fluxes between the water column and sediments.
- Trained technicians in flow-through ion determination analytical procedures,

DEPARTMENT OF OCEANOGRAPHY, COLLEGE OF GEOSCIENCES, TEXAS A&M UNIVERSITY
SUPERVISOR, MARINE OPERATIONS 2001 - 2003

Managed marine support laboratories for the department of Oceanography, College of Geosciences. The support group maintained chemical, physical, and biological sampling capabilities for Texas A&M researchers. Responsibilities included:

- Conducted yearly lab EPA QA/QC Certification,
- Built nutrient and oxygen analysis systems,
- Developed Matlab-based signal acquisition and peak determination software for segmented flow, five colorimeter ion determinations,
- Configured potentiometric, titration-based, automatic oxygen analyzer.

Identified, acquired, and managed grants and contracts including University National Oceanographic Labs (UNOLS) and EPA (National Coastal Assessment, NCA) analysis programs.



ENVIRONMENTAL PROTECTION AGENCY (TECHNICAL RESOURCES INC.)
LABORATORY/OPERATIONS MANAGER 1992-1994
Managed EPA coastal ecology lab conducting Nutrient Enrichment Coastal Ocean Productivity (NECOP) research and superfund site research programs monitoring:

- Creosote degradation and resultant metabolic by-products in Gainesville, FL.,
- Influence of various metabolic oxidants on diesel degradation in an aquifer in Port Hueneme, CA.

Designed methods and field sampling techniques for Environmental Monitoring and Assessment Program (EMAP), establishing baseline biological and chemical conditions in coastal ecosystems in the United States.

RAYTHEON POLAR SERVICES COMPANY
MANAGER, ANTARCTICA MARINE SCIENCE OPERATIONS 2003-2006

Managed labs on-board Research Ice Breakers operating in the Southern Ocean associated with NSF funded grants (NSF, Office of Polar Programs (OPP)). Projects included GLOBEC, CORSACS, Western Antarctic peninsula LTER, SHALDRIL etc. Managed cruise logistics including international cargo and hazardous material shipping.

Operated and maintained real-time, underway data collection (UDAS) of physical water column characteristics (Density, temperature), chemical concentrations (pCO₂, oxygen, Chlorophyll) and current measurements (ADCP).

RAYTHEON POLAR SERVICES COMPANY
ANALYTICAL CHEMIST ON THE RVIB LAURENCE M. GOULD, ANTARCTICA 2002-2003

Analyzed Antarctic water chemistry in support of Global Ocean Ecosystem Dynamics (GLOBEC) program:

- Oxygen and salinity concentrations during occupation of hydrodynamic survey grid, Antarctic Peninsula,
- Nutrients in seawater: HPO₄⁻², NO₃⁻², NO₂⁻², NH₄⁺, and HSiO₄⁻ using Technicon II and AlpKem flow solutions systems.

Performed pre-analysis of survey data; prepared project reports and presentations.

PUBLICATIONS AND PRESENTATIONS

Morin, Jeffery P., Jeff Hanson, Pak Leung, Ruth Perry, Rudy Poulos, Cristina Zwissler, Neha Sharma, and Jill S Storie. 2018. Meteorology and Oceanographic (Metocean) Monitoring on Oil and Gas Production Platforms during Hurricane Nate. Ocean Sciences Annual Meeting.

Morin, J. P., Leung, P., Fan, S. J., Kurrus, K., Symmonds, D. 2017. Applications and Anomalies in NDBC's Oil and Gas Platform ADCP Ocean Current Data. IEEE Oceans Technical Conference.

Morin, J. P., Voulgaris, G., Perales, H., Moore, T. 2008. A Long-Term Real Time Seabed Morphology Evolution Monitoring System in the South Atlantic Bight. American Society of Limnology and Oceanography Annual Meeting, Orlando, Florida.



Morse, John W. and J. P. Morin, 2005. Ammonium interaction with coastal marine sediments: influence of redox conditions on K^* , *Marine Chemistry* 95: 107-112.

Cifuentes, L. A., Richard B. Coffin, Jeff Morin, Thomas Bianchi, and Peter M. Eldridge 1999. Particulate Organic Matter in Gulf of Mexico Estuaries-Implications for Net Heterotrophy. In. T. S. Bianchi, J. R. Pennock and R. R. Twilley [eds.] *Biogeochemistry of Gulf of Mexico Estuaries*. John Wiley and Sons Inc.

Morin, J. P., Luis A. Cifuentes, and R. B. Coffin 1999. Alterations in carbon and nitrogen cycling in anoxic sediments underlying Mississippi plume waters. *Estuarine Research Federation Annual Meeting*.

Morin, J. P. and John W. Morse, 1999. Ammonium release in resuspended sediments in the Laguna Madre Estuary. *Marine Chemistry* 65: 97 - 110.

Morin, J. P., Cheryl A. Kelly, Richard B. Coffin, and Luis A. Cifuentes 1996. Applications of a zero-headspace large-volume incubator for studying dissolved gases and volatile organic compounds. Naval Research Laboratory, Technical Report, 14 pages.

EDUCATION

Ph.D. Oceanography, Texas A&M University 2007
B.S. Microbiology/Biochemistry, Clemson University 1990

PROFESSIONAL AFFILIATIONS

Hydrographic Society of America, 2017 Chair, 2018 Technical Chair
Society for Underwater Technology, Houston
American Geophysical Union
Marine Technology Society, Houston
Institute of Electronics and Electrical Engineers