

# Emiliano Monroy-Ríos

PhD Candidate – Northwestern University

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## Research Areas:

- Biogeochemistry of water-rock interactions in carbonated platforms.
- Nutrient dynamics and eutrophication of continental and coastal waters.
- Biogeochemical cycles in karstic aquifers and submarine groundwater discharge (SGD).
- Applied Geosciences to education and environmental issues.

## Departmental webpage

<http://www.earth.northwestern.edu/our-people/phd-graduate-students/monroy-rios-emiliano.html>

## Personal blog

<http://sites.northwestern.edu/monroyrios/>

## 1 PERSONAL DATA

**Name:** Emiliano Monroy-Ríos  
**Citizenship:** Mexico and United States of America  
**Permanent address:** Matamoros #57, Barrio de Santo Domingo. CP 62520. Tepoztlán, Morelos. MEXICO.  
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## 2 EDUCATION

**PhD** PhD candidate in Geochemistry. Earth & Planetary Sciences Department, Northwestern University. Advisor: Patricia A. Beddows. GPA 3.9/4.0 January **2011 to present**.

**MSc** Marine Sciences and Limnology (Aquatic Chemistry). Instituto de Ciencias del Mar y Limnología, UNAM, Mexico. Dissertation: "Hidrología del embalse de Valle de Bravo, México" [*Hydrology of the Valle de Bravo Reservoir, Mexico*]. Advisor: Dr. Martín Merino Ibarra. Candidacy to Best Thesis Research of the Year Award. Score: 91.1/100. **2002-2004**.

**BSc** Chemistry (Licenciatura). College of Chemistry, Universidad Nacional Autónoma de México [National Autonomous University of Mexico]. (UNAM). Dissertation: "Propiedades electrónicas y estructurales del sistema  $Fe_{(n)}-NO$ . Un estudio teórico" [*Electronic and structural properties of the system  $Fe_{(n)}-NO$ . A theoretical approach*]. Advisor: Dr. Francisco Miguel Castro Martínez. Graduated with honours. Score: 94.9/100. **1994-2001**.

### 3 PUBLICATIONS

#### 3.1 Refereed Publications

- 3.1.1 \* Monroy-Ríos E, PA Beddows (In preparation) Hypogene Hydrogeothermal Convective Circulation Model for the Formation of the Chicxulub Ring of Cenotes in the Yucatan Peninsula, Mexico.
- 3.1.2 \* Monroy-Ríos E, PA Beddows (In preparation) Submarine Groundwater Discharge of phosphorous and iron from carbonate coastlines under rising sea level, Quintana Roo, Mexico.
- 3.1.3 \* McMonigal KT, GO Lehn, E Monroy-Ríos, PA Beddows (In preparation) Formation and sedimentation of calcite rafts: A new paleo sea level record.
- 3.1.4 Hernández-Terrones L, M Rebolledo-Vieyra, M Merino-Ibarra, M Soto, A Le Cossec y **E Monroy-Ríos (2010)** Groundwater Pollution in a Karstic Region (NE Yucatan): Baseline Nutrient Content and Flux to Coastal Ecosystems. *Water Air and Soil Pollution* **218**: 517-528. <https://link.springer.com/article/10.1007/s11270-010-0664-x>
- 3.1.5 Ramírez-Zierold J, M Merino, **E Monroy-Ríos**, Olson M, FS Castillo, ME Gallegos y G Vilaclara (2010) Changing water, phosphorus and nitrogen budgets for Valle de Bravo reservoir, water supply for Mexico City Metropolitan Area. *Lake and Reservoir Management* **26**(1): 23-34. <http://www.tandfonline.com/doi/abs/10.1080/07438140903539790>
- 3.1.6 Merino M, **E Monroy-Ríos**, G Vilaclara, FS Castillo, ME Gallegos y J Ramírez-Zierold (2008) Physical and chemical limnology of a wind-swept highland reservoir. *Aquatic Ecology* **42**: 335-345. <http://www.springerlink.com/content/a41k8wl12q71l191>

#### 3.2 Book Chapters

- 3.2.1 Ramírez-Zierold J, Merino-Ibarra M, Castillo-Sandoval FS, **Monroy-Ríos E**, López-Gómez LM, Quintanilla-Terminel JG, Valdespino-Castillo PM, Jiménez-Contreras J, Valeriano-Riveros ME y Vilaclara-Fatjó G (2015) Variabilidad de la mezcla vertical y el flujo de nutrientes asociado en un embalse estratificado, Valle de Bravo, México. En: Tendencias de Investigación en Limnología Tropical: Perspectivas Universitarias en Latinoamérica. Asociación Mexicana de Limnología, A.C., Instituto de Ciencias del Mar y Limnología (UNAM) y CONACyT. México: p39. ISBN 978-607-02-7199-1.
- 3.2.2 Merino-Ibarra M, PM Valdespino, **E Monroy-Ríos** y J Ramirez-Zierold (2014) *Eutrofización*. En: MC Cervantes-Ramírez, AM Franco-González, MC Juárez-Gutiérrez (eds) Geografía ambiental de México, 1ª Edición. FFL, DGAPA, UNAM. México: 281-289.
- 3.2.3 Merino-Ibarra M, PM Valdespino, **E Monroy-Ríos** y Ramirez-Zierold J (2011) Unidad III. *Deterioro ambiental de México*, Subtema 3.6. Contaminación marina y pérdida de ecosistemas costeros, inciso 3.6.2. Eutrofización. En: Cervantes M (ed) Geografía Ambiental de Mexico. PAPIME, UNAM.

#### 3.3 Congress Memoirs

- 3.3.1 **Monroy-Ríos E**, PA Beddows (2012) 55-11 *Submarine Groundwater discharge of phosphorus and iron under rising sea level, Yucatan Peninsula, Mexico*. Geological Society of America Abstracts with Programs. Vol. **44**, No. 7, p.158.

- 3.3.2 Hernández-Terrones L, P Sánchez-Navarro, M Soto, A LeCossec, **E Monroy-Ríos** and E Sosa (2008) *Water Quality Evaluation of of the Akumal Aquatic System (SE Mexico)* Proceedings of the 13<sup>th</sup> IWRA World Water Congress 2008, September 1-4, Montpellier, France.
- 3.3.3 Merino M, **E Monroy-Ríos**, S Castillo, J Ramírez, M Gallegos and J Alcocer (2003). *Wind-Driven Upwelling Indicated by Hydrological Variability in a Tropical Eutrophised Reservoir, Valle de Bravo, Mexico*. In: 4th International Conference on Reservoir Limnology and Water Quality: 228-231. Institute of Hydrobiology, Academy of Sciences of the Czech Republic, České Budějovice, 389 p.

### 3.4 Technical Reports

- 3.4.1 CALICA. *Programa de Monitoreo de Calidad Ambiental para Agua de Lastre y Dársena en la Empresa Calizas Industriales del Carmen SA*. Muestréos de junio y septiembre del 2008. Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A.C. Responsable: Dra. Rosa L. Bautista. 70 Pages. October 2008.
- 3.4.2 CALICA. *Programa de Monitoreo de Calidad Ambiental para Agua de Lastre y Dársena en la Empresa Calizas Industriales del Carmen SA*. Muestréos de mayo y octubre del 2007. Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A.C. Responsable: Dra. Guadalupe Velázquez Olimán. 80 Pages. December 2007.
- 3.4.3 CALICA. *Programa de Monitoreo de Calidad Ambiental para Agua de Lastre y Dársena en la Empresa Calizas Industriales del Carmen, SA*, muestreo de reconocimiento y muestreo de referencia, 8 y 17 de mayo, 2007. Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A.C. Responsable: Dra. Guadalupe Velázquez Olimán. 77 Pages. July 2007.

### 3.5 Educational Publications

- 3.5.1 Ramírez-Zierold J, M Merino, G Vilaclara, **E Monroy-Ríos**, S Castillo, ME Gallegos and M Olson (2005). *Materia orgánica y nutrientes*. Suplemento "Nuestro Lago". Boletín del Patronato ProValle de Bravo, A. C. Publicación Bimestral 6:6-9.
- 3.5.2 **Monroy-Ríos E**, M Merino, G Vilaclara, J Ramírez-Zierold, S Castillo and ME Gallegos (2005). *Temperatura, viento y mezcla*. Suplemento "Nuestro Lago" Boletín del Patronato ProValle de Bravo, A. C. Publicación Bimestral 5: 6-9.
- 3.5.3 Merino M, ME Gallegos, S Castillo and **E Monroy-Ríos** (2005). *¿Qué pasa con el oxígeno?* Suplemento "Nuestro Lago" Boletín del Patronato ProValle de Bravo, A. C. Publicación Bimestral 3: 4-6.
- 3.5.4 Merino M and **E Monroy-Ríos** (2004). *Morfología y profundidad*. Suplemento "Nuestro Lago" Boletín del Patronato ProValle de Bravo, A. C. Publicación Bimestral 2: 2-5.

## 4 WORK EXPERIENCE

- 4.1.1 **Water Quality Laboratory**. CONACyT. Research Assistant "A". Water Sciences Unit - Centro de Investigación Científica Científica de Yucatán, A.C. (Scientific Research Center of Yucatan). Cancun, Quintana Roo. 2006 - 2012.

- 4.1.2 **INFOTEC.** Fondo de Información y Documentación para la Industria (Information and Documentation Foundation for the Industry). Research and Development of a Searching Engine based in questions and answers (FAQ) for the e-México-2100-81 Project. External Professional Consulter. FIDEICOMISO INFOTEC-CONACyT. Av. San Fernando No. 37 Col. Toriello Guerra. México, D.F. **2006.**
- 4.1.3 **INFOTEC.** Fondo de Información y Documentación para la Industria (Information and Documentation Foundation for the Industry). Research and development of thematic contents for the e-México-2100-81 Project. External Professional Consulter. FIDEICOMISO INFOTEC-CONACyT. Av. San Fernando No. 37 Col. Toriello Guerra. México, D.F. 14050. **2005.**
- 4.1.4 **Aquatic Biogeochemistry Laboratory.** Fieldwork coordinator. Planning, Organization and Performance of Monthly-basis Scientific Campaigns to the Valle de Bravo Reservoir, Estado de México. Marine Sciences and Limnology Institute, UNAM. PI: Martín Merino Ibarra. **2002-2005.**

## 5 TEACHING EXPERIENCE

### 5.1 Full lecturer / Graduate Program

- 5.1.1 **CHEM 60485 - Aquatic Chemistry** (Chemical Oceanography). Graduate Course. 8 credits. Marine Sciences and Limnology Graduate Program, UNAM. Academic Unit of Puerto Morelos, Q. Roo, Mexico. Semesters **2009-I, 2010-I** and **2011-I.**

### 5.2 Teaching Assistantships

#### *Northwestern University*

- 5.2.1 **ENV SCI 201** – Environmental Sciences. Earth: A Habitable Planet. Instructor Dr. Rosemary Bush ~70 Students. Northwestern University. Spring, **2018.**
- 5.2.2 **ENV SCI 201** – Environmental Sciences. Earth: A Habitable Planet. Instructor Dr. Patricia Beddows ~75 Students. Northwestern University. Spring, **2017.**
- 5.2.3 **EARTH 114** – Darwin and the Scientific Method. Instructor Dr. Brad S Sageman ~65 Students. Northwestern University. Winter, **2017.**
- 5.2.4 **ENV SCI 201** – Earth: A Habitable Planet. Instructor Dr. Patricia Beddows ~100 Students. Northwestern University. Spring, **2016.**
- 5.2.5 **EARTH 114** – Darwin and the Scientific Method. Instructor Dr. Brad S Sageman ~68 Students. Northwestern University. Winter, **2016.**
- 5.2.6 **ENV SCI/CIV ENG 201** – Environmental Sciences. Earth: A Habitable Planet. Instructor Dr. Patricia Beddows ~100 Students. Northwestern University. Spring, **2015.**
- 5.2.7 **EARTH 114** – Darwin and the Scientific Method. Instructor Dr. Brad S Sageman ~80 Students. Northwestern University. Winter, **2015.**
- 5.2.8 **EARTH 108** – Geological Impacts On Civilizations. Instructor Dr. Craig R Bina ~120 Students. Northwestern University. Fall, **2014.**
- 5.2.9 **ENV SCI/CIV ENG 201** – Environmental Sciences / Civil Engineering. Earth: A Habitable Planet. Instructor Dr. Patricia Beddows ~100 Students. Northwestern University. Spring, **2014.**

- 5.2.10 **ISEN 230** - Climate Change & Sustainability: Political and Ethical Dimensions. Department of Earth and Planetary Sciences, Northwestern University. 1 of 3 TA's ~100 Students. Instructor: Dr Brad S Sageman, Spring **2013**.
- 5.2.11 **EARTH 103** - Geologic Hazards. Department of Earth and Planetary Sciences, Northwestern University ~150 Students, 1 of 3 TA's. Instructor Dr Emile Okal, Fall **2012**.
- 5.2.12 **ISEN 230** - Climate Change & Sustainability: Political and Ethical Dimensions. Department of Earth and Planetary Sciences, Northwestern University. 1 of 3 TA's ~100 Students. Instructor Dr Brad S Sageman, Spring **2012**.
- 5.2.13 **EARTH 103** - Geologic Hazards. Department of Earth and Planetary Sciences, Northwestern University. ~150 Students, 1 of 3 TA's. Instructor Dr Emile Okal, Spring **2011**.

*Universidad Nacional Autónoma de México*

- 5.2.14 **INTRODUCTORY CHEMISTRY COURSES**. Lecturer. Marine Sciences and Limnology Graduate Program, UNAM. Ph.D. Martín Merino Ibarra. Semesters **2004-II** y **2005-II**.
- 5.2.15 **CHEM 60484** – Aquatic Chemistry (Chemical Oceanography). Marine Sciences and Limnology Graduate Program, UNAM. Tutor: Ph.D. Martín Merino Ibarra. **2003-I** and **2005-I**.
- 5.2.16 **CHEM 1633** - Chemical bonding and spectroscopic foundations. Theoretical Physics and Chemistry Department, Chemistry Faculty, UNAM. Instructor: Ph.D. Francisco Miguel Castro Martínez. Semesters **1998-II** and **1999-II**.

## 6 ACADEMIC AWARDS

### 6.1 Fellowships

- 6.1.1 **International Graduate Research** Fellowship CONACyT (National Council of Science and Technology; The Mexican NSF). Academic competition. **2011-2014**.
- 6.1.2 **ISEN Booster Research Grant**. PI of Patricia A. Beddows with targeted funding for PhD research "Discharge of Sequestered P and Fe with Impact on Coastal Carbonate Factories" **2013-2015**.
- 6.1.3 **SEMARNAT-2002-C01-1125**. *Estudio integral del embalse de Valle de Bravo para su manejo sustentable: Un marco científico aplicable a los cuerpos de agua eutroficados del país*. Fondos Mixtos SEMARNAT (Mexican Department of the Environment and Natural Resources)-CONACyT. PI: Martín Merino Ibarra. July-December **2004**.
- 6.1.4 **Research and Technological Innovation Projects Aid Programme** (PAPIIT- IN-101295), UNAM. "Transition metal clusters and metal-ligand interactions." Dr. Miguel Castro Martínez. July **1997**-June **1998**.
- 6.1.5 **Early Initiation to Teaching and Research Program**. UNAM Foundation. Chemistry Institute, Medicinal Plants Unit. UNAM. Obtaining bioactive principles from Mexican medicinal plants. Dr. Rachel Mata Essayag. August **1995**-January **1996**.

## 6.2 Scholarships

- 6.2.1 **American Geological Institute** - Minority Participation Program. Geoscience Student Scholarships, **2011**.
- 6.2.2 **Continuing TGS Scholarship**. The Graduate School, Northwestern University. \$42 608 per year, **2012-2018**.
- 6.2.3 **Scholarship Program for Graduate Studies** (MSc). Complimentary Scholarship, Dirección General de Estudios de Posgrado (DGEP), UNAM. September **2001** - July **2003**.
- 6.2.4 **CONACyT National Graduate Scholarships Program** (UNAM). Posgrado de Ciencias del Mar y Limnología. September **2001** - July **2003**.

## 7 PROFESSIONAL TRAINING

- 7.1.1 **Skills & Careers in Science Writing Course**. Science writing and communication skills appropriate for lay audiences. Science in Society & Medill School of Journalism, Northwestern University. Spring, **2018**.
- 7.1.2 **Advanced Written English for non-native speakers**. Northwestern University. Spring, **2015**.
- 7.1.3 **Short Imaging and Analyzing Southern California's Active Faults with Lidar**. SCEC, Open Topography, UNAVCO and EarthScope. San Diego Supercomputer Center (SDSC). UCSD, La Jolla, CA. November 3-7 **2013**.
- 7.1.4 **Introduction to Geographic Information Systems (GIS) Using ArcGIS for Geological and Environmental Science Applications** (527). GSA Meeting, Minneapolis, MN. Instructor: Joseph Kerski (ESRI), October 8-9 **2011**.
- 7.1.5 **GIS Workshop for Earth & Planetary Sciences and Plant Biology & Conservation**. Main Library, Northwestern. University. Instructor: Chieko Maene. January 22-23 **2011**.
- 7.1.6 **Capture, actualization, integration, management and data analysis of Geographical Information** using ArcView 9, ArcGis I and GPS technology. Sistemas de Información Geográfica S.A. de C.V. Merida, Yucatan. February 27-29, **2008**.
- 7.1.7 **Water Purification Technology and Laboratory Water Systems**. Instructor: José Felipe Caamal García. Asesoría y Soporte Técnico de la empresa B. Medina. Centro para el Estudio del Agua, CONACyT-Centro de Investigación Científica Científica de Yucatán, A. C. Cancún, Q. Roo. September 13, **2007**.
- 7.1.8 **Laboratory Security and handling of hazardous substances**. I.Q.I. José Felipe Caamal García. Empresa B. Medina. Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A. C. Cancún, Q. Roo. September 13, **2007**.
- 7.1.9 **Course in Metrology and Quality, 2007**, impartido por Ing. Manuel Álvarez Díaz, Quím. Alma Belman, Ing. Julio Lugo e Ing. Javier Escalante del Laboratorio de Metrología, CONACyT- Centro de Investigación Científica Científica de Yucatán, A. C. Programa de Educación Continua. Centro para el Estudio del Agua, Cancún, Q. Roo. February-September **2007**.

- 7.1.10 ***Familiarization with the membrane micro-filtration technique for bacteriological analysis.*** Instructor MSc Mèlina Soto, Laboratorio de Calidad del Agua, Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A. C. Cancún, Q. Roo. Duración: 40 hrs. January 11-17, **2007**.
- 7.1.11 ***Spectral analysis methods of the processes and random fields in oceanography, meteorology and limnology,*** imparted by PhD Anatoliy Filonov, Posgrado en Ciencias del Mar y Limnología, UNAM. March, **2005**.
- 7.1.12 ***How to Write Scientific Manuscripts in English,*** imparted by Ann Grant, editor of Marine and Freshwater Research, Posgrado en Ciencias del Mar y Limnología, UNAM. November, **2003**.
- 7.1.13 ***Reservoir Water Quality Modeling and Management:*** Short Training Course. Hydrobiological Institute: Academy of Sciences of the Czech Republic. Czech Republic, August 18-22, **2002**.

## **8 DIVING AND SPELEOLOGICAL TRAINING**

- 8.1.1 ***Full Cave Diver Course.*** Cert. Agency: National Association of Cave Divers (NACD) Full Cave. Instructor: Germán Yáñez (I-95). March **2009**.
- 8.1.2 ***Dry Caves Survey & Cartography.*** Cave Research Foundation. Instructors: Patricia A Beddows, Aaron Addison, Pat Kambesis, Bob Osbourn and Mike Lace. Akumal Q. Roo. May 17-23 **2008**.
- 8.1.3 ***Nitrox Diver CMAS*** (Enriched air). Antón Lizardo, Veracruz. Instructor: Germán Yáñez. Jun **2006**.
- 8.1.4 ***II Course in Scientific Diving.*** Equipo de Buceo Ciencias. Secretaría de Educación Abierta y Continua, Facultad de Ciencias. Dirección General de Actividades Deportivas y Recreativas (DGADyR), UNAM. Instructors: Norma Corado and Carlos Candelaria (CMAS) Alberca Olímpica, CU. February-June, **2006**.
- 8.1.5 ***Self Contained Underbreathing Apparatus (SCUBA Diver),*** Dirección General de Actividades Deportivas y Recreativas (DGADyR), UNAM. Three Star Diver (FMAS). Instructor: Jack Baron Tapia. Alberca Olímpica, UNAM, CU. **1998 y 2004**.

## **9 RESEARCH EXPERIENCE**

- 9.1.1 ***Prospection of pathogenic micro-organisms in sinkholes and coastal zone of Quintana Roo, Mexico.*** Centro para el Estudio del Agua. CONACyT- Centro de Investigación Científica Científica de Yucatán. PI: Galdy Hernández-Zárata. **2008**.
- 9.1.2 ***Submarine Groundwater Discharge monitoring program of X'Caret Park.*** Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A.C. PI: Mario Rebolledo-Vieyra. **2007-2008**.
- 9.1.3 ***Submarine Groundwater Discharge monitoring program in Caleta Xel-Ha.*** Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica Científica de Yucatán, A.C. PI: Mario Rebolledo-Vieyra. **2007-2008**.

- 9.1.4 **Water bacteriological quality assessment of the Caleta Xel-Ha.** Centro para el Estudio del Agua, CONACyT- Centro de Investigación Científica de Yucatán, A.C. PI: Laura Hernández-Terrones. **2007-2008.**
- 9.1.5 **Coral Reef targeted research and capacity building for management. Groundwater and Nutrient Load on the Puerto Morelos Reef.** GEF-UNAM. PI: Mario Rebolledo-Vieyra. **2007 - 2008.**
- 9.1.6 **Monitoring Programme on Environmental Quality for Ballast Water and Dock in Calizas Industriales del Carmen, S. A. (CALICA)** Centro para el Estudio del Agua. CONACyT- CICY, AC. PI: Guadalupe Velázquez O. and Rosa M<sup>a</sup>. Leal Bautista. **2007-2008.**
- 9.1.7 **Prospection of water-bearing mantle of Quintana Roo** (México). Centro para el Estudio del Agua. (Centre for Water Research) CONACyT- Centro de Investigación Científica de Yucatán, A. C. PI: Mario Rebolledo Vieyra. July **2006** to July **2010.**
- 9.1.8 **Integral Study of the Valle de Bravo reservoir towards sustainable management: A theoretical frame applicable to other Mexican eutrophised water-bodies.** (SEMARNAT-CONACyT-2002-C01-1125). PI: Martín Merino Ibarra. **2002-2004.**
- 9.1.9 **Investigation of the Physical and Biogeochemical Processes in the Valle de Bravo Freshwater Reservoir - a First step toward the Improvement of Reservoir Health and Management.** Texas A&M University-UNAM. PI: Ayal Anis (TAMU) and Ph.D. Martín Merino Ibarra (UNAM). September **2002-** August **2003.**
- 9.1.10 **Transition metal clusters and metal-ligand interactions.** Research and Technological Innovation Projects Aid Program (PAPIIT- IN-101295). PI: Miguel Castro M. July **1997** - June **1998.**
- 9.1.11 **Obtaining bioactive principles from Mexican medicinal plants.** Early Initiation to Teaching and Research Program. UNAM Foundation. Chemistry Institute, Medicinal Plants Unit. UNAM. PI: Rachel Mata Essayag. August **1995** - January **1996.**

## 10 CONFERENCES AND POSTER SESSIONS

- 10.1.1 **AGU Fall Meeting 2015. Monroy-Rios E,** Beddows PA (EP53A-0979): Hydrogeothermal Convective Circulation Model for the Formation of the Chicxulub Ring of Cenotes in the Yucatan Peninsula, Mexico. American Geophysical Union. San Francisco, California, Dec 14-18, **2015.** <https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/85993>
- 10.1.2 **2012 GSA Annual Meeting and Exposition. Monroy-Rios E,** Beddows PA (T-121|55-11). Submarine Groundwater discharge of phosphorus and iron under rising sea level, Yucatan Peninsula, Mexico. Oral presentation at GSA Conference in Charlotte, NC. Nov 4-7, **2012.** <https://gsa.confex.com/gsa/2012AM/webprogram/Paper213256.html>
- 10.1.1 **5<sup>th</sup> Congress of the Mexican Limnology Association.** Ponencia. Ramírez-Zierold J, M Merino, **E Monroy-Ríos,** M Olson, FS Castillo, ME Gallegos y G Vilaclara. *Estimación de procesos internos de un embalse tropical eutrofizado (Valle de Bravo, México).* Morelia, Michoacán, México. November 24-26, **2010.**
- 10.1.2 **15<sup>th</sup> International Congress of Speleology, Karst Horizons 2009.** Map. **Monroy-Ríos E,** P Beddows and P Kambesis. Cartographic Saloon Contest: *Cave "Las Brujas", Chaak Tun System, Q. Roo, Mexico.* Category 100 – 500 m. Kerrville, Texas, USA. July 19-26, **2009.** [http://www.caves.org/committee/salons/Cartographic 2009 Winners.shtml](http://www.caves.org/committee/salons/Cartographic%202009%20Winners.shtml)



- 10.1.3 **First Meeting of the Thematic Web of Water-CONACyT.** Poster. Rebolledo-Vieyra M, L Hernández-Terrones, M Merino-Ibarra, M Soto, A LeCossec, E Monroy-Ríos and K Luna. Evaluación de las actividades humanas en la calidad del agua subterránea en un acuífero costero cárstico en el SE de Mexico. Cocoyoc, Mexico. January 21-23, **2009**.
- 10.1.4 **First Meeting of the Thematic Web of Water-CONACyT.** Poster. Hernández-Zárata G, JE Zamora-Castro and E Monroy-Ríos. Calidad Sanitaria del Agua en Áreas Recreativas del Estado de Quintana Roo, México: Una Detección Oportuna de Patógenos para Prevenir Problemas en Salud Pública. CONACyT-UNAM. Artículo en Extenso. Sometido (ISBN). Cocoyoc, Morelos, México. January **2009**.
- 10.1.5 **AGU Fall Meeting 2008.** Poster. Rebolledo-Vieyra M., L Hernández-Terrones, M Soto, A LeCossec and E Monroy-Ríos. Evaluating the human impact on groundwater quality discharging into a coastal reef lagoon (H21H-0923). American Geophysical Union. San Francisco, CA, USA. December 15-19, **2008**.
- 10.1.6 **NALMS 2008 Lake Louise Symposium.** Ramírez-Zierold J.A., M. Merino-Ibarra, E. Monroy-Ríos, M. Olson, F.S. Castillo, M.E. Gallegos and G. Vilaclara. Phosphorous and Nitrogen budgets in the Valle de Bravo Reservoir, The main source of water supply for Mexico City. 28th International Symposium of the North American Lake Management Society. Fairmont Château, Lake Louise, Alberta, Canada. November 11-14, **2008**.
- 10.1.7 **Third International Congress of Water and Disasters on the borderline Mexico-Guatemala-Belize (3<sup>o</sup> CIAF MX-GT-BZ 2008).** Hernández-Zárata G, JE Zamora-Castro, R Leal-Bautista, G Velázquez-Olimán and E Monroy-Ríos. Detección por PCR de *Vibrio parahaemolyticus*, *V. vulnificus* y *V. cholerae* (total y patogénico) en Cenotes del Noreste de Quintana Roo, México. Villahermosa, Tabasco, México. December 3-5, **2008**.
- 10.1.8 **XV National Oceanography Congress. 2nd International Meeting of Marine Sciences.** Presentation. Hernández-Zárata G and E Monroy-Ríos. Estudio preliminar de la presencia de *Vibrio* spp. total y patogénico en ambientes acuáticos del corredor turístico Cancún-Tulum, Quintana Roo, México. Boca del Río, Veracruz. October 13-18, **2008**.
- 10.1.9 **13th IWRA World Water Congress.** Poster. Hernández-Terrones L, P Sánchez-Navarro, M Soto, A Le Cossec, E Monroy-Ríos, E Sosa-Bravo. Water quality evaluation of the Akumal aquatic ecosystem (SE Mexico). Montpellier, France. September 1-4 **2008**.
- 10.1.10 **Mexican Coral Reefs III Congress (Mexican Coral Reef Society, SOMAC).** Cancún, Q. Roo, Mexico. March 28-30, **2006**.
- 10.1.11 **3rd Congress of the Mexican Limnology Association.** Ramírez-Zierold J., M Merino, **E. Monroy-Ríos**, FS Castillo, M Olson, ME Gallegos y G Vilaclara. *External and internal P and N loads interactions in an eutrophised tropical reservoir, Valle de Bravo, Mexico.* Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. October 26-28, **2005**.
- 10.1.12 **3rd Congress of the Mexican Limnology Association.** Presentation. Monroy-Ríos E., M. Merino, G. Vilaclara, F. S. Castillo, M. E. Gallegos, J. Ramírez-Zierold. Limnological issues of a tropical reservoir under a daily-basis wind regime. Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. October 26-28, **2005**.

- 10.1.13 **First Meeting Spain-Mexico: Incidence of the dams in fluvial dynamics.** Torre de Ingeniería, UNAM. Vilaclara G., M. Merino, E. Monroy, S. Castillo, J. Ramírez, M. E. Gallegos. Relative importance of the internal and external loads in a eutrophised reservoir of the Cutzamala System. México. September 5, **2005**.
- 10.1.14 **XXIX SIL Congress of The International Association of Theoretical and Applied Limnology** (Societas Internationalis Limnologiae). Poster. Ramírez-Zierold J., M. Merino, E. Monroy-Ríos, M. Olson, F. S. Castillo, M. Gallegos y G. Vilaclara. University of Helsinki. Palmenia Centre for Research and Continuing Education. Lahti, Finlandia. August 8-14 **2004**.
- 10.1.15 **XXII Research Colloquium.** Poster. Monroy-Ríos E., M. Merino, G. Vilaclara, S. Sergio, M. Gallegos y J. Ramírez-Zierold. Limnology of a tropical eutrophised reservoir. Valle de Bravo, México. Superior Studies Faculty, Iztacala, UNAM. November 18-19, **2003**.
- 10.1.16 **Mexican Limnology Association II Congress.** Oral. Ramírez J., M. Merino, G. Vilaclara, M. Gallegos, E. Monroy-Ríos and S. Castillo. Spatial and Temporal Variation of nutrients in the eutrophised Valle de Bravo Reservoir, Mexico. Faculty of Sciences, UNAM. Mexico. October 23-25, **2002**.
- 10.1.17 **4th International Conference on Reservoir Limnology and Water Quality.** Poster. Merino M., E. Monroy-Ríos, S. Castillo, J. Ramírez, M. E. Gallegos and J. Alcocer. Wind-driven upwelling indicated by hydrological variability in a tropical eutrophised reservoir, Valle de Bravo, México". Hydrobiological Institute, Academy of Sciences of the Czech Republic and Faculty of Biological Sciences, University of South Bohemia, České Budějovice, Czech Republic. August 12-16, **2002**.
- 10.1.18 **Spanish Limnology Association XI Congress and Iberian Limnology III Congress.** Oral. Monroy-Ríos E., M. Merino, G. Vilaclara, S. Castillo and J. Ramírez. Nutrient dynamics in a eutrophised tropical reservoir, Valle de Bravo, México. Madrid, Spain. June 17-21, **2002**.
- 10.1.19 **5th Chemical Congress of North America. Symposium on Metal Clusters and Metal-Ligand Interactions.** Castro M., E. Monroy-Ríos, A. García-Sosa and A. Cisneros. Chemical reactivity of small iron clusters: A density-functional study. Cancún. Q. Roo, México. November 11-15, **1997**.

## 11 PUBLIC EDUCATION & OUTREACH

- 11.1.1 **Harold Washington College** (Chicago) Guest lecturer to group General Physical Course I Physical Science 111 (Class Number 31120 Section RT/RTX). Instructor: Valeria Benson-Lira. Fall **2016** and Fall **2017**.
- 11.1.2 **Project Excite.** Educational Outreach in STEM to Under Represented Minority (URM). Department of Earth and Planetary Sciences, with ~ 50 students from 3rd, 4th, and 6th grades. "Voyages of Discovery". Northwestern Center for Talent Development (CTD), Evanston/Skokie School District 65, and Evanston Township High School District (ETHS) 202. June **2014**.
- 11.1.3 **Evanston Public Library "Jugando con la Ciencia"** A program to introduce Science to Hispanic kids. 1703 Orrington Avenue, Evanston, IL. Saturdays 2-4pm. May **2014**.

- 11.1.4 **Conference in Ka'Yok' Planetary**, Cancún, QRoo. General Audience “El tesoro escondido de la Península de Yucatán” | The Hidden Treasure of the Yucatan Peninsula. March **2014**.
- 11.1.5 **Conference in Ka'Yok' Planetary**, Cancún, QRoo. Children Audience. “Dinosaurios, meteoritos, cuevas y corales” | Dinosaurs, meteorites, caves and corals. Two presentations. March **2014**.
- 11.1.6 **Conference at Universidad Tecnológica de Cancún** invited by Centinelas del Agua, AC. on the celebration of the World Tourism Day-2013. “Basic Hydrogeology of the Yucatan Peninsula”. October 4th, **2013**.
- 11.1.7 **Conference** invited by Círculo Espeleológico del Mayab, AC. “Basic Hydrogeology of the Yucatan Peninsula”. Municipality of Playa del Carmen, Quintana Roo, Mexico. July 25<sup>th</sup>, **2013**.
- 11.1.8 **Program “Jugando con la Ciencia”** (Playing with Science) to introduce Science to Hispanic kids. Evanston Public Library. 1703 Orrington Avenue. Saturdays 2-4pm. April-June **2013**.
- 11.1.9 **Project Excite**. Educational Outreach in STEM to Under Represented Minority (URM). Department of Earth and Planetary Sciences, with ~ 50 students from 3rd, 4th, and 6th grades. “Astrobiology”. Northwestern Center for Talent Development (CTD), Evanston/Skokie School District 65, and Evanston Township High School District (ETHS) 202. February **2013**.
- 11.1.10 **Project Excite**. Educational Outreach in STEM to Under Represented Minority (URM). Project Excite: Department of Earth and Planetary Sciences, 2012 with ~ 50 students from 3<sup>rd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> grades. “Leaf Margin Analysis”. Northwestern Center for Talent Development (CTD), Evanston/Skokie School District 65, and Evanston Township High School District (ETHS) 202. February **2012**.
- 11.1.11 **VIII International Meeting on Cave Diving**, Mérida, Yucatán. SEDUMA. November 13-16, **2009**.
- 11.1.12 **Simon Bolivar University**. Oral Presentation: “Los cenotes de Quintana Roo, una nueva perspectiva en la investigación” impartida al grupo de alumnos de 7<sup>o</sup> semestre de la Licenciatura de Biología (Dra. Azucena Héroz Zamorano). Cancún, Q. Roo. November 22, **2008**.
- 11.1.13 **X Anniversary National Park “Arrecifes de Puerto Morelos”** (PNAPM). Voluntario de actividades acuáticas en el marco del X Aniversario de su establecimiento. Comisión Nacional de Áreas Naturales Protegidas. Puerto Morelos, Q. Roo. February 16, **2008**.
- 11.1.14 **13<sup>th</sup> National Week for Science and Technology**. Chapter Q. Roo. Gob. de Quintana Roo, COQCyT. Workshop: “Where can I study water-related careers?” Alumnos de las escuelas CECYTE Cancún II y CBETIS 11 Centro para el Estudio del Agua, CICY. Cancún, Q. Roo, Mexico. October 27, **2006**.
- 11.1.15 **13<sup>th</sup> National week for Science and Technology**. Chapter Q. Roo, 2006 (Gob. de Quintana Roo, COQCyT) Conference. “Water: a necessary resource for life”. Alumnos de las escuelas CECYTE Cancún II (Prof. Enrique Minor Martínez) y CBETIS 11 (Prof. Santiago Aria y Dorantes) Centro para el Estudio del Agua (Centre for Water Research), CICY. Cancún, Q. Roo, Mexico. October 27, **2006**.

- 11.1.16 **XXV Anniversary of the UNAM Diving Team Commemorative Expedition to the Revillagigedo Archipelago.** Instructor: Jack Baron. Socorro Island, Revillagigedo Archipelago, Mexico. Dirección General de Actividades Deportivas y Recreativas (DGADyR), UNAM. February **2005**.
- 11.1.17 Positioning of an **Oceanographic Buoy** in the Mexican Pacific Sea. Support team. O/S “El Puma”. Socorro Island, Revillagigedo Archipelago, Mexico. Marine Sciences and Limnology Institute, UNAM. February **2005**.
- 11.1.18 Charter member of the **Chemistry Faculty Student Film Club** (CCQ). Planning, Organization and poster’s graphical design. Academic extension Secretariat, Chemistry Faculty, UNAM. **1995-1999**.

## 12 ANALYTICAL SKILLS AND FIELD TECHNIQUES

### 12.1 Analytical

- Graphical and statistical analysis of hydrologic data sets related to water quality and dynamics.
- Utilizing software including Surfer, MatLab, ArcGIS, Excel, Word, PowerPoint, Photoshop, Xara, Corel Draw, Walls, Caves, and Python environment.
- Engaging in creative problem solving

### 12.2 Technical

- Designing and performing scientific laboratory and fieldwork, collection of water and rock samples in different environments.
- Advanced Open Water Diver (CMAS)/Nitrox Diver (CMAS)/Scientific Diver (CMAS)/Full Cave Diver (NACD). Experienced research diver in open water and underwater caves.
- Performing analysis of nutrients in rock/water samples utilizing segmented-flow automated equipment (Skalar San++) suited for the automatic and simultaneous determination of the main inorganic nutrients (NH<sub>4</sub><sup>+</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SiO<sub>2</sub>) both in fresh and marine waters.
- Implementation of suitable laboratory protocols for quantification of the main hydrologic descriptors, such as chlorophylls, alkalinity and dissolved oxygen in water samples from very different sources.
- Experience in operation of Induced-Coupling Plasma ICP-AES (IRIS Intrepid II XDL) and HPLC (Finnigan SpectraSystem) equipment.

## 13 LANGUAGES

- |      |                        |                |  |
|------|------------------------|----------------|--|
| 13.1 | <b>Native language</b> | <b>Spanish</b> |  |
| 13.2 | <b>Others</b>          | <b>English</b> | Reading and translation (very well)<br>Speaks and writes (very well) |