**Ariella Chelsky, PhD**

San Francisco Estuary Institute

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**Education**

**PhD, Griffith University** Gold Coast, Australia

“Ecological and biogeochemical consequences of collapsed jellyfish blooms” 2015

Principal supervisor: Associate Prof. Kylie Pitt

Associate supervisors: Associate Prof. David Welsh, Prof. Rod Connolly

**BSc, University of British Columbia** Vancouver, Canada

Major in Marine Biology 2009

**Professional Experience**

**San Francisco Estuary Institute** San Francisco, California

Environmental Scientist 2018- Present

* Studying the effects of anthropogenic nutrient inputs on San Francisco Bay’s water quality
* Quantifying rates of biogeochemical transformations in SFB for model development and calibration

**Louisiana Universities Marine Consortium** Chauvin, Louisiana

Senior Postdoctoral Research Associate, Dr. Brian Roberts 2015- 2018

* Investigate effects of oil spills on nutrient cycling and plant ecology in wetlands
* Assess impacts of restoration approaches (e.g. river diversions and living shorelines) on Louisiana salt marshes
* Evaluate the links between biogeochemical processes and plant productivity

**University of Queensland** Brisbane, Australia

Research Intern, Dr. Ian Tibbetts 2009

* Independent laboratory project, developed PCR and SSCP method for genetic analysis of seagrass species consumed by rabbitfish
* Fieldwork included predation experiments and surveying fish assemblages and coral cover

**Griffith University**  Gold Coast, Australia

Fieldwork Assistant, Dr. Rod Connolly and Dr. Kylie Pitt 2009

* Evaluated the effects of marine protected areas on the marine ecosystem using BRUV (baited remote underwater video) and sediment coring

**University of Pennsylvania** Philadelphia, USA

Laboratory Assistant, Dr. Randolph MatthewsSummer 2007

* Used zebrafish model to screen for mutations linked to bile duct development
* Molecular techniques included DNA extraction, PCR and agarose gel electrophoresis

**McGill University** Montreal, Canada

Laboratory Assistant, Dr. Miguel Burnier Summer 2006

* Contributed to various projects related to ocular diseases with an emphasis on macular degeneration and retinoblastoma, using tissue culture, animal model dissections, and cell invasivity assays

**Additional Research Experience**

**Griffith University** Urunga, Australia

Research Collaborator, Dr. William Bennett November 2014

* Assessed concentrations of antimony and arsenic in the sediments and flora of a freshwater wetland impacted by historical mine waste
* Collected surficial sediment samples to determine the spatial distribution of As and Sb, and collected vegetation samples to assess bioaccumulation

**NSW Office of Environment and Heritage** Lake Macquarie, Australia

Research Collaborator, Dr. Angus Ferguson July 2014

* Tested the effect of shading and depth on seagrass communities and sediment redox conditions
* Deployed *in situ* diffusive gradients in thin films probes in a coastal lagoon to measure high resolution porewater profiles of iron (II) and sulfide

**Cruise Experience**

**Louisiana Universities Marine Consortium, Dr. Wei-Jun Cai and Dr. Roberts** Chauvin, Louisiana

Co-lead Scientist on R/V Acadiana cruise (1 cruise, 5 days) 2017

* Rapid response to Hurricane Harvey, how extreme events impact ecosystem metabolism and ocean acidification

**Louisiana Universities Marine Consortium, Dr. Wei-Jun Cai** Chauvin, Louisiana

Research Collaborator on R/V Pelican cruise (2 cruises, 26 days) 2017

* Measured spatial patterns in water column nutrients and organic carbon in northern Gulf of Mexico hypoxic zone
* Used optical techniques to study composition of DOC and conducted biodegradable DOC experiments onboard

**Louisiana Universities Marine Consortium, Dr. Nancy Rabalais** Chauvin, Louisiana

Research Collaborator on R/V Pelican cruise (2 cruises, 14 days) 2015

* Investigated water column respiration rates in northern GoM hypoxic zone
* Collected benthic cores to measure N cycling rates using the isotope pairing technique

**International Research Institute of Stavanger, Dr. Andrew Sweetman** Sognefjord, Norway

Fieldwork Assistant on R/V Solvik cruise (1 cruise, 7 days) 2012

* Investigated rates of deep-sea scavenging of jellyfish carcasses
* Assisted with deployment of yo-yo camera, baited camera landers, and DO sensors to depths of approx. 1000 m

**Publications**

Gilby, B.L., Weinstein, M.P., Baker, R., Cebrian, J., Alford, S.B., **Chelsky, A.** et al. (2020) Human Actions Alter Tidal Marsh Seascapes and the Provision of Ecosystem Services. *Estuaries and Coasts*.

Bernhard, A.E., **Chelsky, A**., Giblin, A.E. & Roberts, B.J. (2019). Influence of local and regional drivers on spatial and temporal variation of ammonia-oxidizing communities in Gulf of Mexico salt marshes. *Environmental Microbiology Reports* 11: 825-834.

Warnken, J., Ohlsson, R., Welsh, D.T., Teasdale, P.R., **Chelsky, A.**, Bennett, W.W. (2017). Antimony and arsenic exhibit contrasting spatial distributions in the sediment and vegetation of a contaminated wetland. *Chemosphere* 180: 388-395*.*

**Chelsky, A.**, Pitt, K.A., Ferguson, A.J.P., Bennett, W.W., Teasdale, P.R. & Welsh, D.T. (2016). Decomposition of jellyfish carrion in situ: Short-term impacts on infauna, benthic nutrient fluxes and sediment redox conditions. *Science of the Total Environment* 566-567: 929-937.

Sweetman, A.K., **Chelsky, A.**, Pitt, K.A., Andrade, H., van Oevelen, D. & Renaud, P.E. (2016). Jellyfish decomposition at the seafloor can rapidly alter biogeochemical cycling and carbon flow through benthic food-webs. *Limnology and Oceanography* 61:1449-1461.

**Chelsky, A.**, Pitt, K.A., & Welsh, D.T. (2015). Biogeochemical implications of decomposing jellyfish blooms in a changing climate. *Estuarine, Coastal and Shelf Science* 154: 77-83.

Pitt, K.A., **Chelsky Budarf A.**, Browne J.G. & Condon, R.H. (2014). Bloom and bust: Why do blooms of jellyfish collapse? In K.A. Pitt & C.H. Lucas (eds.), *Jellyfish Blooms*: Springer.

**Chelsky Budarf, A.**, Burfeind, D.D., Loh, W.K.W. & Tibbetts, I.R. (2011). Identification of seagrasses in the gut of a marine herbivorous fish using DNA barcoding and visual inspection techniques. *Journal of Fish Biology* 79:112-121.

**Grants Awarded and Scholarship Funding**

**Louisiana Sea Grant College Program - $144,000**

Sea Grant Louisiana, 2017

“Incorporating life into living shorelines: Can Gulf ribbed mussels reduce shoreline erosion while promoting plant productivity?” Roberts B.J., Rietl A.J., & Chelsky, A.

**Conference Travel Grant - $2,000**

Australian Rivers Institute, 2014

“Impacts of decomposing jellyfish carrion on benthic fluxes and sediment redox conditions”

**Completion Assistance Postgraduate Research Scholarship - $9,105**

Griffith University, 2014

**Conference Travel Grant - $2,000**

Australian Rivers Institute, 2013

“The effect of changing climate conditions on the decomposition of gelatinous zooplankton”

**Higher Degree Researcher Grant - $9,000**

Griffith School of Environment, 2012

“Ecological and biogeochemical effects of decomposing jellyfish on the water column and benthos”

**Conference Travel Grant - $1,500**

Griffith School of Environment, 2012

“The effect of increasing temperature and acidity on the decomposition of gelatinous zooplankton”

**Griffith University Postgraduate Research Scholarship - $63,480**

Griffith University, 2011

**Griffith University Deputy Vice Chancellor International Postgraduate Research Scholarship - $61,293**

Griffith University, 2011

**Go Global International Learning Programs Award - $1,000**

University of British Columbia, 2009

**Teaching and Mentoring Experience**

**Graduate Students** Chauvin, Louisiana

Mentor 2015- 2018

* Jordan Logarbo, Louisiana State University

“Incorporating life into living shorelines: Can Gulf Ribbed Mussels reduce shoreline erosion and enhance restoration practices?”

* Natalie Ceresnak, Louisiana State University

“Differential responses of soil greenhouse gas production and denitrification to salinity alterations along a wetland salinity gradient”

**Summer Undergraduate Research Students**  Chauvin, Louisiana

Mentor 2015- 2018

* Kathleen Ebinger, University of Colorado

“Impacts of *Geukensia granosissima* on nitrogen cycling in salt marsh soils”

* Ashley McDonald, Eckerd College

“The effects of *Geukensia granosissima* on *Spartina alterniflora* in a Louisiana salt marsh”

* Nicole Farley, Wayne State University

“A comparison of nitrification and denitrification rates within four dominant vegetation habitats in Louisiana salt marshes”

* Samantha Fortin, Eckerd College

“Variation in iron reduction across subhabitats of a Louisiana salt marsh”

* Kristen Chatelain, Louisiana Tech

“Phosphorus sorption variability across subhabitats in a coastal Louisiana salt marsh”

**Wetlands Geology, Tulane University** New Orleans, Louisiana

Guest Lecturer 2017

* Presented guest lecture on the biogeochemistry of C and N in wetlands

**Coastal Environments, Griffith University** Gold Coast, Australia

Teaching Assistant 2014

* Assisted students with design of a group project, planning of fieldwork and statistical analyses
* Led students through field and laboratory exercises
* Student evaluation score of 4.5 out of 5

**Environmental Monitoring Techniques, Griffith University** Gold Coast, Australia

Teaching Assistant 2014

* Demonstrated field sampling and laboratory techniques for analysis of environmental samples
* Led small groups of students through specific tasks and reviewed relevant theory
* Student evaluation score of 4.4 out of 5

**Chemistry 1, Griffith University** Gold Coast, Australia

Teaching Assistant 2012, 2013

* Led student groups through laboratory exercises and explained underlying concepts
* Marked lab reports

**Chemistry Bridging Course, Griffith University** Gold Coast, Australia

Teaching Assistant 2012, 2013, 2014

* Prepared students for Chemistry 1 course content though laboratory exercises and revision of basic course content

**Moreton Bay Research Station, University of Queensland** N. Stradbroke Is., Australia

Instructor 2009, 2011

* Educated visiting high school groups about surrounding environment
* Specific responsibilities included lecturing and leading students through field activities

**Conference Presentations**

**Chelsky, A. “**Linking water quality monitoring in San Francisco Bay to nutrient management.” The National Coastal and Estuarine Virtual Summit, September 2020. Oral presentation. Invited.

**Chelsky, A**., Winchell, T., King, E., Stumpner, E., Downing, B., Kraus, T., Bergamaschi, B. & Senn, D. “Using high frequency observations to characterize spatial variability in phytoplankton in San Francisco Bay.” Coastal and Estuarine Research Federation Conference, Mobile, November 2019. Poster presentation.

**Chelsky, A**., Winchell, T., Stumpner, E., Downing, B., Kraus, T., Bergamaschi, B. & Senn, D. “Using high frequency observations to characterize spatial variability in nutrients and chlorophyll in San Francisco Bay.” State of the Estuary Conference, Oakland, October 2019. Poster presentation.

**Chelsky A.** “Spatial variability in rates of nutrient cycling across Louisiana salt marsh landscapes.” Virginia Association of Wetland Scientists Spring Meeting, Richmond, May 2018. Oral presentation. Invited.

**Chelsky A.**, Bernhard, A.E., Giblin, A.E. & Roberts, B.J. “High spatial variability in biogeochemical rates and microbial communities across Louisiana salt marsh landscapes.” Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, February 2018. Oral presentation.

**Chelsky A.**, Farley, N. & Roberts, B.J. “The significance of vegetation type for nitrogen transformation, removal and retention in Louisiana salt marshes.” Coastal and Estuarine Research Federation Conference, Providence, November 2017. Oral presentation.

**Chelsky A.**, Marton, J.M., Bernhard, A.E., Giblin, A.E. & Roberts, B.J. “Long-term patterns in nitrification rates and ammonia oxidizer abundances in Louisiana salt marshes following the Deepwater Horizon oil spill.” Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, February 2017. Oral presentation.

**Chelsky A.**, Farley, N. & Roberts, B.J. “Rates of soil nitrification and denitrification within Louisiana salt marshes: The significance of vegetation type.” Gulf Estuarine Research Society Conference, Pensacola, November 2016. Oral presentation.

**Chelsky A.**, Marton, J.M., Bernhard, A.E., Giblin, A.E., Setta, S.P. & Roberts, B.J. “Biogeochemical processes in oiled and unoiled Louisiana salt marshes: a multi-year analysis.” State of the Coast Conference, New Orleans, June 2016. Oral presentation.

**Chelsky A.**, Marton, J.M., Bernhard, A.E., Giblin, A.E., Setta, S.P., Hill, T.D. & Roberts, B.J. “Spatial patterns in biogeochemical processes during peak growing season in oiled and unoiled Louisiana salt marshes: a multi-year analysis.” American Geophysical Union Ocean Sciences Meeting, New Orleans, February 2016. Poster presentation.

**Chelsky A.**, Marton, J.M., Bernhard, A.E., Giblin, A.E., Setta, S.P., Hill, T.D. & Roberts, B.J. “Nitrification, denitrification, and greenhouse gas production during peak growing season in oiled and unoiled Louisiana salt marshes.” Gulf of Mexico Oil Spill and Ecosystem Science Conference, Tampa, February 2016. Oral presentation.

**Chelsky A.**, Pitt, K.A., Ferguson, A.J.P., Bennett, W.W., Teasdale, P.R. & Welsh, D.T.. “Assessing impacts of jellyfish carrion on sediment redox conditions using diffusive *in situ* samplers.” DGT Conference, Spain, September 2015. Oral presentation.

**Chelsky A.**, Pitt, K.A., Ferguson, A.J.P., Bennett, W.W., Teasdale, P.R. & Welsh, D.T. “Impacts of decomposing jellyfish carrion on benthic fluxes and sediment redox conditions.” Association for the Sciences of Limnology and Oceanography Conference, Spain, February 2015. Oral presentation.

**Chelsky Budarf A.**, Pitt, K.A., & Welsh, D.T. “The effect of increasing temperature and acidity on the decomposition of gelatinous zooplankton.” Australian Rivers Institute Student Symposium, Australia, July 2013. **Winner of the Dr Christy Fellows Award for best presentation.** Oral presentation.

**Chelsky Budarf A.**, Pitt, K.A., & Welsh, D.T. “The effect of increasing temperature and acidity on the decomposition of gelatinous zooplankton.” Australian Marine Sciences Association Conference, Australia, July 2013. Oral presentation.

**Chelsky Budarf A.**, Pitt, K.A., & Welsh, D.T. “The effect of changing climate conditions on the decomposition of gelatinous zooplankton.” Jellyfish Bloom Symposium, Japan, June 2013. Oral presentation.

**Chelsky Budarf, A.**, Pitt, K.A., & Sweetman, A.K. “Synergistic effects of decomposing gelatinous zooplankton and elevated water temperature on oxygen dynamics in the pelagic environment.” American Society of Limnology and Oceanography Conference, Puerto Rico, February 2011. Poster presentation.

**Chelsky Budarf, A.**, Burfeind, D.D., Loh, W. & Tibbetts, I.R. “A comparison of visual and DNA fingerprinting techniques in the analysis of the gut contents of *Siganus nebulosus* (Siganidae: Teleostei).” Australian Marine Sciences Association Conference, Adelaide, June 2009. Poster presentation.

**Academic Services and Outreach**

**Volunteer, Education Department** Cocodrie, Louisiana

Louisiana Universities Marine Consortium 2015- 2018

* Deliver short presentations to visiting high school groups
* Discuss potential career paths in marine science with students

**Session Organizer** New Orleans, Louisiana

Gulf of Mexico Oil Spill and Ecosystem Science Conference February 2018

* Organize structure of Ecology Track, including reviewing >100 abstracts and assigning them to sessions

**Science Fair Judge** Houma, Louisiana

TPSD Science and Engineering Fair January 2016, 2017, 2018

* Judged middle school and high school science fair projects
* Assigned prizes to top projects

**Outreach Representative** Baton Rouge, Louisiana

Meet the Fleet Event May 2017

* Explained basic biogeochemical concepts to general public
* Encouraged participation in hands-on activities designed to illustrate scientific concepts

**Student Representative, Australian Rivers Institute** Gold Coast, Australia

Griffith University 2014

* Organized workshops for other postgraduate students throughout the year
* Represented postgraduate students at executive committee meetings

**Volunteer, School of Environment** Gold Coast, Australia

Griffith University 2013

* Volunteered to assist with school activities as needed
* Examples include chairing HDR student presentations at annual forum, and assisting with Open Day booth