**Nathan Timothy Lanning**3146 TAMU, O&M 409, College Station, TX 77843
nlann1@tamu.edu | [TAMU Student Profile](https://ocean.tamu.edu/people/students/lanningnathan)

**EDUCATION**2018 – Current Ph.D. Oceanography Texas A & M University,Advisor: Dr. Jessica Fitzsimmons

2014 – 2018 B.S. Marine Biology & B.S. Environmental Science University of New Haven, *summa cum laude*, College Honors, Advisor: Dr. Jean-Paul Simjouw

Thesis: “Trace metal analysis of Gulf of Mexico oxygen deficient zones”

## **RESEARCH EXPERIENCE**

2018 – Current **PhD. Research, Texas A & M University**

 Advisor: Dr. Jessica Fitzsimmons

 “Dissolved trace metal analysis on the GEOTRACES GP15 Pacific section”

2018 **Undergraduate Honors Senior Thesis, University of New Haven**

 Advisor: Dr. Jean-Paul Simjouw & Dr. Jessica Fitzsimmons

 “Trace metal analysis of Gulf of Mexico oxygen deficient zones”

* Analysis of a suite of dissolved trace elements (Fe, Zn, Cu, Co, Mn, Sc, Pb, Ni, & Cd) using an Element XR ICP-MS
* Observed the impact of hypoxic sediment conditions on the availability of redox active elements
* Determined the presence of heavy metal contaminants on the Texas Shelf and constructed a comprehensive map of potential metal pollution sources in Galveston Bay

2017 **NOAA Hollings Fellowship, Atlantic Oceanographic & Meteorological Laboratory**

Advisor: Dr. Jia-Zhong Zhang
 “Nutrient Analysis of New England Surface Soil”

* Sample collection across a transect beginning in New Haven, CT and ending in Buffalo, NY
* Utilized the Ruttenberg 1992 and Hedley *et al.* 1982 phosphorus sequential extraction methods to measure inorganic and organic phosphorus in five phases
* Conducted inorganic macronutrient measurements using a SEAL Auto Analyzer 3 in addition to sample digestions to quantify TP, TDP, TDC, and TN

2017 **NOAA Hollings Fellowship, Atlantic Oceanographic & Meteorological Laboratory**
Advisor: Dr. Jia-Zhong Zhang
“Macronutrient distribution in Southern Florida coastal waters”

* June 2017 macronutrient and chlorophyll a observations using a flow through system and CTD Rosette to collect water samples
* Measured macronutrient concentrations using a SEAL Auto Analyzer 3
* Made comparisons between chlorophyll a and nutrient concentration distributions and constructed gradient maps to display findings

2016 **NSF Funded REU: Observing the Ocean, Texas A & M University**

 Advisor: Dr. Jessica Fitzsimmons
 “Size partitioning of trace metal micronutrients in the western Arctic Ocean”

* First size partitioning of dissolved trace metals into colloidal and soluble fractions in sea ice, snow, and melt pond samples from the Arctic Ocean
* Utilized an offline SeaFAST preconcentration and Isotope Dilution Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) method to analyze samples
* Conducted extensive literature reviews to compare results to previous sea ice and snow studies as well as Arctic Ocean seawater studies

2015 **Summer Undergraduate Research Fellowship, University of New Haven**

 Advisor: Dr. Jean-Paul Simjouw & Dr. Amy Carlile
 “Dynamics and copper content analysis of ulvoid blooms in New Haven Harbor”

* Developed the first method to quantify copper within ulvoid tissue using Energy Dispersive X-Ray Fluorescence (EDXRF)
* Algal field sampling with sediment and water quality testing
* Analyzed results to observe ulvoid biomass, species distribution, and copper mitigation abilities

**HONORS AND AWARDS** *(\* denotes merit based scholarship)*

2018 – 2021 Louis & Elizabeth Scherck Scholarship, Texas A & M University College of Geosciences\*

2018 – 2023 National Science Foundation Graduate Research Fellowship\*

2018 Excellence in Marine Biology Award for service & academic success, University of New Haven\*

2018 Ernest Coletti Award for leadership, and academic success, Alpha Phi Delta Fraternity\*

2017 John J. Hadgkiss Centennial Scholarship for fraternal service, Alpha Phi Delta Fraternity

2016 Presidents Award for Best Undergraduate Presentation, Northeast Algal Society

2016 – 2018 John D. Hatfield Scholarship for service & academic excellence, University of New Haven\*

2016 – 2018 Ernest F. Hollings Undergraduate Scholarship and Internship, NOAA

2016 Inducted into the Gamma Sigma Alpha National Honor Society\*

2015 Inducted into the Alpha Lambda Delta National Honor Society\*

# REFEREED PUBLICATIONS

1. Hayes C, Fitzsimmons JN, Jensen L, **Lanning NT**, McGee D, Hatta M, Boyle E. (2020) A Lagrangian view of trace elements and isotopes in the North Pacific. Journal of Geophysical Research. Volume 125, 3.
2. Jenkins WJ, Hatta M, Fitzsimmons JN, Schlitzer R, **Lanning NT**, Shiller A, Buckley NR, German CR, Lot II DE, Weiss G, Whitmore L, Casciotti K, Lam PJ, Cutter GA, Cahill KL. (2020) An intermediate-depth source of hydrothermal 3He and dissolved iron in the North Pacific. Earth and Planetary Science Letters. Volume 539.
3. Marsay CM, Aguilar-Islas A, Fitzsimmons JN, Hatta M, Jensen LT, John SG, Kadko D, Landing WM, **Lanning NT**, Morton PL, Pasqualini A, Rauschenberg S, Sherrell RM, Shiller AM, Twining BS, Whitmore L, Zhang R, Buck CS. (2018) Dissolved and particulate trace elements in late summer Arctic melt ponds. Marine Chemistry. Volume 204, 70-85.
4. Zhang J and **Lanning NT**. (2018) *Ascorbic acid as a reductant for extraction of Fe-bound P in soil samples: a methods comparison study.* Communications in Soil Science and Plant Analysis. Volume 49, 2155-2161.

# MANUSCRIPTS IN REVIEW

# CRUISE PARTICIPATION *(\*denotes team lead for lab group.)*

2019 *A-41 Intermares* (7 days) Trace metal sampling technique and equipment.

2019 *R/V Trident* (1 day) Galveston Bay trace metal, organics, oxygen, sediment, and oil spill study.\*

2018 *R/V Trident* (1 day) Galveston Bay trace metal, organics, oxygen, and sediment study.\*

2018 *R/V Trident* (1 day) Galveston Bay trace metal, organics, oxygen, and sediment study.

2017 *R/V Trident* (1 day) Galveston Bay trace metal, organics, oxygen, and sediment study.

2017 *R/V F.G. Walton Smith* (5 days) Bimonthly regional survey of nutrients, Chlorophyll A, CDOM, eDNA, as well as water column incubations.

2016 *R/V Pelican* (3 days) REU cruise examining Texas shelf hypoxia and trace metal study.

# CONFERENCE & PRESENTATION PROCEEDINGS *\*denotes mentored student presentation*

2020 **Lanning NT**, Jenkins WJ, German CR, Tagliabue A, Fitzsimmons JN, Sieber M, Summers BA, John S, Conway TM, Steffen JM, Weiss GA, Hatta M. Hydrothermal dissolved metals along the U.S. GEOTRACES PMT. U.S. GEOTRACES Data Synthesis Meeting. *Oral.*

2020 Fitzsimmons JN, **Lanning NT**, Till CP, Hatta M, Weiss GA, Conway TM, Sieber M, John S, Yang S, Bian X. A multi-element perspective on Pacific dissolved trace metal cycling from the GEOTRACES GP15 PMT cruise. U.S. GEOTRACES Data Synthesis Meeting. *Oral.*

2020 Boyle E, Jiang S, Fitzsimmons JN, **Lanning NT**. Lead concentration and isotopic compositions in the central Pacific basin: GEOTRACES PMT (GP15). U.S. GEOTRACES Data Synthesis Meeting. *Oral.*

2020 Conway TM, Sieber M, John S, **Lanning NT**, Fitzsimmons JN. Dissolved cadmium and zinc isotopes on GP15. U.S. GEOTRACES Data Synthesis Meeting. *Oral.*

2020 Sieber M, **Lanning NT**, Fitzsimmons JN, John S, Conway TM. Dissolved iron and iron isotopes. U.S. GEORACES GP15 Data Synthesis Meeting. *Oral.*

2020 Boyle EA, Jiang, S, Fitzsimmons J, **Lanning N**. Lead concentration and isotopic compositions in the central tropical North Pacific Ocean. Goldschmidt. *Oral.*

2020 **Lanning NT**, Sieber M, Steffen J, Summers BA, Weiss G, German CR, John S, Jenkins WJ, Schlitzer R, Hatta M, Tagliabue A, Conway TM, Fitzsimmons JN. Hydrothermal Fe flux analysis of Loihi Seamount using size partitioning and Fe isotopes. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2020 Fitzsimmons JN, **Lanning NT**, Halbeisen D, Till CP, Hatta M, Weiss, GA, Conway TM, Sieber M, John S, Yang S, Bian X. A multi-element perspective on Pacific dissolved trace metal cycling from the GEOTRACES GP15 PMT cruise. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2020\* Halbeisen D, **Lanning NT**, Till CP, Fitzsimmons JN. A multi-element overview of upper ocean trace metal cycling in the Pacific Ocean: GEOTRACES GP15 PMT demi stations. Ocean Sciences Meeting, San Diego, CA. *Poster.*

2020 Jensen L, **Lanning NT**, Sherrell RM, Fitzsimmons NT. Biogeochemical speciation of cryospheric trace metals at the seawater-surface interface of the Arctic Ocean. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2020 Adams H, Jensen L, Farran B, **Lanning NT**, Fitzsimmons JN. Multi-Element Dissolved Trace Metal Distributions in Surface Waters of the Texas-Louisiana Shelf: A Synthesis from Three Cruises 2017-2019 Showing the Influence of Rivers, Hurricanes, Sediments, and Biology. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2020 Weiss G, Hatta M, Measures CI, Fitzsimmons JN, **Lanning NT**, Conway TM, Sieber M. Distributions of Dissolved Iron along the 2018 U.S. GEOTRACES GP15 Pacific Meridional Transect. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2020 John S, Pinedo-Gonzlez P, Hawco N, Zhang R, Seelen E, Kelly RL, Yang S, Bian X, Fitzsimmons JN, **Lanning NT**, Conway TM, Sieber M. Spatial and Temporal Distribution of Bioactive Trace-metals in the North Pacific: MESO-SCOPE, Gradients, and GP15. Ocean Sciences Meeting, San Diego, CA. *Poster.*

2020 Boyle EA, Jiang, S, Fitzsimmons J, **Lanning N**. Lead concentration and isotopic compositions in the central tropical North Pacific Ocean. Ocean Sciences Meeting, San Diego, CA. *Oral.*

2019 **Lanning NT**, Jenkins WJ, Hatta M, German CR, Schlitzer R, Fitzsimmons JN. Loihi Seamount Fe fluxes along the U.S. GEOTRACES GP15 Pacific Meridional Transect. Texas A&M University, Department of Oceanography Seminar. *Oral.*

2019 **Lanning NT.**What is Oceanography? Texas A&M University, High School Presentation. *Oral.*

2019 **Lanning NT**, Jenkins WJ, Hatta M, German CR, Schlitzer R, Fitzsimmons JN. Loihi Seamount Fe fluxes along the U.S. GEOTRACES GP15 Pacific Meridional Transect. GEOTRACES Summer School, Cadiz, Spain. *Oral.*

2019 **Lanning NT**, Jenkins WJ, Hatta M, German CR, Schlitzer R, Fitzsimmons JN. Hydrothermal dissolved iron and 3He from Loihi Seamount along the U.S. GEOTRACES GP15 Pacific Meridional Transect. Gordon Research Conference, Holderness, NH. *Poster.*

2018 **Lanning NT**, Simjouw JP, Fitzsimmons JN. Trace metal analysis of Gulf of Mexico oxygen deficient zones. Honors Program Distinguished Presentation, University of New Haven. *Oral.*

2018 **Lanning NT**, Zhang J, Fischer C, Visser L, Smith I, Sinnickson D, Kelble C. Macronutrient distribution in Southern Florida coastal waters. Ocean Sciences Meeting, Portland, OR. *Poster.*

2018 **Lanning NT**, Zhang J, Fischer C, Visser L, Smith I, Sinnickson D, Kelble C. Macronutrient distribution in Southern Florida coastal waters. Henry Vogeli Seminar Series, University of New Haven. *Oral, Invited.*

2017 **Lanning NT**, Zhang J, Fischer C, Visser L, Smith I, Sinnickson D, Kelble C. Macronutrient distribution in Southern Florida coastal waters. Henry Vogeli Seminar
Series, University of New Haven. *Oral, Invited.*

2017 **Lanning NT**, Simjouw J, Carlile AL. Development of a method for copper quantification in ulvoid tissue. Northeast Algal Society Meeting, Mount Washington, NH. *Oral.*

2017 **Lanning NT**, Jensen LT, Sherrell RM, Fitzsimmons JN. Size partitioning of dissolved trace metals into soluble and colloidal fractions in sea ice, snow and melt ponds of the western Arctic Ocean. ASLO Aquatic Science Meeting, Honolulu, HI. *Poster.*

2016 **Lanning NT**, Jensen LT, Sherrell RM, Fitzsimmons JN. Size partitioning of dissolved trace metals into soluble and colloidal fractions in sea ice, snow and melt ponds of the western Arctic Ocean. Henry Vogeli Seminar Series, University of New Haven. *Oral, Invited.*

2016 **Lanning NT**, Simjouw J, Carlile AL. Dynamics and copper content analysis of ulvoid blooms in New Haven Harbor. Northeast Algal Society Meeting, Westfield, MA. *Poster.*

* President’s Award for Best Undergraduate Presentation

2015 **Lanning NT**, Simjouw J, Carlile AL. Dynamics and copper content analysis of ulvoid blooms in New Haven Harbor. Summer Undergraduate Research Fellowship Program, West Haven, CT. *Poster.*

# STUDENT MENTORSHIP

2019-Current Dylan Halbeisen, undergraduate researcher at Texas A&M University (Oceanography)

* Title: *A multi-element overview of upper ocean trace metal cycling in the Pacific Ocean: GEOTRACES GP15 PMT demi stations*

2019 summer Brett Farran, REU summer student

* Title: *Dissolved lead in Galveston Bay and the surrounding Gulf of Mexico*
* Current: Senior at Florida State University (Environmental Sciences)

# TEACHING EXPERIENCE

2017 **Teaching Assistant**, University of New Haven. Introduction to Marine Biology. Advisor: Dr. Jean-Paul Simjouw, Karen Jakubowski, Dr. Tarsila Seara, Dr. Gail Hartnett.

* Led instruction on chemical oceanographic sample collection to 75 first year marine biology students
* Assisted with fieldwork and held office hours to further prepare students

2017 **Teaching Assistant**, University of New Haven. Introduction to Oceanography Laboratory. Advisor: Jean-Paul Simjouw.

* Managed course cruises around New Haven Harbor for three 16 student lab sections
* Planned experiment demonstrations and graded lab reports

# OUTREACH

2018 – Current Participated in judging TX Destination Imagination middle and high school competition for the science focused long term competition.

2017 – Current Served as an alumni judge for CT & TX regional and state qualifiers of Odyssey of the Mind, a global scholastic competition. Assisted with managing the middle and elementary school division teams of the scientific intensive long term problem competition.

2016 & 2017 Independently organized and designed outreach to local middle and high school students from around West Haven, CT to support STEM education focusing on anthropogenic interactions with our coastline. Students took part in experiential education through field work and short laboratory experiments.

# PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

American Geophysical Union, Association for the Sciences of Limnology and Oceanography

SCUBA Certification: Open Water Certification