

# Natalie Chazal

## Education

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### **M.S. Biological and Agricultural Systems Analysis**

NORTH CAROLINA STATE UNIVERSITY

Research Assistant in Biosystems Analytics Lab

Grade Point Average: 3.977/4.0

RALEIGH, NORTH CAROLINA

AUGUST 2021 - MAY 2023

### **Graduate Certificate in Geographic Information Systems**

CENTER FOR GEOSPATIAL ANALYTICS, NORTH CAROLINA STATE UNIVERSITY

RALEIGH, NORTH CAROLINA

AUGUST 2021 - MAY 2022

### **B.S. in Animal Science, B.S. in Zoology**

NORTH CAROLINA STATE UNIVERSITY

Minor in Statistics • University Honors Program • Park Scholar

Grade Point Average: 3.76/4.0

RALEIGH, NORTH CAROLINA

AUGUST 2017 - MAY 2021

## Publications

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### PEER REVIEWED PUBLICATIONS

Hayes MC, Gray PC, Guillermo H, Sedgwick WC, Crawford VD, **Chazal N**, Crofts S, Johnston DW. A deep learning approach for large-scale detection and enumeration of Black-browed Albatrosses and Southern Rockhopper Penguins in drone imagery. April 6, 2021. *Ornithological Applications*.

**Chazal N**, Nelson N, Carr M, Haines A, Leight A. Mining Historical Fecal Coliform Observations from Shellfish Waters to Analyze Coastal Water Quality Trends. *Estuaries and Coasts*. Under Review. 2022

**Chazal N**, Hallyburton S, Buckner L, Pratt E, Langerhans B, Peterson N. Predation regime drives changes in diel behavioral patterns of a livebearing fish. In Preparation. 2022.

### TRADE JOURNAL PUBLICATIONS

Sue Stuska, and **Natalie Chazal**, Teeth and Tooth Care. *Eclectic Horseman Magazine*, March/April 2017, Issue No. 94

## Presentations and Conferences

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### **American Geophysical Union 2022 Fall Meeting**

CHICAGO, ILLINOIS

**Chazal N.**, Carr M., Nelson N., Saia S., Leight A. Constructing predictive water quality models for fecal coliforms in shellfish growing waters. December 2022. Poster Presentation.

### **Southeast Coastal Ocean Observing Regional Association**

VIRTUAL WEBINAR

Nelson N., **Chazal N.**, Carr M. ShellBase: Water Quality Data from Shellfish Harvesting Waters in One Database. September 2022. Virtual Webinar Presentation.

### **Ecological Society of America & Canadian Society for Ecology and Evolution**

MONTRÉAL, CANADA

**Chazal N.**, Carr M., Nelson N. Constructing predictive water quality models for fecal coliforms in shellfish growing waters. August 2022. Oral Presentation.

### **Water Resources Research Institute**

RALEIGH, NORTH CAROLINA

**Chazal N.**, Nelson N., Carr M., Haines A. Understanding Historical Fecal Coliform Trends in North Carolina's Shellfish Growing Waters. March 2022. Oral Presentation.

## American Geophysical Union 2021 Fall Meeting

NEW ORLEANS, LOUISIANA

Chazal N., Nelson N., Carr M., Haines A. Understanding Historical Fecal Coliform Trends in North Carolina's Shellfish Growing Waters. December 2021. Poster Presentation.

## Coastal and Estuarine Research Federation 2021 Conference

RALEIGH, NORTH CAROLINA

Chazal N., Nelson N., Carr M., Haines A. Mining Historical Fecal Coliform Observations from Shellfish Waters to Analyze Coastal Water Quality Trends. November 2021. Virtual Poster Presentation.

## 2021 North Carolina GIS Conference

RALEIGH, NORTH CAROLINA

Chazal N., Saia S., Nelson N. Shellfish Harvesting Area Closure Database and Map Creation Using ArcPy. February 2021. Virtual Poster Presentation.

## Honors and Awards

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### UNIVERSITY

#### 2017 **Scholar**, University Honors Program

RALEIGH, NC

The University Honors Program gathers the top undergraduates across every college at NC State and catalyzes them to participate in the research mission of the university. In this way, the UHP transforms undergraduates from being excellent students of their field to actually making their own discoveries that contribute to a field of research.

#### 2017 **Recipient**, Park Scholarship

RALEIGH, NC

The Park Scholarship is a four-year scholarship awarded on the basis of outstanding accomplishments and potential in scholarship, leadership service, and character. The program involves a four-year, executive-style leadership academy; diversity training; a year-long civic engagement project; and intensive learning laboratories exploring leadership challenges regionally and nationally.

## Research Experience

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### Graduate Research Assistant, NCSU

RALEIGH, NORTH CAROLINA

BIOSYSTEMS ANALYTICS LAB, NCSU

MAY 2021 - PRESENT

#### **Developing Predictive Water Quality Models for Forecasting Shellfish Water Closures**

Using machine learning methods to create predictive models for fecal coliform concentrations in shellfish growing waters of Florida using FDAC sampling results and a suite of environmental and meteorological predictors.

**Historical Analysis of Fecal Coliform Trends in North Carolina's Shellfish Growing Waters** Analyzing spatial and temporal trends in fecal coliform concentrations in relation to trends in salinity, precipitation, distance to shore, and land use by mining historical water quality testing records from North Carolina's DMF, Section for Shellfish Sanitation and Recreational Water Quality.

DAIRY SCIENCE DATA ANALYTICS CONSULTING

AUGUST 2022 - DECEMBER 2022

#### **Dairy Cattle Behavioral Response to Elevated Temperature-Humidity Indices**

Cleaned dairy cattle collar data and developed a programmatic workflow in R to reformat and aggregate behavioral time series data. Performed linear mixed effects modeling to look at responses in time for rumination, eating, resting, and reproductive behaviors to hourly temperature humidity index over the course of a year.

### Undergraduate Research Assistant, DUML

BEAUFORT, NORTH CAROLINA

JOHNSTON LAB, MARINE ROBOTICS AND REMOTE SENSING, DUKE UNIVERSITY MARINE LAB

JULY 2019 - MAY 2021

#### **Analysis of steeply Jason Island's Black-Browed Albatross Colony Using UAV Collected Data**

Performed spatial analyses for the largest colony of Black-browed albatross in the Falkland Islands using GIS to research spatial attribute effecting the ecology on the island.

### Undergraduate Research Assistant, NCSU

RALEIGH, NORTH CAROLINA

BIOSYSTEMS ANALYTICS LAB

SEPTEMBER 2020 - MAY 2021

#### **Shellfish Harvesting Area Closure Database Creation**

Developing a tool that scrapes spatial information pertaining to shellfish harvesting area closures from NC's Division of Marine Fisheries published water closure proclamations.

Performing trend analyses on historic water quality sampling data in North Carolina's waters.

**Spatial Data Collection of Deforestation in Amazonia and Myanmar**

Collecting deforestation data from remotely sensed time series imagery to identify and risk factors for deforestation in the Peruvian Amazon and Myanmar.

## Field Experience

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**NCSU Graduate Field Assistant**

MOREHEAD CITY, NORTH CAROLINA

NORTH CAROLINA STATE UNIVERSITY

SUMMER 2022

Aided in the set-up and take-down of casing and probe for a high frequency sonde water quality sampling experiment on the docks of downtown Beaufort, NC. During this experience, I used power tools to modify the casing in the shop as well as fit and secure the casing to the dock in the water. We also got experience with the NCDMF sampling team, going out into the field, collecting water samples, and preparing samples for fecal coliform testing in the lab.

**Volunteer Assistant for National Park Service Wildlife Biologist**

HARKERS ISLAND, NORTH CAROLINA

CAPE LOOKOUT NATIONAL SEASHORE

SEPTEMBER 2015 - SUMMER 2022

I volunteer with the Cape Lookout National Seashore's Wildlife Biologist in charge of the management of the Shackleford Banks, wild horse population. My responsibilities include assisting with fieldwork such as herd observations, fecal sample collections, public outreach, educational events, and searching the beaches for turtle and oystercatcher nesting activity. I also help organize and manage the resource management wild horse information database.

**NCSU Student Researcher**

ANDROS ISLAND, BAHAMAS

NORTH CAROLINA STATE UNIVERSITY STUDY ABROAD

SUMMER 2018

While taking ecological, evolutionary, and human dimensions of conservation biology courses in the Bahamas, I conducted research with my team on the diel behavioral changes in mosquitofish from differing predation regimes situated in inland blue holes on Andros Island. I identified fish sex and behaviors while snorkeling in the night and day.

**Volunteer Veterinary Assistant**

LA CRUZ &amp; LIBERIA, COSTA RICA

VIDA VOLUNTEER PROGRAM

DECEMBER 2017

Through 32 hours of hands on veterinary medicine experience, I performed physical exams, measured vital signs, proper medical record documentation procedures, assisted with monitoring animals, and helped to perform spay/neuter surgeries.

**Veterinary Medicine & Ecology Student**

SAN IGNACIO, BELIZE

WILDLIFE INSTITUTE

SUMMER 2018

I participated in lectures pertaining to various subjects in veterinary medicine, especially relating to wildlife rehabilitation. I also handled providing daily medication to the animals in the clinic. Through a three day backpacking trip, I also assisted in performing nighttime amphibian and reptile surveys as well as daytime fish and herp surveys.

## Leadership Experience

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**Geospatial Graduate Student Organization**

RALEIGH, NORTH CAROLINA

CENTER FOR GEOSPATIAL ANALYTICS

FALL 2021 - SPRING 2022

- First Year Representative • Philanthropic Initiatives Lead

**Senior Design Co-Advisor**

RALEIGH, NORTH CAROLINA

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT

FALL 2021 - PRESENT

- Co-advisor for a team of NCSU Undergraduates developing boat traffic monitoring system for Bogue Sound, NC

**PROGRESS Mentor**

RALEIGH, NORTH CAROLINA

PROMOTING GEOSCIENCE RESEARCH, EDUCATION &amp; SUCCESS

FALL 2021 - SPRING 2022

- Mentor to UNC Undergraduate Student

## **NCSU Dressage Team**

DRESSAGE TEAM, NORTH CAROLINA STATE UNIVERSITY

- Safety Officer • Lower Training Level Rider

RALEIGH, NORTH CAROLINA

AUGUST 2017 - MAY 2021

## **Council of Sciences**

NORTH CAROLINA STATE UNIVERSITY

- Community Service Chair

RALEIGH, NORTH CAROLINA

FALL 2018 - SPRING 2019

## **Park Scholarship**

NORTH CAROLINA STATE UNIVERSITY

- **Service Advisory Committee** Review Civic Engagement Initiative proposals for acceptance into the program, evaluate the effectiveness of the projects, and continue to identify new sponsors for future projects.
- **Distinguished Speakers Committee** Solicit nominations, evaluate, and select Gerald H. Elkan Distinguished Lecture on Science & Society Award Recipients and William C. Friday Award Recipients as well as, plan and execute both events.
- **Park Community Committee** Further build a sense of community within our cohort of Park Scholars through planning and executing inter-class events as well as provide extracurricular events to bring classmates closer together in a non-academic setting.

RALEIGH, NORTH CAROLINA

AUGUST 2017 - MAY 2021

## **Society Memberships**

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### **Ecological Society of America**

### **American Geophysical Union**

### **Coastal and Estuarine Research Federation**

## **Certifications**

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### **FAA Part 107 sUAS Pilot**

FEDERAL AVIATION ADMINISTRATION: LICENSED UAS OPERATOR

RALEIGH, NORTH CAROLINA

JULY 2022

### **Advanced Diver**

PROFESSIONAL ASSOCIATION OF DIVING INSTRUCTORS

Instructor: Kathy Moorehead, Olympus Dive Center

RALEIGH, NORTH CAROLINA

JULY 2022

### **NITROX Diver**

NATIONAL ASSOCIATION OF UNDERWATER INSTRUCTORS: NITROX DIVER

Instructor: Matthew Rever, NCSU

RALEIGH, NORTH CAROLINA

MAY 2019

### **ASI ATV RiderCourse**

NATIONAL PARK SERVICE

HARKERS ISLAND, NORTH CAROLINA

DECEMBER 2015