Elizabeth Archer

Elizabeth.Archer@uea.ac.uk • 24 Princes House, 11 Princes Street, Norwich, NR3 1FH • 07522364174

I am a second-year PhD Researcher at the University of East Anglia studying the impacts of climate change on waterborne disease caused by marine *Vibrio* bacteria. I have a strong academic background with a first-class degree in BSc Marine Biology as well as repeated involvement in outreach activities and over 75 hours of teaching experience.

Education

2019 – present **University of East Anglia (ARIES DTP, CASE Partner: CEFAS)**
PhD in Environmental Sciences (currently in 2nd year)
Thesis title: "Is it safe to go in the sea? Climate change and *Vibrio* bacteria"

2016 – 2019 **University of Essex**
First Class BSc (Hons) Marine Biology (80%)
Dissertation Research Project: "The spatial ecology of coral disease in the Wakatobi National Marine Park WNMP), Indonesia" (83%)

Year 3 modules: Estuarine and Coastal Ecology Field Module (85%), Oceanography and Marine Conservation (73%), Conservation Management and Practice (83%), Fisheries Ecology (81%), Freshwater Ecology (84%)

Year 2 Modules: Microbial Diversity and Biotechnology (88%), Coral Reef Biology (82%), Biodiversity and Conservation (81%), Marine Biodiversity (78%), Marine Vertebrates (76%), Tropical Marine Field Research skills (75%), Ecology: Populations and Communities (74%), Professional Skills for Ecological and Marine Scientists (73%)

Year 1 Modules: Marine Ecology (86%), Animal Evolution, Ecology & Behaviour (86%), Microbiology (86%), Plant Biology & Ecosystems (91%), Genetics & Evolution (89%), Marine Biology Field Skills (73%), Scientific & Transferable Skills for Biosciences (82%), LX496 Spanish Beginners 1 (91%)

2009 – 2016 **Littleover Community School & Sixth Form**
A-levels: Biology (A*), Psychology (A), Art & Design (Fine Art) (B)
GCSEs: 7 A's, 4 A*'s incl. Mathematics (A*), Further Mathematics (A*) and Physics (A*)

PhD Research

Synopsis: *Vibrio* bacteria inhabit marine and estuarine environments, with populations strongly influenced by temperature and salinity. Pathogenic strains of these bacteria can result in serious, sometimes fatal, infections in humans that are predominantly contracted through open wounds or the consumption of contaminated seafood. Changes in climate and extreme weather patterns are believed to expand the environmental suitability for *Vibrio* spp. through space and time whilst also boosting the regularity of human exposure to these pathogens, leading to higher rates of infection. My research aims to generate a clearer understanding of the influence of climate change on *Vibrio* disease and aid the development of mitigation strategies that seek to minimise the impact of such infections on human health. Through the creation of statistical models using epidemiological, climatic, and oceanographic datasets, I am able to apply the output of my analyses to regional and global climate models to predict the distribution of future *Vibrio* risk under different climate change scenarios.

Awards

Mar 2019 PhD Studentship funded by ARIES – Natural Environment Research Council and CASE partner: CEFAS

Jul 2019 The Royal Society of Biology (RSB) Top Student Award – highest bioscience degree mark at the University of Essex in 2019

The Environmental and Conservation Prize (£150), The John Shire Memorial Prize (£150), Big Essex Career Development Award

Jul 2018 Big Essex Award Gold, Silver & Bronze

May 2018 VTeam "Einstein Project" Communications Officer of the Year (2017/2018)

Grants Awarded

Jan 2018 Operation Wallacea Alfred Russel Wallace Grant for Outstanding Field Ecologists (£1000)

National Federation of Business and Professional Women's Clubs Travel Grant (£75)

Teaching Experience

2019 – present **University of East Anglia Associate Tutor**

Completed over 75 hours of demonstrating work at present including 60+ hours supporting BSc and MSc practicals in statistics and GIS. Experience marking statistics formative tests and giving feedback to students. Supervised students during benthic invertebrate sampling of the River Yare and aided species identification in the laboratory afterwards.

Key Skills

Programming in R, Python & Bash

- Proficient in use of R for data processing, analysis, and visualisation
- Regularly download large environmental datasets as netCDF files using a Python API
- Use of Bash to run the Climate Data Operator (CDO) program in Linux with some experience in shell scripting

Geographic Information System Mapping

- Experienced use of ArcGIS Pro and ArcMap for data analysis
- Assisted 25+ hours of GIS practicals for BSc and MSc students using ArcGIS software

Statistics

- Use of species distribution models for ecological niche modelling
- Assisted 35+ hours of BSc and MSc statistics practicals using SPSS software

Microbiology & Genetics

- Performed aseptic techniques, carried out nutrient bioassay to assess trophic status of the Colne Estuary, Essex and assessed microbial abundance with Most Probable Number (MPN) technique
- Carried out gel electrophoresis and identification of fragment lengths

Scientific Communication

- Strength of writing skills evidenced by BSc SPF report marks (average: 76.4%, top: 87%)
- Able to write a comprehensive Environmental Impact Assessment (90%) and Habitat Management Plan (78%)
- Completed 15+ hours of Infohackit 'Graphic Design for Science Communication' training using Affinity Designer software

Previous Research Experience

Jun – Aug 2018 **Operation Wallacea Dissertation Research Student**

Completed a 6-week expedition on a remote island to collect data for my dissertation research project using scientific diving techniques i.e. belt transects, timed swims and sediment traps. Won travel grant and presented talk on this project ("The Spatial Ecology of Coral Disease in the Wakatobi National Park, Indonesia") at the Royal Geographical Society in London.

Mar – Apr 2018 **Tropical Marine Field Course, Indonesia**

Developed in-field species identification skills: Indo-Pacific taxonomic marine identification exam (92%). Participated in group research project: "The influence of hard coral on soft coral diversity and abundance".

Sep 2017 **Wildlife Sense Research Volunteer, Greece**

Two-week volunteering project in Kefalonia, Greece, regarding the conservation of the Loggerhead sea turtle (*Caretta caretta).* Collected scientific data via behavioural surveys, nest inventories and beach profiles to contribute to ongoing research.

Other Experience

2019 - present	**Environmental Engagement and Innovation (E3i) Club Committee member (ARIES DTP)** Involved in the planning of outreach project: 'Board Games for Science Communication' both in-person (Feb 2020) and virtual (Mar 2021). This project enables PhD students to share their research with the public by creating exciting board games.
Nov 2019 – Oct 2020	**Pint of Science 2020 'Planet Earth' talks team member** Organised public outreach talks that were to be held as part of the 'Pint of Science' 2020 festival in Norwich which were unfortunately cancelled.
Apr 2018 – Jun 2019	**Essex Marine Conservation Society – President** Individually initiated the start of the current Marine Conservation Society at Essex University. Enthusiastically coordinated an executive committee to achieve goals regarding plastic reduction on campus, society events (i.e. quiz, beach and riverbank cleans, talks, attendance at RCUK 2018 Conference and involvement in Essex Wildlife Trust "Campaign for a Wilder Future").
Oct 2016 – Dec 2018	**VTeam Einstein Project – Communications Officer (2017 - Dec 2018)** Personally recorded 150+ hours of volunteering at the University of Essex. Engaged primary school children in hands-on experiments during afterschool clubs. Experienced leading multiple classes of children and experiments during Science Days. Dealt with project promotion and the organisation of 30+ volunteers winning 'Communications Officer of the Year 2017/18'.
Nov 2017 – Apr 2019	**Marine Biology Applicant Day Ambassador** Assisted with the coordination of 'Applicant Days' including overseeing interview schedules, networking with prospective students and parents, preparing facilities for refreshment, and answering questions regarding degree courses. Maintenance of a calm professional attitude whilst having the ability to take initiative, make sensible decisions and demonstrate a degree of adaptability was imperative for this role.

Additional Qualifications

Jul 2019	Full UK Driving Licence
Jul 2018	PADI Advanced Open Water Diver
Mar 2018	ReefCheck EcoDiver
Mar 2017	PADI Open Water Diver

Other Training

- Git and GitHub
- LaTeX
- Systematic Review Training
- Use of the ADA Cluster for High Performance Computing (HPC)
- Effective Communication workshop

Affiliations

Associate Member of the Royal Society of Biology (AMRSB), Marine Conservation Society UK

Other Activities

Subaqua Club Fundraising and Volunteering Officer (2017/18), Women's Cricket 1st Team (2017/18), PhDiggers gardening group member (2019 - present)