Samuel **Thompson**

PHD RESEARCHER

School of Biological Sciences, University of Western Australia

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About me

I use novel sampling methods, computers and large data sets to answer biological questions, typically in marine vertebrates. My research has focused on the development and deployment of a novel sampler capable of simultaneously collecting environmental DNA (eDNA), stereo-video imagery and oceanographic data, along with the development of a new family-specific eDNA metabarcoding primer set targeting Lutjanidae (Snapper). I investigate the spatial distribution of marine vertebrate species in the context of anthropogenic change; especially the presence of restricted-access marine areas such as Marine Parks and offshore infrastructure.

Education

University of Western Australia
Perth, Australia

PHD *2020-present*

- eDNA metabarcoding PhD with the Marine Ecology Fisheries Research Group and the Jarman lab
- Developed a sampling system capable of collecting 360-degree stereo-video, water samples and oceanographic data at depths up to 600m
- Designed a family-specific metabarcoding primer set for Lutjanidae (snapper)
- Worked extensively with industry (BHP)

University of Southampton
Southampton, United Kingdom

MASTER OF OCEANOGRAPHY *2017-2018*

- Studied all forms of oceanography with a focus on biological oceanography and deep-sea ecology
- In my researcg project I worked on characterising deep-sea megafauna of the Kiribati region from ROV imagery (published in Frontiers in marine science 2019)

University of Kent
Kent, United Kingdom

BACHELOR OF BIOCHEMISTRY (WITH HONOURS) *2008-2012*

- Studied general life sciences with a focus on microbiology/genetics
- In my final project I worked on genome duplication events in the marine chordate Amphioxus

Employment

Minderoo
Perth

RESEARCH ASSISTANT (PART-TIME) *2021-present*

- Research assistant with the Minderoo OceanOmics team during offshore expeditions
- Working onboard the Pangea Ocean Explorer, conducting eDNA sampling, extraction, amplification, purification and sequencing
- Has provided me with a unique opportunity to conduct end-to-end sampling to sequencing on an offshore vessel

University of Western Australia
Perth

LABORATORY DEMONSTRATOR (PART-TIME) *2021-present*

- BIOL1131: Plant and Animal Biology
- Laboratory demonstrator and tutor for both face-to-face and online delivery formats
- Marker for marine component
- Guest Lecturer: Amphioxus: A model for developmental biology

RPS MetOcean
Perth

OCEANOGRAPHER *2019-2019*

- Working in the data resources department
- Work processing, QCing and interpretating large oceanographic datasets through a linux environment and the command line
- Data from instruments including: ADCPs, CTDs, LIDAR buoys, Wave rider buoys

Royal Perth Yacht Club
Perth

WINDSURFING AND SAILING INSTRUCTOR (PART-TIME) *2019-2020*

- Working as a dual qualified windsurfing sand sailing instructor at a revered Perth yacht club
- Delivering both practical and theoretical lessons to groups of all ages and abilities including as young as 8 years old and as old as 70

Mylan *Kent, United Kingdom*

ANALYTICAL CHEMIST *2015-2017*

- Key R&D team member during the ANDA submission to the FDA for a generic Advair drug product. Conducted inhalation-specific lab techniques including aerodynamic particle size distribution, dissolution and emitted dose testing. Use, calibration, maintainance and troubleshooting of analytical chemistry instrumentation including HPLC and Raman spectrometers. Worked abroad in Dublin training new staff and setting up equipment in a new, purpose built QC lab for Mylan's European inhalation manufacturing facility

Other Skills

Coding languages

BASH, R, HTML, PYTHON

- Shell scripting; building and running pipelines for processing large bioinformatic and oceanographic datasets via command-line
- Highly proficent with the configuration and operation of both native and virtual Linux environments (WSL2)
- Familiar with wide variety of R packages, especially for ecological statistics and spatial analysis
- Highly familiar with version control systems: Git and Docker
- Have my own hardcoded website written in HTML and styled using CSS

Practical Skills

ELECTRICAL, MECHANICAL, WOODWORK, ROPEWORK, BOATWORK

- Highly proficent with building and troubleshooting 12v automotive and marine systems
- Highly proficent at troubleshooting software/hardware related PC issues; I have built multiple desktop PCs and completed many initial OS installs and setups using various windows and linux distributions
- Intermediate mechanical knowledge; especially 4x4 and diesel automotive systems
- Basic carpentry and joinery skills from building multiple campervans
- Basic ropework / winch skills
- I have participated >1000 deployments of various marine sampling equipment on a variety of vessel types from the Southampton Solent to the Southern Ocean

Licenses & certifications

Advanced resusitation *PADI*

OXYGEN PROVIDER AND CPR *2022-2023*

First Aid *PADI*

2021-2024

4WD training *Drive Safe WA*

RIIVEH201D: OPERATE LIGHT VEHICLE, TLIC1051: OPERATE COMMERICAL VEHICLE, TLIC2025: OPERATE FOUR WHEEL DRIVE VEHICLE, TLIF2010: APPLY FATIGUE MANAGEMENT STRATEGIES, RIIVEH305E: DRIVE AND RECOVER A FOUR WHEEL DRIVE VEHICLE, PMASUP236: OPERATE VEHICLES IN THE FIELD *2020*

Recreational skippers ticket *DOT*

2020

Advanced Open Water Diver *PADI*

2017

Dinghy sailing instructor *RYA*

2014

Safety boat *RYA*

2013

Powerboat level 2 *RYA*

2012

Start windsurfing instructor *RYA*

2012

Scientific voyages

Fremantle > Cocos Keeling Islands *Pangaea Ocean Explorer*

RESEARCH ASSISTANT - MINDEROO OCEANOMICS *2022 (22 days)*

Carnarvon > Ningaloo Marine Park

Voyage lead - UWA Marine Ecology Group. Surveying paleocoastline features with stereo-BRUVs, novel samplers, CTD and eDNA

Keshi Mer

2022 (12 days)

Fremantle > Abrohlos Islands > Fremantle

Research Assistant - Minderoo OceanOmics

Pangaea Ocean Explorer

2022 (10 days)

Esperence > Israelite bay > Fremantle

Research Assistant - Minderoo OceanOmics

Pangaea Ocean Explorer

2022 (14 days

Coral Bay > Exmouth Gulf

Research Assistant - Minderoo OceanOmics

Pangaea Ocean Explorer

2021 (10 days)

Dongara > Onslow, WA

PhD Student - UWA Marine Ecology group surveying Marine Parks, proposed park zones and offshore oil and gas infrastructure using stereo-BRUVs, novel samplers, CTD and eDNA

Adrianus

2021 (28 days)

Presentations

Simultaneous eDNA and visual surveying of the marine environment

ECR presenter

Australia and New Zealand eDNA conference

2023

Amphioxus: A model for developmental biology

Guest Lecturer

UWA - BIOL1131: Plant and Animal Biology

2021

Research update

Student presenter

UWA - School of biological sciences postgradiate retreat

2021

Research proposal

PhD research proposal

UWA- School of Biological sciences friday seminar series

2020

Awards and Funding

Grant: Biodiversity and societal benefits of restricted access marine areas

With Prof. Julian Partridge, Prof. Simon Jarman, Prof. Gary Kendrick, Dr. Tim Langlois, Dr Matt Navarro. Total funding: AUSD 666,524.

BHP/UWA

2020-2024

Award: CSIRO Early-career researcher conference bursary

Grant to attend the 2023 Australia and New Zealand eDNA conference in Hobart. Total funding: AUSD 600

CSIRO

2023

Publications

Preliminary observations of the abyssal megafauna of Kiribati

E Simon-Lledó, S Thompson, A Yool, A Flynn, C Pomee, J Parianos, ...

Frontiers in Marine Science

2019