



PHOEBE CHAPMAN

MOLECULAR DISEASE ECOLOGIST

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PROFILE

I'm a molecular ecologist specialising in pathogens, microbiomes, and disease.

My research uses genomics, bioinformatics, animal health science, and ecology to explore their diversity, evolution, and impacts on host and ecosystem health.

With experience across research, teaching, and consulting, I'm driven by a commitment to improving outcomes for the natural world - particularly in the face of today's complex environmental challenges.

EDUCATION

Doctor of Philosophy (PhD)

The University of Queensland
Brisbane, Australia - 2017
"Diversity, impacts and diagnosis of pathogenic parasites in sea turtles from Queensland, Australia"

Graduate Certificate (Awarded with Distinction)

Curtin University
Perth, Australia - 2017
Geographic Information Systems

Bachelor of Science (Hons)

The University of Queensland
Brisbane, Australia - 2004
Majors: Zoology and Marine Biology

RESEARCH EXPERIENCE

Postdoctoral Research Fellow

Department of Marine Science | University of Otago (Fraser Lab)
March 2024 – Present

- Lead a variety of genomics-based projects on microbiomes, parasites, and macroalgae recolonisation post-extirpation events.
- Training and project advising for postgraduate students.
- Laboratory management.

Postdoctoral Research Fellow

Department of Zoology | University of Otago (Beck Lab)
August 2020 – March 2024

- Lead bioinformatics and data analysis for Marsden-funded project on the microbiome's effect on tissue regeneration in African clawed frogs, *Xenopus laevis*.
- Training and project advising for postgraduate students.

Research Scholar

School of Veterinary Science | The University of Queensland

- PhD scholar with primary responsibility for Australian Research Council funded project exploring diversity and diagnosis of pathogenic parasites in sea turtles.
- Training and project advising for veterinary research students.

TEACHING EXPERIENCE

Teaching Fellow – MARI301 (Marine Ecology and Ecosystems)

Department of Marine Science | University of Otago
February 2025 – Present

- Lecturing and field/lab practicals.
- Content development – lectures; field, lab and computer practical activities.
- Main student contact point, course administration, marking.

Tutor/Demonstrator

Various Departments | The University of Queensland
2004 – 2006 ; 2012 – 2016

- Assist and supervise students during laboratory, field, and classroom sessions, including leading tutorials and marking.

PROFESSIONAL EXPERIENCE

Senior Scientist

JWA Ecological Consultants | Brisbane, Australia
2007 – 2012 ; 2016 – 2000

- Field surveys, impact assessment, monitoring, management, rehabilitation, and reporting spanning a range of projects and development types in eastern Australia

AWARDS AND GRANTS

- 2022, 2023, 2025 **New Zealand Performance Based Research Fund** (PBRF) NZD \$1000 - \$2500/year allocation
- 2017 **Letter of Commendation** (semester average > 90%) – Curtin University Dept. Spatial Sciences
- 2016 University of Queensland School of Veterinary Science **Paper of the Week** (three occasions)
- 2015 **Best Oral Presentation** (Wildlife theme) - Uni of Queensland School of Veterinary Science Research Conference (AUD \$500 prize)
- 2015 **People's Choice Award** - 3 Minute Thesis School of Veterinary Science Finals
- 2015 University of Queensland **Advantage Sponsorship Grant** (AUD \$3,000) (as part of Veterinary Science Postgraduate Association Committee)
- 2014 University of Queensland **Graduate School International Travel Award** (AUD \$3,855)
- 2012 - 2016 **Australian Postgraduate Award Scholarship** (approx. AUD \$90,000)
- 2002 **Dean's Commendation for High Achievement** – University of Queensland Science Faculty

OTHER QUALIFICATIONS AND TRAINING

- Quantitative Genetics short course – Genetics Otago (March 13-16, 2023)
- Strategies and Techniques for Analysing Microbial Population Structures – Marine Biological Laboratory, Woods Hole, MA, USA (July – August 2022)
- Regression Methods in R - Biostatistics Centre, University of Otago (Feb 2022)
- Bioinformatics Spring School - Otago Carpentries & Genomics Otago (Oct 2021)
- Natural History Illustration certificate – University of Newcastle (EdX - 2017)
- PADI Rescue Diver (Nitrox and Deep Certified)
- Pony Club Association of Queensland Level C Instructor
- Wildlife Handling and First Aid (Wildcare Australia)
- Queensland Recreational Marine Driver (boat) and Personal Watercraft (jet ski) licences
- Queensland Marine Radio VHF/MF/HF Operators Certificate of Proficiency

SERVICE AND OUTREACH

- 2025 **Scientist – BLAKE Expedition** I travelled on the HMNZ Canterbury to sub-Antarctic Campbell and Auckland Islands. My role as an expedition scientist was not just to collect data, but to work with student and teacher expeditioners from around the country to inspire a sense of kaitiakitanga (environmental guardianship). Video: <https://www.youtube.com/watch?v=AzADouo83KY>
- 2025 **Co-leader** Genetics Otago eDNA Hub
- 2022 - 2024 **Administrator** Department of Zoology Twitter account, University of Otago (@zoology_otago)
- 2022 **Panel Member** Mason and Fairlea Prizes for best postgraduate paper in 2021 (Department of Zoology, University of Otago)
- 2019 **Editorial Board - Review Editor** Frontiers in Veterinary Science (Zoological Medicine)
- 2017 - 2019 **Administrator** School of Veterinary Science Vet-MARTI (Veterinary Marine Research, Training and Investigation) Facebook page
- 2018 - 2019 **Expert Panel Member** Confirmation and Mid-Candidature Milestone Reviews of PhD student Christabel Hannon
- 2016 - 2024 **Journal Peer Reviewer** Various international peer-reviewed journals
- 2015 **School academic recruitment selection panel Postgraduate representative** School of Veterinary Science, University of Queensland
- 2015 - 2016 **Secretary - Veterinary Science Postgraduate Association (VeSPA)** Various roles including planning committees for the Inaugural School of Vet Science Research Conference and the Postgraduate Writing Retreat; Funding applications; Liaison and point of contact for school admin, staff and students

MEMBERSHIPS

- Wildlife Disease Association
- Birds New Zealand
- Genetics Otago (Co-leader, eDNA Hub)

PEER REVIEWED PUBLICATIONS

Chapman P.A., Day, R.C., Hudson D.T., Ward, J.M., Morgan X.C., Beck C.W. (2025). Commensal skin bacteria interact with the innate immune system to promote tail regeneration in *Xenopus laevis* tadpoles. *Developmental Dynamics* 1-26.

Low Z., Greay T.L., Abdullah S., **Chapman P.A.**, Gonzalez-Astudillo V. (2025). Renal myxosporidiosis by an unknown Bivalvulidan myxozoan parasite in Murray River turtles (*Emydura macquarii*) in Australia. *International Journal for Parasitology: Parasites and Wildlife*: 101061

Chapman P.A., Hudson D.T., Morgan X.C., Beck C.W. (2024). The role of family and environment in determining the skin microbiome of captive aquatic frogs, *Xenopus laevis*. *FEMS Microbiology Ecology* 100(11): fiae131

Panithi, S., **Chapman, P.A.**, Szyszka, P., & Beck, C.W. (2023). Characterisation and automated quantification of induced seizure-related behaviours in *Xenopus laevis* tadpoles. *Journal of Neurochemistry* 168(12): 4014-4024

Chapman, P.A., Gilbert, C.B., Devine, T.J., Hudson, D. T., Ward, J., Morgan, X.C. & Beck C.W. (2022). Manipulating the microbiome alters regenerative outcomes in *Xenopus laevis* tadpoles via lipopolysaccharide signalling. *Wound Repair and Regeneration* 30(6): 636-651

Hudson, D. T., **Chapman, P.A.**, Day, R.C., Morgan, X.C. & Beck C.W. (2021). Complete genome sequences of *Kinneretia* sp. XES5, *Shinella* sp. XGS7, and *Vogesella* sp. XCS3, isolated from *Xenopus laevis* skin. *Microbiology Resource Announcements* 10(50): e0105021

Cribb, T.H., **Chapman, P.A.**, Cutmore S.C., Huston, D.C. (2020). Pseudocephaloid cercariae (Platyhelminthes: Trematoda) from gastropods of the Queensland coast, Australia. *Journal of Helminthology* 94: e105

Ban de Gouvea Pedroso, S., Phalen, D.N., Terkildsen, M., Blyde, D., March, D.T., Gordon, A.N., **Chapman, P.A.**, Mills, P.C. et al. (2020). Coccidiosis in green turtles (*Chelonia mydas*) in Australia: pathogenesis, spatial and temporal distribution and climate-related determinates of disease outbreaks. *Journal of Wildlife Disease* 56(2): 359-371

Stacy, B.A., **Chapman, P.A.**, Stockdale-Walden, H., Work, T.M., Dagenais J., Foley, A.M., Wideroff, M., Wellehan Jr, J.F.X. et al. (2019). *Caryospora*-like coccidia infecting green turtles (*Chelonia mydas*): an emerging disease with evidence of interoceanic dissemination. *Frontiers in Veterinary Science* 6: 372

Chapman, P.A., Cribb, T.H., Flint, M., Traub, R., Blair, D., Kyaw-Tanner, M., Mills, P.C. (2019). Spirochiidiasis in marine turtles: the current state of knowledge. *Diseases of Aquatic Organisms* 133(3): 217-245

Cribb, T.H., Cutmore, S.C., Stacy, B.A., Crespo-Picazo, J.L., **Chapman, P.A.**, García-Párraga, D. (2017). Elucidation of the first definitively identified life cycle for a marine turtle blood fluke (Trematoda: Spirochiidae) enables informed control. *International Journal for Parasitology* 47(1): 61-67



Chapman, P.A., Owen, H., Flint, M., Soares Magalhaes, R.J., Traub, R.J., Cribb, T.H., Kyaw-Tanner, M.T., Mills P.C. (2017). Molecular epidemiology and pathology of spirochiid infection in green sea turtles (*Chelonia mydas*). *International Journal for Parasitology: Parasites and Wildlife* 6: 39-47.

Stacy, B.A., **Chapman, P.A.**, Foley, A.M., Greiner, E.C., Herbst, L.H., Bolten, A.B., Klein, P.A., Manire, C.A., Jacobson, E.R. (2017). Evidence of diversity, site and host specificity of sea turtle blood flukes (Digenea: Schistosomatidae: Spirochiidae): a molecular prospecting study. *Journal of Parasitology* 103(6): 756-767

Barton, D.P., **Chapman, P.A.**, Groom, R.A. (2016). Report of the presence of *Hapalotrema synorchis* and *H. postorchis* (Digenea: Spirochiidae) in marine turtles (Reptilia: Cheloniidae) in Northern Territory waters. *Northern Territory Naturalist* 27: 78-83

Chapman, P.A., Traub, R., Kyaw-Tanner, M.T., Flint, M., Owen, H., Cribb, T.H., Mills P.C. (2016). Terminal restriction fragment length polymorphism for the identification of spirochiid ova in tissues from the green sea turtle, *Chelonia mydas*. *PLoS One* 11(8): e0162114

Gillett, A., Ploeg, R., O'Donoghue, P., **Chapman, P.A.**, Webb, R., Flint, M., Mills P.C. (2016). Ultrastructural and molecular characterisation of an *Heterosporis*-like microsporidian in Australian sea snakes (Hydrophiinae). *PLoS One* 11(3): e0150724

Chapman, P.A., Owen, H., Flint, M., Traub, R.J., Cribb, T.H., Mills P.C. (2016). Molecular characterization of coccidia associated with an epizootic in green sea turtles (*Chelonia mydas*) in south east Queensland, Australia. *PLoS One* 11(2): e0149962

Chapman, P.A., Cribb, T., Blair, D., Traub, R., Kyaw-Tanner, M., Flint, M., Mills, P.C. (2015). Molecular analysis of the genera *Hapalotrema* and *Learedius* (Digenea: Spirochiidae) reveals potential cryptic species, with comments on the validity of the genus *Learedius*. *Systematic Parasitology* 90: 67-79

Chapman, P. and Warburton, K. (2006). Post-flood movements and population connectivity in gambusia (*Gambusia holbrookii*). *Ecology of Freshwater Fish* 15 (4): 357 – 365

OTHER PUBLICATIONS

Warburton, K. and **Chapman, P.** (2005). Fish and habitat surveys of Brisbane waterways 2000 – 2005. A report to Brisbane City Council.

Chapman, P. and Brooks, R. (2004). Rainbow rehabilitation: recreating waterways for native fishes. *Wildlife Australia* 41(2): 10-11

CONFERENCES

- 2024** Chapman, P.A. and Fraser, C.I. Scientific Committee for Antarctic Research XIth Open Science Conference – Pucon, Chile.
Oral Presentation: Investigating the dynamics of kelp-associated bacterial microbiomes in Antarctic and sub-Antarctic environments.
- 2019** Cribb, T.H., Chapman, P.A., Corner, R.D., Cutmore, S.C. Turtle Health and Rehabilitation Symposium – Gold Coast, AU.
Oral presentation: Spirorchiid flukes in marine turtles – how are they transmitted?
- 2016** Cribb, T.H., Cutmore, S.C., Stacy, B.A., Crespo-Picazo, J.L., Chapman, P.A., García-Párraga, D. 19th International Congress for Tropical Medicine and Malaria (inc. the Australian Society for Parasitology Annual Conference) – Brisbane, AU.
Oral presentation : A lifecycle for a pathogenic marine turtle spirorchiid trematode.
- 2016** Chapman, P.A., Owen, H., Traub, R., Flint, M., Soares Magalhaes, R.J., Kyaw-Tanner, M.T., Cribb, T.H., Mills P.C. 19th International Congress for Tropical Medicine and Malaria (incorporating the Australian Society for Parasitology Annual Conference) – Brisbane, AU.
Poster presentation: Terminal restriction fragment length polymorphism for identification of spirorchiid flukes in green sea turtle tissues: Application for investigations in disease epidemiology and pathology.
- 2016** Chapman, P.A., Owen, H., Flint, M., Traub, R.J., Cribb, T.H., Mills P.C. 19th International Congress for Tropical Medicine and Malaria (incorporating the Australian Society for Parasitology Annual Conference) – Brisbane, AU.
Oral presentation Coccidiosis causing mass mortality of wild green sea turtles in southeast Queensland, Australia: Molecular investigations of an emerging disease.
- 2016** Session chair – Aquatic parasitology stream - 19th International Congress for Tropical Medicine and Malaria (incorporating the Australian Society for Parasitology Annual Conference) – Brisbane, AU.
- 2015** Chapman, P.A., Owen, H., Flint, M., Traub, R.J., Cribb, T.H., Mills P.C. 1st Annual School of Veterinary Science Research Conference – Gatton, AU.
Oral presentation: Molecular investigation of an epizootic event in green sea turtles associated with coccidiosis

- 2015** Ban de Gouvea Pedroso, S., Phalen, D.N., March, D., Blyde, D., Gordon, A., Chapman, P.A., Mills, P.C., Gillett, A., Lloyd, H., Roos, G., Hall, J., Scott, J., Ariel, E., Rose, K. 64th Annual International Conference of the Wildlife Disease Association – Sunshine Coast, AU.
Oral presentation: Systemic coccidiosis in green turtles (*Chelonia mydas*) in Australia: An emerging infectious disease.
- 2015** Chapman, P.A., Traub, R., Cribb, T., Flint, M., Kyaw-Tanner, M., Blair, D., Mills, P.C. 64th Annual International Conference of the Wildlife Disease Association – Sunshine Coast, AU.
Oral presentation: Molecular investigation and antemortem diagnosis of cardiovascular flukes (Digenea: Spirorchiidae) in marine turtles.
- 2014** Chapman, P.A., Traub, R., Cribb, T., Flint, M., Kyaw-Tanner, M., Blair, D., Mills, P.C. 45th Conference of the International Association for Aquatic Animal Medicine – Gold Coast, AU.
Oral presentation: Characterisation and non-invasive molecular diagnosis of cardiovascular flukes from marine turtles in Queensland, Australia.
- 2013** Chapman, P.A., Cribb, T., Blair, D., Traub, R., Kyaw-Tanner, M., Flint, M., Mills, P.C. 24th International Conference of the World Association for the Advancement of Veterinary Parasitology – Perth, AU.
Oral presentation: Morphological and molecular characterisation of cardiovascular flukes (Digenea: Spirorchiidae) from marine turtles in Moreton Bay, Queensland.

****Awarded Best Oral Presentation – Wildlife Theme**

STUDENT SUPERVISION

- 2025 **Rani Cousens** (BSc Honours)
Detection of ectoparasite DNA from skin swabs taken from New Zealand wildlife
- 2025 **Sabine de Klein** (MSc)
Environmental factors affecting disease phenotypes in rimurapa / bull kelp, *Durvillaea poha*
- 2022 **Campbell Nicholas** (BSc Honours)
Does TLR2 play a role in regeneration of *Xenopus laevis* tails by binding bacterial lipopolysaccharides?
- 2017 **Ida Ayu Dian Kusuma Dewi** (MVSc)
Detection of spirorchiid ova in blood samples from the green sea turtle (*Chelonia mydas*) by realtime polymerase chain reaction
- 2014 **Kristen Nielson** (BVSc 5th year research)
Molecular identification of spirorchiid parasites and their potential hosts and pathological effects on Hawaiian and Queensland green sea turtles (*Chelonia mydas*)

OTHER PRESENTATIONS

- 2025 **Departmental Seminar – Dept. Marine Science, University of Otago.** Kelp in Command – Sub-Antarctic Science from a Navy Ship.
- 2025 **Genetics Otago eDNA Hub Mini-Symposium.** DNA-based disease and microbiome investigations in the sub-Antarctic
- 2025 **MARI301 (Marine Ecology), University of Otago.** **Lectures** – Introduction to eDNA, Diseases in Marine Ecosystems, and the Role of Microbes in Marine Ecosystems
- 2024 **Otago Bioinformatics Spring School, Genomics Aotearoa. Invited seminar** – From little things big things grow: how microbes influence tail regeneration in *Xenopus laevis* tadpoles
- 2024 **3rd Applied Microbial Ecology Laboratory Webinars: Exploring the ecology of the microbial world. Universidad de La Frontera, Temuco – Chile. Invited seminar** – Frogs, Fronds and Firmicutes - Investigating the relationships between aquatic organisms and their microbiomes in the lab and in the sea
- 2024 **MARI301 (Marine Ecology), University of Otago.** **Lecture** – Introduction to eDNA
- 2022 **GENE360 (Extension topics and Research Skills), University of Otago. Lecture** – postgraduate career pathways series
- 2016 **Centre For Marine Science Seminar Series – University of Queensland.** Pathogenic parasites from sea turtles of the Queensland coast.