JODIE L. RUMMER

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ACADEMIC QUALIFICATIONS:

PhD – Zoology November 2010
University of British Columbia, Vancouver, B.C. CANADA

MSc – Biology June 2004
University of West Florida, Pensacola, FL USA

BSc – Marine Biology (honours) August 1999
University of West Florida, Pensacola, FL USA

ACADEMIC EMPLOYMENT HISTORY:

Professor of Marine Biology (Academic E) (2022 – present)
College of Science & Engineering, James Cook University, Townsville, AUSTRALIA
Associate Professor of Marine Biology (Academic D) (2021 – 2022)
College of Science & Engineering, James Cook University, Townsville, AUSTRALIA
Associate Professor, Principal Research Fellow (Academic D) (2017- 2020)
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, AUSTRALIA
ARC Early Career Discovery Fellow (DECRA) (2015-2018)
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, AUSTRALIA
Senior Research Fellow (Academic C) (2014 – 2016)
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, AUSTRALIA
ARC Super Science Research Fellow (Academic B) (2011 – 2014)
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, AUSTRALIA
Visiting Scientist (2013) – The Australian National University, Canberra, AUSTRALIA
Visiting Scientist (2012) – Commonwealth Scientific & Industrial Research Organization, AUSTRALIA
Visiting professor (2011) – Fisheries College, Jimei University, Xiamen, CHINA
Post-doctoral Research Fellow (2010 – 2011)
Department of Biology and Chemistry, City University of Hong Kong, Kowloon, HONG KONG
Tutor (2006 – 2010) – University of British Columbia and various Vancouver secondary schools
Aquatic Facilities Curator (2007 –2010)
University of British Columbia, Department of Zoology, Vancouver, B.C. CANADA
Research Assistant (2004 – 2006)
AquaNet, Canada Network Centre of Excellence in Aquaculture, Vancouver, B.C. CANADA
Teaching Assistant (2003 – 2006)
University of British Columbia, Department of Zoology, Vancouver, B.C. CANADA
Laboratory Specialist (2000 – 2001)

Porous Groyne Monitoring Project, Benedict Engineering Corporation, Tallahassee, Florida USA

Teaching & Research Assistant (1998 – 2003)
University of West Florida, Department of Biology, Pensacola, Florida USA

AWARDS AND HONOURS RECEIVED:

- 2022-2023 University of British Columbia, Department of Zoology David J. Randall award seminar
- 2022 James Cook University overall "Citation for Outstanding Contributions to Student Learning" for first-year Introduction to Marine Science (MB1110).
- 2021 & 2022 Times Higher Education Austrade Study Australia Masterclass, Marine Biology
- 2019 Queensland Tall Poppy outstanding early career researcher, Scientist of the Year
- 2019 STEM Star, Queensland National Science Week
- 2019 Planet Talks, WOMADelaide Festival, Adelaide AUSTRALIA
- 2018 Women in Science Ambassador, Australian Government Department of Industry, Innovation, & Science
- 2017 President's Lecture Award, New England Aquarium, Boston, USA
- 2015-2017 ARC Discovery Fellow (DECRA)
- 2016 Australia's "Top 5 scientists under 40", Radio National and the ABC
- 2016 Society for Experimental Biology President's Medal, Communication & Diversity in Science
- 2016 Catch a Rising Star, for Women in Science Queensland National Science Week
- 2015-2016 L'Oréal UNESCO for Women in Science fellowship – Australia & New Zealand
- 2015 Rising Star in Queensland Science (Queensland Government)
- 2015-2016 Lizard Island Reef Research Foundation Fellow, AUSTRALIA
- 2015-2018 Australian Research Council Discovery (early career, DECRA) Fellow, AUSTRALIA
- 2015 George A. Bartholomew distinguished young investigator in comparative physiology, USA
- 2014 Institut des Récifs Coralliens du Pacifique Fellowship, Moorea, FRENCH POLYNESIA
- 2011-2014 Australian Research Council Super Science Fellow, AUSTRALIA
- 2010 University of British Columbia Department of Zoology Travel Grant
- 2008 Society for Experimental Biology Young Scientist of the Year, 2nd runner up
- 2008 EPCOR Water Ltd. Scholarship
- 2008 Company of Biologists Research Travel Scholarship
- 2006 University of British Columbia University Graduate Fellowship
- 2006 American Fisheries Society – Southern Div., best presentation, runner up
- 2005 University of British Columbia University Graduate Fellowship
- 2004 University of British Columbia Zoology Graduate Symposium, second place
- 2003 American Fisheries Society/Sea Grant, best student presentation
- 2003 American Fisheries Society – Florida Chapter, best student presentation
- 2002 Roger Rottman Memorial scholarship 1st runner up
- 2001 University of West Florida college-wide teaching assistant of the year
- 2001 American Fisheries Society – Southern Division, best student poster, honourable mention
- 2001 Who's Who among American College Students
- 2000 University of West Florida college-wide graduate fellowship
- 2000 John C. Pace academic scholarship
- 1999 University of West Florida academic scholarship
- 1995-2000 Dean's and President's lists

SHORT BIOGRAPHY:

I am a Professor of Marine Biology within the College of Science and Engineering at James Cook University. Prior to joining JCU in 2011 as an ARC Super Science Fellow within the Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies, my academic training started in the USA (BSc & MSc degrees, University of West Florida), took me to Canada (PhD, University of British Columbia), and then took me to Hong Kong for a short post-doctoral fellowship. I also held an ARC Early Career Discovery Fellowship (DECRA, 2015 through 2017).

My research best fits within the context of ecological, evolutionary, and conservation physiology, with an emphasis on contemporary issues that affect fish populations. I am specifically interested in the following:

- Physiological performance indicators of stress and acclimation strategies of fishes
- Environmental adaptations related to temperature, O_2, CO_2, acid-base, & ion regulation
- Evolution of life history traits, distribution patterns, and biogeography

Over my career, I have researched fish buoyancy, exercise, and am a leading authority on the evolution of oxygen transport and how fish maintain performance during stress. My areas of specialization include the following:

- Hyperbaric, thermal, O_2, CO_2, pH, water balance, & ion-regulation performance assays
- Blood sampling, surgical techniques, O_2 & pH micro-sensing fiber-optic technology
- Evolutionary reconstructions of physiological traits and phylogenetic comparisons

My team and I combine physiology with ecology and evolution to address issues important to conservation, namely the effects of climate change and other anthropogenic stressors on coral reef fishes, including sharks and rays. I have published ***133 peer-reviewed journal articles*** and ***18 peer-reviewed book chapters*** and an additional ***8 conference proceedings*** and ***23 editorial commentaries***. The ***average Impact Factor of my work is 5.291*** (median 3.308). I have also given ***more than 120 presentations at professional conferences and public events***.

I am also the President of the Australian Coral Reef Society (ACRS) – founded in 1922 and is the oldest, longest running coral reef research and advocacy society in the world – where I have already played a role in advocating for climate policy and the health of the reef at "Science Meets Parliament" and the "Reef Futures Roundtables" in Canberra in 2023. I also am on the editorial board for three scientific journals and part of the UNESCO Intergovernmental Oceanographic Committee (IOC) advisory panel on global deoxygenation (Global Oxygen Network, GO2NE), which is part of the United Nations Decade of Ocean Science for Sustainable Development program.

I have accolades for my research, but also for my capacity to communicate my findings to broad and diverse audiences and am currently (since 2021) a scientific advisor for the Climate Media Centre. In 2015, I received the highly prestigious UNESCO-L'Oréal Women in Science Fellowship (Australia & New Zealand) and gave a TEDx talk, "Athletes of the Great Barrier Reef". In 2016, I was named one of Australia's top 5 scientists under the age of 40 by the Australian Broadcasting Corporation (ABC) and Radio National and was awarded the Society for Experimental Biology's President's Medal. I gave the President's lecture at the Boston Aquarium and was an invited speaker at the Gills Club Symposium "Shark Tales: Women Making Waves" and educational outreach day, both in 2017. In 2018, I was named one of the Women in Science Ambassadors for the Australian Government Department of Industry, Innovation, & Science.

In 2019, I was invited to speak at the Museu do Amanhã (Museum of Tomorrow, Rio de Janeiro, Brazil) as part of the United Nations Sustainable Development Goals – Agenda for Sustainable Development for 2030 – #14 "Life Below Water". I also gave a Planet Talk at WOMADelaide, attended by over 100,000 people, regarding the harmful effects of oil drilling and pollution on marine life. It was featured in short documentary called *Wild Waters* and covered by the *Adelaide Review* and the ABC. I also spoke at sold-out events at the 2019 World Science Festival in

Brisbane on "Saving what we've got: Australia's wildlife under threat" and "Let's talk: Sharks", reaching audiences exceeding 100,000. Later in 2019, I was honoured as Queensland's Tall Poppy Outstanding Early Career Researcher Scientist of the Year.

In 2021, I organized the UNESCO Intergovernmental Oceanographic Commission (IOC) Global Ocean Oxygen Network (GO_2NE) webinar series "Global deoxygenation across scales". Also in 2021, I was selected to represent Marine Biology – "Marine Biology in the Tropics – Amazing Aquatic Athletes in a Changing World" – in Australia for the Australian Trade and Investment Commission (Austrade) Times Higher Education (THE) Study Australia Masterclass Series, which reached >1,600 students live in South Asia and generated 13 million impressions via the marketing campaign. I also spoke on "What can the toughest shark on the Great Barrier Reef teach us about climate change" in the 2021 Global Biodiversity Festival, which was sponsored by National Geographic, the International Union for the Conservation of Nature (IUCN), and Lenovo, among others. In 2022, my team and I were awarded the overall JCU-wide "Citation for Outstanding Contributions to Student Learning" for our first-year Introduction to Marine Science subject (MB1110). More recently (April 2023), I was also honoured and presented the David J. Randall seminar at the University of British Columbia (Vancouver).

My team and I have also produced a short documentary highlighting our shark research in French Polynesia, which debuted at the New York City Wildlife Conservation Film Festival and three other Film Festivals so far (with >24K views, impressions, and engagements on social media). I have also discussed our shark research on National Geographic Wild, Ocean Treks with Jeff Corwin, Discovery Canada (short clips on social media), Disney+ via National Geographic, as well a recent array of podcasts, such as The Whole Tooth, SeaCreatures, The Sweaty Penguin, and Women in Ocean Science. and is part of an international multi-media exhibit on shark research and conservation that launched at the Australian Museum – Sharks – in August 2022. You can find out more about my research and team at jodierummer.com, physioshark.org, and on social media (Instagram: @RummerLab @physioshark; Facebook: Physioshark Project; X: @physiologyfish) where I communicate scientific findings, highlights fellow scientists' successes, and advocate for issues related to gender balance and diversity in STEM.

LEADERSHIP AND ADMINISTRATIVE ROLES:

President – *Australian Coral Reef Society* (August 2024 – present)
Vice President – *Australian Coral Reef Society* (2023 – 2024)
Associate Editor – *Proceedings of the Royal Society - Biology* (2021 – present)
Editorial Board – *Journal of Marine Science and Engineering* (2020 – present)
Associate Editor – *Conservation Physiology* (2015 – present)
Contributor – *IUCN Shark Specialist Group (SSG)* (2023 – present)
Section Editor – *Conservation Physiology* "Conservation Physiology in Action" (2016 – present)
Section Editor – *Encyclopedia of Fish Physiology* (Elsevier, 2024)
Academic Editor – *PLoS One* (2014 – 2017)
Editorial Advisor: Success Strategies from Women in STEM: A Portable Mentor, 2nd ed. Elsevier
Expert Assessor: Australian Research Council (2015-present)

Expert Working Group: *United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Intergovernmental Oceanographic Commission (IOC) Global Ocean Oxygen Network (GO_2NE)* – (2020 – present)

Liaison: I organized weekly invited seminars and co-chaired the women in science advisory team, which is now the Justice, Equity, Diversity, & Inclusion (JEDI) committee and on which I currently serve. I also continue to coordinate various science communication lectures at James Cook University more broadly.

Editorial Commentary Journalist – ***Journal of Experimental Biology*** (2008 –2010)

Conference symposia: I have organised and hosted several symposia for the Society for Experimental Biology's annual international conference (since 2016) as well as organised and hosted two symposia for the Indo-Pacific Fish Conference (Tahiti, French Polynesia 2017), which meets every four years.

Research Infrastructure Advisory Committee – *key researcher board member* (2021–present): I am currently on the committee that advises James Cook University as to key research infrastructure, equipment, vessels/fleet, and access/logistics to our field station.

Australian Institute of Marine Science/JCU Reef Resilience Working Group (2021-present)

JCU College of Science and Engineering Research Education Committee (2022-present)

Reviewer, grant proposals: Marine Fisheries Initiative (USA), SeaGrant (USA), NOAA (USA), Marie Curie fellowships (UK), European Research Council (ERC) Synergy Grants, ARC

Reviewer, scientific journals (24 journals): *Aquaculture, Aquatic Toxicology, Journal of Fish Biology, Fishery Bulletin, Journal of Experimental Zoology, Journal of Experimental Biology, Marine Biology Research, Deep Sea Research, Journal of Comparative Physiology, Fisheries Research, Fish & Fisheries, Fish Physiology & Biochemistry, Fisheries Science, Journal of Experimental Marine Biology & Ecology, North American Journal of Fisheries Management, Canadian Journal of Fisheries & Aquatic Sciences, Transactions of the American Fisheries Society, African Journal of Marine Science, Nature Climate Change, Coral Reefs, Hydrobiologia, Marine Biology, Bioscience, Science Advances*

Research & Volunteer Coordinator – Operation Wallacea, INDONESIA, ENGLAND (2002-2003)
Research Team Leader (2001 – 2003) Indonesia Research Team 2002, University of West Florida, Pensacola, Florida USA

TEACHING STATEMENT:

Teaching about topics that I am passionate and enthusiastic about engages students and improves the overall learning process. Whether in the classroom, the laboratory, or the field, I believe it is important to teach students how to learn, not just what to learn and to remember that we are all still learning, regardless of where we are in our careers.

– Dr. Jodie L. Rummer

Philosophy of Learning

My goals are to draw on my own learning, research, and communication experiences to actively engage students in their own learning and that of their peers. This way, they can build strong foundations in science and contribute to developing an environmentally conscientious society. I aim to foster curiosity and, importantly, create a safe space for students to articulate and inquire about their interests. Finally, I aim to teach students to become life-long learners by committing to their own personal and professional development while pursuing their scientific endeavours.

My role as an ***educator*** is to facilitate the understanding and critical analysis of existing knowledge as well as to engage students to create new knowledge through research, writing, and creative endeavours. The following are what I consider most important in my approach:

- Considering different learning styles, integrating problem-based learning and small group work;
- Use of multi-media, extensive imagery, and interactive learning settings including social media;
- Drawing on my own research findings and that of my colleagues for fresh material.

My role as a ***supervisor*** is to provide structure and intellectual guidance to my students while encouraging them to develop their own ideas and explore their passions. It is a sought-after balance, but I believe that it is still possible to be highly productive and efficient while being nurturing, accessible, and influential.

Experience – I have experience leading courses in General and Marine Biology, assisting courses in General Zoology, Marine Invertebrate Zoology, Comparative Animal Physiology, Marine Ecological Physiology, and Wetlands Ecology, and guest-lecturing upper-level courses in Animal Physiology and Environmental Physiology. While I was a MSc student at the University of West Florida, my teaching responsibilities were extensive. I developed a course for non-science majors in General Biology and was the instructor of record for a Marine Biology & Oceanography course. During this time, I was also honoured with a “Teaching Assistant of the Year” award. I only had teaching responsibilities for the first 18 months of my PhD at the University of British Columbia, but was ranked within the top 10% of teaching assistants university-wide. During that time, I was also invited to guest-lecture on scientific writing for the UBC science-cooperative program. While working in Hong Kong, I taught Chinese students and those from other nationalities where English is their second language in research skills and for a course on environmental toxicology. During my first nine years within the ARC Centre of Excellence for Coral Reef Studies at JCU, I did not have formal teaching requirements. However, I co-taught several courses each year with colleagues, including Aquatic Physiology (AQ3007), Coral Reef Ecology (MB3199), and Special Topics in Biochemistry and Molecular Biology (BC3202 & BC5202). In Semester 2 of 2021, I took on the role of subject coordinator for the first-year subject, Introduction to Marine Science (MB1110), which I remain as subject coordinator, and I additionally co-teach Aquatic Eco-Physiology (AQ3007), Ecology (BS2460), and Biological Oceanography (MB3050 & MB5055). I recently launched a new subject in 2023 that I will now coordinate annually during Semester 1 for the Masters of Marine Biology program at JCU, which is a core requirement, called “Evidence and Controversy in Marine Science” (MB5350).

Beyond the classroom, I also enjoy and find value in organizing small groups to discuss pertinent papers that are formative, controversial, or cutting-edge and topics important to professional development and scientific communication, which are critical but often overlooked in post-graduate-level curricula. Regular, small group settings are important for the growth of upper-level and post-graduate students, but also helpful to me in identifying gross knowledge gaps so I can adjust my curriculum accordingly.

Starting my own research group has allowed me to focus on my supervisory skills and identify my priorities. From this, I have found that it is important that I:

- am approachable and available for regular meetings;
- express interest in their project and career goals;
- am enthusiastic and encouraging;
- provide regular feedback but let them make mistakes (limited);
- identify knowledge and/or skills gaps;
- demonstrate the importance of work/life balance and continued growth;
- introduce students to academic networks and help with career goals.

I ensure that my students are clear as to my expectations of them as well, and regular lab meetings also help to foster teamwork and improve their communication skills.

I have mentored post-graduate students for several years now, but my formal experience as a supervisor started in 2011 and upon completing a six-week formal PhD Advisor Training course at JCU followed by an Advanced Supervisory Training workshop in 2014 and several additional skill development workshops. Recent student completions include 5 Honours, 21 Masters, and 10 PhD students, most with First Class or High Distinction. I have mentored/employed three post-doctoral fellows, notably Dr. Björn Illing, who worked with my team for three years across various fellowships. I currently supervise 5 PhD students (Shamil Debaere, Sophia Emmons, Joel Gayford, Aaron Hasenei, and Nora Louw), 1 MPhil student (Martina Lonati), and 5 MMB students (Katie Seibel, Sarah Stewart, Carmen Dobscewicz, and Kylie Bostick) and several BSc special topics students, interns, and volunteers. My past mentors instilled in me the values I have today and taught me skills I will continue to use. I believe that my supervisory style and scientific interests will help me continue to attract high-quality students.

OTHER PROFESSIONAL ACTIVITIES:

Professional society and organization affiliations:

- Australian Coral Reef Society (President, 2024 – present)
- Australian Coral Reef Society (Vice President, 2023 – 2024)
- Australian Coral Reef Society (councillor, 2022 – 2023)
- Australian Society for Fish Biology (ASFB)
- Oceania Chondrichthyan Society (OCS)
- Women in Science initiatives (local and international)
- Society for Integrative and Comparative Biology (SICB)
- Society for Experimental Biology (SEB, society ambassador, co-chair women in science)
- Canadian Society of Zoologists (elections, April 2009, student counsellor, May 2007-2009)
- UBC Comparative Physiology Research Group (student liaison, August 2005-2008)
- Marine Eco-physiology Research Society (co-founder & president, July 1999-May 2003)
- Omicron Delta Kappa & Gamma Beta Phi Academic Honour Societies
- Phi Sigma Biological Honour Society
- UWF Graduate Student Association
- American Society of Ichthyology and Herpetology
- American Elasmobranch Society
- American Association for the Advancement in Science, Excellence in Science Program
- American Fisheries Society

Community Service:

Reef Ecologic, STEM Stars with Townsville area high school science education, Work experience internships for local grade 11 high school students, Community education and outreach for The Physioshark Project in French Polynesia, Citizens of the Great Barrier Reef and the Great Reef Census, The Gills Club, Sharks4Kids, British Columbia Girl Guides Science Program, Vancouver Friends for Life Society, A Loving Spoonful, Vancouver Aquarium's Marine Mammal Rescue & Rehabilitation Program, U.S. National Parks Tour, Florida Fish & Wildlife Conservation

Commission Kid's Fishing Clinic, Science Fair Judge, UWF Math and Science Day, Volunteer for the Stranding Center of the Emerald Coast Wildlife Refuge, Inc. USA, Bay Days, International Coastal Clean-ups.

Contributions to Diversity:
I have broad interests in issues that women and other minorities in the science, technology, engineering, and mathematics (STEM) fields face at various stages throughout their careers. I was a founding member of the Justice Equity Diversity and Inclusion (JEDI) committee at James Cook University as well as a member of the College of Science and Engineering (CSE) Diversity and Equity Committee and Gender Equity Action and Research (GEAR) Team for the Athena Swan Bronze to Silver Cygnet. I am also on the Advisory Board for Women in Ocean Science.

Women in Science

Despite nearly equal representation at the university student level, the percentage of women in the STEM fields starts to decline dramatically after post-doctoral positions (e.g., the 'leaky pipeline' syndrome). Many reasons are thought to relate to this sharp decline including, but not limited to, extreme examples of sex discrimination to differential allocations of resources and innate differences in communication and mentoring styles. I was involved with three chapters of the 2nd edition of the book – "Success Strategies from Women in STEM: A Portable Mentor" – for which I was also *Editorial Advisor* (see publication list).

I have also given workshops on the research and networking that went into writing these chapters for my own lab as well as various groups here at JCU, such as the public and indigenous health PhD students. I am also a liaison for the Society for Experimental Biology (SEB) women in science group and coordinate several women in science events at JCU. In 2021, I was an invited panelist for the JCU-wide screening of "Picture a Scientist", which sparked insightful conversation within our JCU community and amongst individual groups. Some of what I bring to these networks comes from the research I did for the aforementioned chapters and various workshops I have taken over the years. Other aspects come from the Women in Research Leadership course I did through the University of Queensland in 2014, an opportunity that expanded my knowledge base and professional networks dramatically. I was also sponsored to participate in the Dare to Lead (based on the research of Dr. Brené Brown) training program in late 2021. Ultimately, the sense of community and resources that can be gained via these networks not only provides support and validation for women but also constructs a framework on which to create or change policy. For example, "Ten Simple Rules to Achieve Conference Speaker Gender Balance" was published by my colleague, Prof. Jenny Martin, in *PLoS Computational Biology* (2014) and is now being utilized by several departments and professional societies.

Our efforts for gender balance and diversity in STEM must start much earlier, however. The L'Oréal – UNESCO For Women in Science fellowship brought visibility to me and other up-and-coming women in science and a face and voice to science for young girls looking for role models. As a part of this program, I am now involved with the *Girls in Science Forum*, a platform that has been ongoing for >20 years that provides primary and secondary school girls worldwide an opportunity to liaise with and hopefully be inspired by female scientists that they get a chance to meet and know. Primary school is a critical juncture in girls' education where they may need the most encouragement. The U.S. Department of Education has found that girls "who have a strong self-concept regarding their abilities in math or science are more likely to choose and perform well in elective math and science courses and to select math and science-related college majors and careers". An ongoing commitment for me along with my colleagues as successful females in STEM, is to use our collective knowledge and impact to lend support to schoolteachers to break down gender stereotypes and foster girls' long-term interest in STEM subjects.

LGBTQIA+ in Science

Although it has been several decades now that women and other minorities have advocated for equal opportunities and representation within the STEM fields, it is really only very recently that LGBTQIA+ researchers are in a place to do the same. This is evident with lifted marriage restrictions and vital anti-discrimination legislation. The strong foundation that is currently being built will foster the support and networking organizations at the university level and nation-wide that are needed to help improve the experiences of LGBTQIA+ students, faculty, and staff within the STEM community.

The following is what I do so that the brilliant LGBTQIA+ minds are not lost from STEM:

Dialogue – As an LGBTQIA+ scientist, I am open to talking about what it means to be LGBTQIA+ in STEM so that biases can be discussed and not ignored. This is important for LGBTQIA+ allies as well, and now many universities offer "safe zone" training and tools for visibility, which studies have shown improves the climate within a department.

Access – I have an open-door policy and offer a "safe zone" for LGBTQIA+ scientists and allies to discuss issues. I also stay up-to-date with local, national, and international resources that I can contribute to and make accessible to my LGBTQIA+ colleagues and students. However, we need to remember that STEM fields are full of brilliant minds from across the globe, sometimes from countries where being LGBTQIA+ is punishable by law. This is crucial to consider and makes support systems and resources even more imperative.

Technology – The Internet is making resources more accessible, and social media is making connections between LGBTQIA+ scientists much easier. I have a strong online profile and am active in social media where I am able to utilize my network to directly communicate the issues for women in science as well as connect with LGBTQIA+ scientists. This is also how we can urge the greater STEM community to seize opportunities for openness and inclusion.

Future – It is important to me to be a strong role model – as female and LGBTQIA+ scientist – especially for the budding young scientists, from the 6th-grader starting her first day of biology class to the post-graduate just moments away from defending their PhD. Our best efforts start simply by being good examples and by using online resources and tools like social media to highlight our own and our colleagues' science success stories, achievements, advice, etc. Yet, I can *also* use this communication and openness as a catalyst to implement/change policy. Recruiting, supporting, and retaining diversity in STEM leads to happier scientists *and* better science.

Training and Certifications:

- Dare to Lead, Dr. Brené Brown's certified leadership training (Lead with Courage, 2021)
- Pathways to Impact workshop and training (Research Impact Academy, 2021)
- Research Integrity training (2021)
- Climate Media Centre – science communication training (2021 and annually)
- Diversity and inclusion training (Polykala, 2020)
- Conflict management and resolution workshop (2019)
- R-Statistics week-long workshop (2018)
- Science in Public, science communication media training (2015)
- Women in Research Leadership, University of Queensland School of Business (2014)
- Introduction to Conflict Coaching (2014), Conflict Coaching International
- Early Career Researcher Intensive supervisory & advanced training (2012, 2013)
- eConnect (Brisbane, QLD) media training, communicating science to the media
- Queensland boating license
- CPR, First Aid, Anaphylaxis, Asthma, AED, & O_2 administration training (annually)
- Introduction to Scholarly Portfolios Workshop
- Canadian Council on Animal Care (CCAC) Experimental Animal User Certification
- NAUI advanced diver certification & NAUI rescue diver certification

- NASDS open-water SCUBA certification, SSI Nitrox certification
- UWF scientific diver certification
- City University of Hong Kong laboratory safety certification
- University of British Columbia chemical safety radionuclide safety and methodology
- University of West Florida hazardous waste & lab safety training
- University of British Columbia laboratory chemical safety
- National Safety Council defensive driving certification
- United States Power Squadron Boat Smart program
- Emerald Coast Wildlife Refuge, Inc., marine mammal stranding response & necropsy
- UWF Research Grantsmanship seminar

PRESS AND MEDIA COVERAGE:

I have been involved with >3,000 newspaper, magazine, online, television, radio, and documentary pieces regarding my research and that of my students' research, reaching over 4 billion people. A key piece regarding how incredible fish are at delivering oxygen to their muscles (based on my research published in *Science* and *PLoS One*) reached >18 million people in August 2016. Please contact me directly for a full list of media outputs.

RESEARCH STATEMENT:

Background:

My research career began as an undergraduate student while volunteering in the laboratory and in the field with the scientist that would soon be my MSc supervisor. My MSc research in Florida aimed to understand the physiological consequences of rapid ascent in fish, such as when a fish is caught by hook-and-line and was the first of its kind and of critical importance to a key conservation issue regarding catch-and-release mortality in reef fish. Conclusions were cited in the NOAA National Marine Fisheries Service amendments to reef fishery management plans. During my MSc, I also lead field experiments along Florida beaches and mangroves, participated in two research cruises to the Dry Tortugas National Park, and lead a 13-student team to work in Southeast Sulawesi, Indonesia.

I earned my PhD from the University of British Columbia (UBC) in November 2010 under the supervision of Professor Colin J. Brauner. My research focused on the evolution of oxygen uptake and delivery in fishes and the mechanisms used to maintain performance during stress, some of which I published in *Science.* Prof. Brauner and I have continued our collaborative relationship and have several other studies in progress.

Upon completing my PhD, I worked with Professor David J. Randall (emeritus, UBC), at the City University of Hong Kong as a post-doctoral fellow (2010-2011) where I investigated the role of secondary circulatory systems during stress in fish. This broadened my knowledge base, integrating fluorescence microscopy and microsurgical techniques into my repertoire and the array of technology available to me in Hong Kong. Up until his sudden death in April 2024, Prof. Randall had still been a fantastic mentor to me and had facilitated contact with many of my current collaborators.

In 2011, I was appointed as an Australian Research Council "Super Science Fellow" (Academic B, Assistant Professor level) at the ARC Centre of Excellence for Coral Reef Studies (CoECRS) at James Cook University (JCU) straddling the "Ecology and Evolution" and "Genetic, Molecular, and Physiological Processes" programs. In August 2014, I was promoted to Senior Research Fellow (Academic C, Assistant Professor), and in January 2015 I began an ARC early career Discovery grant, which supplied my research funding and post-graduate student support for three years. In 2017, I applied for and was awarded promotion to Academic D, Associate Professor. At the start of 2021, I transitioned to the College of Science and Engineering at James Cook University for the

permanent, tenured part of my position, and on 1 July 2022, I was promoted to full Professor (Academic E) of Marine Biology.

I have had great success during my time thus far at JCU, especially in terms of presentations, speaking engagements, publications of my own and my students' research in top journals, and maintaining collaborations launched from my PhD and post-doctoral research. I was awarded funding for these projects through highly competitive grants from the ARC, the Agence Nationale Recherche (ANR), and the King Abdullah University of Science and Technology (KAUST) Competitive Research Grants Program (CRG4), the Sea World Research and Rescue Foundation Inc., Save Our Seas Foundation, and grants from various professional societies.

My strong foundation in mechanistic physiology combined with local expertise in coral reef ecology and biology enabled me to initiate cross-cutting collaborations addressing the mechanisms that fish, including sharks and rays, use to cope with environmental stressors, projects that have been conducted here at JCU and at multiple field sites spanning the Great Barrier Reef, Coral Triangle, Papua New Guinea, and French Polynesia. Collaborations have not only been with JCU researchers but also other institutions in Australia where I have been a visiting scientist, including the Australia Institute of Marine Science (AIMS), The Australian National University, CSIRO and the University of Tasmania, University of New South Wales, and University of Queensland. I have also benefited through international collaborations with scientists there at The University of California (Davis and San Diego), the Georgia Institute of Technology, Virginia Institute of Marine Science (VIMS), New England Aquarium, University of Massachusetts (Boston), University of Miami, University of Oslo, University of Copenhagen, Ecofisiologia Centro de Investigação Interdisciplinar Marinha e Ambientral in Portugal, the National Institute of Water and Atmospheric Research (NIWA) and University of Otago in New Zealand, KAUST in Saudi Arabia, the Okinawa Institute of Science and Technology (OIST) in Japan, and the Centre de Recherche Insulaire et Observatoire de l'Environnement (CRIOBE), Papetoai, Móorea, Polynésie Française, a research centre supported by the Centre National de la Recherche Scientifique (CNRS) in France. One of these collaborations stemmed from a joint proposal to the National Geographic Society for which we were awarded $20,000 USD. Because of the collaborations and topics of my work, several of my studies have also received media attention including over 3,000 online, print, radio, and TV pieces as well as several video documentaries.

The mentoring I have received, and my network of collaborators, has helped me develop my research and communicate my findings and aided in my professional development. For example, I received sponsorship to take part in a one-week intensive Early Career Researcher skills development workshop, which included communication, time-management, supervisory, and grant writing skills as well as a one-week intensive Women in Research Leadership course with the University of Queensland School of Business. In 2018, I was named – by the Australian Government's Department of Industry, Innovation, and Science (DIIS) – Women in Science Ambassador. During my time at JCU, I have also been sponsored to participate in a media training course led by professionals at eConnect, another one lead by Science in the Public, and two with the Climate Media Centre, for which I am now a spokesperson. My own and my team's research has reached over 4 billion people through online, print, radio, and television media stories.

Current and Future Objectives:
My research best fits within the context of **ecological** and **conservation physiology**, with an emphasis on issues that affect marine, estuarine, and freshwater fish populations. I am primarily interested in the **physiological** and **biochemical** mechanisms fish, including sharks and rays, use to respond to natural and anthropogenic environmental change. I also have a strong interest in exercise-induced stress, such as that associated with swimming, vertical movements, buoyancy control, and, from a more applied angle, catch-and-release fishing. This includes the potential to induce post-release mortality, as well as sub-lethal physiological effects and behavioural modifications. I view these areas as vital to conservation of marine, estuarine, and freshwater ecosystems but also important contributions to basic science.

Overall, my research aims to understand:

- Physiological effects of key environmental parameters (e.g., temperature, CO_2, hypoxia, turbidity, sound, etc.) that are both naturally cyclic over the year and which now are being affected by coastal development and climate change on metabolic and swimming performance of fishes;
- Mechanisms by which fishes acclimate and adapt to yearly cyclic and climate change related stressors so that predictions can be made as to which species and/or populations may alter their movement patterns and distribution or be most at risk;
- Physiological tolerances and life history adaptations that are significant to both basic and applied science.

My approach consists of an innovative combination of **field- and laboratory-based experimentation**, including, for example, harnessing geographic gradients and local extreme environments as analogues for future change, investigating the extreme performers within aquatic environments, and integrating conventional and state-of-the-art physiological, biochemical, and molecular techniques to gain insight into the various cellular and whole-organism responses.

As my primary interest is in ecological and comparative physiology, the aim of my current research program here in Australia is to identify and understand the physiological mechanisms that fishes use to acclimate and adapt to climate-related stressors and to make predictions as to which species and populations may be most at risk from climate change and other anthropogenic stressors.

Specific examples:

Temperature: Physiological differences between populations can indicate whether local acclimation and adaptation to temperature variation, for example, has already occurred and thus, if acclimation and adaptation to climate change is possible. Therefore, some of my most recent findings underscore the importance of utilizing biogeographical comparisons – e.g., the thermal gradients along the length of the Great Barrier Reef or within the freshwater estuaries from northern to southern Australia or even the shallow mangrove and lagoonal habitats that often serve as nurseries – as analogues for future climate change. In addition to my own work in this area, my MSc and PhD students have investigated the role of gill remodelling in coping with the increased O_2 demand that comes with elevated environmental temperatures and increases in turbidity in small coral reef fishes. Several of my current and recently completed graduate students and post-doctoral fellows are investigating the temporal scale of thermal acclimation and metabolic performance with respect to temperature preference and development in coral reef fishes including reef sharks, such as the reef flat specialist, the epaulette shark (*Hemiscyllium ocellatum*). I aim to continue this work, overlaying the physiological mechanisms fish use to occupy certain habitats with their spatial and temporal movements, distribution patterns, and life history.

CO_2 and ocean acidification: Some teleost and elasmobranch species appear able to maintain or even enhance metabolic performance upon acclimation to the elevated CO_2 levels that will accompany ocean acidification in the coming decades, thus countering modern theory. With my team, we have delved beyond whole organism performance to address:

a) The mechanistic basis for enhanced performance from the level of the mitochondria, ion transporters, and metabolic enzymes in the gill and muscle to the O_2 transport capacity of the blood;

b) The dynamics of these fish species' particular habitats where O_2 and CO_2 levels within the coral reef matrix fluctuate diurnally;

c) And, reconstruct the evolutionary basis for enhanced O_2 transport during stress in fish, which draws on my previous work.

This multi-disciplinary approach already involves many international collaborations, including University of British Columbia, University of Miami, University of North Texas, University of Texas Austin, KAUST, University of Hong Kong, University of Oslo, and OIST, to name a few. However, this theme also involves my work at Centre de Recherche Insulaire et Observatoire de l'Environnement (CRIOBE), Polynésie Française.

With the latter collaboration, I have been (since 2013) investigating the physiological tolerance of newborn blacktip reef and sicklefin lemon sharks in shallow mangrove nurseries, areas that experience dramatic changes in water temperature, pH, and oxygen. The Physioshark research in French Polynesia (with smaller projects in Australia, Canada, Belgium, New Zealand, and the U.S.) is perhaps the largest and most visible of my overall research program. It has not only attracted a lot of media attention but is the topic of our public forum lectures annually, including: “Sharks: From legend to Science”, Moorea, French Polynesia, January 2018 (>120 members of the public attended, including industry, business owners, residents, and tourists), “11 Safe Havens for Baby Sharks”, ARC CoECRS Symposium, Brisbane, Australia, July 2018, “Conserving sharks in a changing world”, Reef HQ, Townsville, Australia, October 2018 (shark conservation gala, >150 members of the public attended), and “A Tail of Two Sharks” with the Sharks4Kids Shark Education Program, via Zoom to a global audience (>400 attendees), 1 April 2020, among others. This research is also the topic of education and outreach in small communities near our field sites via school visits, public lectures, and conservation events.

Indeed, there is evidence that some species can acclimate to climate change relevant CO_2 levels, but very little is known as to how ocean acidification will impact ecological processes over the longer term and at the community level. To address this, I have been involved with a National Geographic grant and again over a second trip with my collaborative KAUST CRG4 grant to investigate the effects of long-term exposure to elevated CO_2 in fishes living in natural CO_2 seeps in Papua New Guinea. At these sites, natural fish communities occupy reefs near cool volcanic seeps that acidify seawater to levels similar to projections for the coming century, and nearby reefs unaffected by the CO_2 seeps are ideal controls. I have been collaborating with a team of ocean chemists, marine community ecologists, and behavioural ecologists from the Australian Institute of Marine Science, University of Papua New Guinea, KAUST, OIST, University of Hong Kong, and JCU to test the effects of long-term exposure to elevated CO_2 on reef fish behaviour and metabolism and to examine the potential consequences for reef fish communities. We have published on this topic in *Nature Climate Change*, *Nature Ecology & Evolution*, and *Global Change Biology*, with others in preparation or in review. Several media stories and one documentary have also resulted from this work so far. This also prompted the work of one of my recently completed PhD students who investigated the trade-offs between physiological performance and behaviour in fish under elevated CO_2 conditions.

Swimming performance: Almost all aspects of a fish’s life history depend on swimming performance – including predator-prey interactions, reproductive behaviour, and habitat selection. Another component of my research is investigating the intra- and interspecific morphological and physiological variations in swimming performance, the role of life history, and how fish respond to environmental stress. My colleagues and I first set out to investigate and validate various techniques for assessing fish performance, especially in relation to swimming mode. Currently, we are considering the importance of developmental acclimation and phenotypic plasticity in relation to swimming performance and changes in the environment using behavioural observations, morphological and physiological measurements, phylogenetic analyses, and rearing and training experiments. Some of the key environmental stressors we are investigating, as they may play a role in fish swimming

performance, are temperature, wave energy, and water flow patterns. These are prominent physical stressors in shallow marine systems expected to be affected by climate change.

Larval fish biology: I also investigate environmental stress in larval fishes. Larval fishes are the smallest vertebrates and represent a critical life history stage for dispersal, connecting populations, and seeding ecosystems. Some larval fishes exhibit mass-specific routine metabolic rates that exceed those of tunas. Swimming is crucial to the larval phase of many species; some reef fish larvae spend 2-3 weeks in the pelagic environment prior to settling on a suitable coral habitat. Additionally, during the larval phase, crucial morphological structures, such as the gills, are still developing and they become increasingly important as the fish grows and the skin can no longer sustain sufficient gas exchange rates. One of my MSc students determined that if larval clownfish (*Amphiprion percula*) are exposed to high concentrations of suspended sediment, levels that could occur with storm or agricultural run-off from coastal communities, gill anatomical development and gas-exchange function are impaired, and the gill microbiome shifts from commensal to pathogenic. She then started to explore this in much more depth for her PhD and in conjunction with other stressors such as elevated temperatures, water flow, and hypoxia. A Master's student I advised and a recently completed PhD student have both explored the early ontogeny of gill development, metabolism, and swimming traits in coral reef fishes, especially as my laboratory has already demonstrated that both temperature and food supply can influence development time, growth, and metabolism in larval coral reef fishes. With the level of ocean warming predicted for this century by climate change models, plankton communities will be impacted, as will food for larval fishes; thus, understanding the energetics of this life history stage is important for predicting changes in population dynamics and viability. Larval fishes can be highly susceptible to environmental perturbations and can therefore be used as the 'canary in the coal mine' with regard to aquatic ecosystems that are under unprecedented pressure from global climate change and reduced water quality (altered temperatures, pH, salinity, low oxygen 'dead zones', turbidity and eco-toxic pollutants, such as oil/PAHs).

Summary: My research emphasizes the diversity of my interests, the unifying theme and array of applications, and has clear, applied outcomes. Although, I do place a lot of importance on the basic science component, because it is the curiosity-driven, fundamental scientific research that provides the foundation on which we can ask questions important to contemporary issues such as anthropogenic climate change.

GRANTS AND FUNDING:

SUMMARY:
Cash awards granted: $3,368,868
Equipment/services donated: $43,000
Total: $3,411,868

$15,000 (AUD) Australia & Pacific Science Foundation (APSF) J.L. Rummer, "How do larval coral reef fishes recruit to coral reefs?" 2024

$44,000 (AUD) New Columbo Plan (NCP) 2024 Mobility Grant, J.L. Rummer, "Understanding climate change challenges faced by newborn sharks in the largest shark sanctuary in the world, French Polynesia", 2024.

$23,000 (AUD) Save Our Seas Foundation, A. Hasenei, J.L. Rummer, "Can the epaulette shark outwalk climate change?", 2024-2025.

$37,900 (AUD) American Australian Association - USA to Australia Graduate Education Fund, A. Hasenei, J.L. Rummer, "Can the epaulette shark outwalk climate change?"

$4,324 (AUD) Save Our Seas Foundation, J.L. Rummer & C.W. Wheeler, “Temperature effects on shark reproduction”, February 2021 – March 2022.

$9,800 (AUD) Fisheries Society of the British Isles, B. Illing & J.L. Rummer, “Metabolomic analyses, larval coral reef fishes and multiple climate change stressors”, January – December 2020.

$72,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2020.

$69,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2019.

$21,814 (AUD) Sea World Research & Rescue Foundation Inc. (SWRRFI), (2 years), “Mechanisms underpinning maintained or enhanced performance of coral reef fishes under future climate change conditions” with Kelly Hannan, 2019-2020.

$300,000 (€) Agence Nationale Recherche (ANR), (3 years), “Energy fluxes on coral reefs: A vertebrate perspective”, with Valeriano Parravicini, Simon Brandl, David Bellwood, Serge Planes, 2016-2018

$65,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2018.

$15,000 (AUD) TARA Expeditions Foundations, Tara Pacific 2016-2018, “Coral Reef Biodiversity Facing Climate Change”, 30 days support (Japan-leg) of the 2-year global research cruise, February – March 2017

$65,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2017.

$25,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2016.

$1,349,555 (USD) (~$1,800,000 AUD) King Abdullah University of Science and Technology - Competitive Research Grants Program-Round 4 (CRG4) for research entitled "Genomic evidence for adaptation of marine fishes to ocean acidification" with T. Ravasi, P. Munday, & M. Beruman, April 2016-March 2019.

$25,000 (AUD) L’Oréal – UNESCO For Women in Science Fellowship – Australia & New Zealand, for furthering research entitled “Growing up strong in a changing climate: Maintaining physiological performance in juvenile reef sharks under challenging environmental conditions”, September 2015 – August 2016.

$12,100 (AUD) Lizard Island Reef Research Foundation Fellowship, for research “Athletes in acidified oceans: differential effects of high CO_2 on coral reef fish performance”, April 2015 – March 2016.

$25,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2015.

$358,536 (AUD) Australian Research Council Discovery Fellowship (early career, DECRA), for research “Physiological performance of reef fishes under ocean acidification”, January 2015 – December 2017.

$6500 (AUD) to attend the University of Queensland School of Business “Women in Research Leadership” course, Brisbane, AUSTRALIA, June 2014.

$10,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – June 2014.

$4,000 Griffith University (Gold Coast) Climate Change Response Group for collaborative work with Prof. Gillian Renshaw, “Impact of elevated temperature and CO_2 on the growth, development and survival of a representative reef shark” – April 2014

€4500 ($6,400) Institut des Récifs Coralliens du Pacifique / Institute for Pacific Coral Reefs grant to conduct research at Laboratoire d'Excellence (CORAIL) "Les récifs coralliens face au changement global" Centre de Recherche Insulaire et Observatoire de l'Environnement (CRIOBE) in Moorea, POLYNÉSIE FRANÇAISE – October – November 2014.

$15,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – June 2014.

$20,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2013.

$3,000 (USD) (~$4,000 AUD) Australian Academy of Sciences, to attend and present at The Japan-Australia marine science workshop: Understanding global change impacts and opportunities in tropical and subtropical marine ecosystems, Tokyo, JAPAN, July 2013.

£180 ($286) Society for Experimental Biology, Company of Biologists Travel award to attend the annual conference in Valencia, SPAIN, July 2013.

£350 ($500) The Society for Experimental Biology, project funded entitled “The physiological consequences of elevated CO_2 on a keystone species of the Great Barrier Reef”, October 2012.

£1,000 ($1500) The Journal of Experimental Biology, project funded entitled “The physiological consequences of elevated CO_2 on a keystone species of the Great Barrier Reef”, September 2012.

£250 ($400) Society for Experimental Biology, Company of Biologists Travel award to attend the annual conference in Salzburg, AUSTRIA, June-July 2012.

$20,000 (USD) (~$26,650 AUD) National Geographic Society, project funded entitled “Responses of fishes and their prey to ocean acidification: using cool shallow CO_2 seeps emerging from coral reefs in Papua New Guinea as a window into the future” with K. Fabricius, A. Mungkaje, P. Munday, S. Uthicke, A. Cheal, and S. Noonan, March 2012.

£2,000 ($3000) The Journal of Experimental Biology, project funded entitled “Global climate change and its effects on the metabolism of two Great Barrier Reef fish species” with A.J. Morash and F.I. Iftikar, January 2012.

$20,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2012

$6,000 (AUD) Funding for 4 weeks of research at the National Fisheries College Institute of Sustainable Marine Resources research station on Nago Island, New Ireland Province, Papua New Guinea with P. Munday, N. Gardiner, G. Nilsson, C. Courturier, and J. Stecyk, project entitled “Local adaptation to climate change: fish physiology across latitudes”

$3,000 (AUD) National Fisheries College of Papua New Guinea, Research Funding

$10,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, August – December, 2011

$835,200 (AUD) Australian Research Council FS2011R2 “Resilience of Coral Reef Ecosystems to Climate Change” Prof. T. Hughes, Prof. B. Willis, Prof. D. Miller, Prof. P. Munday, Prof. R. Pressey, appointed “ARC Super Science Fellow” as part of this grant, August 2011 – June 2015.

$3,600 University of British Columbia Faculty of Graduate Studies Scholarship, September 2010

$500 University of British Columbia, Department of Zoology Graduate Student Travel Award to attend the International Congress on the Biology of Fish, Barcelona, July 2010

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2009

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2008

£500 ($1000) Society for Experimental Biology, Company of Biologists Travel award to pursue a collaborative research project at the University of Liverpool, UK, May-July 2008.

$500 EPCOR Water Ltd. Scholarship to attend the 47th annual Canadian Society of Zoologists in Halifax, Nova Scotia, May 2008

$675 Travel and registration scholarship to attend the 15th annual Western Groundfish Conference in Santa Cruz, CA, February 2008

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2007

$200 Canadian Society of Zoology travel grant to attend the 46th annual joint meeting of CSZ/MSC meeting in Montreal, Quebec, May 2007

$16,000 University of British Columbia University Graduate Fellowship, September 2006

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2006

$2,000 AquaNet Canadian Centre of Excellence travel grant to attend the Society for Experimental Biology annual meeting in Canterbury, Kent, UK, April 2006

$400 University of British Columbia Graduate Studies travel grant to attend the Southern Division of the American Fisheries Society meeting in San Antonio, USA, February 2006

$8,000 University of British Columbia University Graduate Fellowship, September 2005

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2005

$100 Canadian Society of Zoology travel grant to attend annual joint meeting of CSZ/MSC meeting in Kingston, Ontario, May 2005

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2004

$250 Canadian Society of Zoology travel grant to attend annual joint meeting of CSZ/MSC meeting in Wolfville, Nova Scotia Canada, May 2004

$7,200 University of British Columbia Faculty of Graduate Studies Scholarship, September 2003

$300 University of West Florida-MERS travel grant to attend joint meeting of ASIH/AES in Manaus, Amazonas Brazil, July 2003

$300 Florida Chapter of the American Fisheries Society student travel grant to attend American Fisheries Society Student Colloquium, February 2003.

$150 Florida Chapter of the American Fisheries Society student travel grant to attend Florida Chapter annual meeting in Brooksville, FL, February 2003.

$200 University of West Florida-MERS research activity grant for projects entitled “Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia”, April 2002

$150 Florida Chapter of the American Fisheries Society student travel grant to attend Florida Chapter annual meeting in Brooksville, FL, February 2002.

$2,400 Operation Wallacea Research Fellowship for projects entitled “Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia”, September 2001

$300 University of West Florida-MERS travel grant to attend joint meeting of ASIH/AES at Penn State University, July 2001

$250 University of West Florida College of Arts & Sciences scholarly and creative activity grant awarded to continue thesis research entitled “Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*”, March 2001

$300 University of West Florida Department of Biology travel grant to attend Southern Division AFS meeting in Jacksonville, FL, February 2001

$150 University of West Florida Department of Biology travel grant to attend Dauphin Island Sea Lab Graduate Student Symposium, January 2001

$40,000 SERF engineers grant for equipment and resources towards thesis research, “Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*”, November 2000

$1,000 over three years, *New Florida Girl*, Destin, FL, annual donation of boat time towards thesis research “Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*”, April 2000

$250 University of West Florida College of Science and Technology scholarly and creative activity grant awarded for research entitled “Maximum and minimum thermal tolerance of striped burrfish, *Chilomycterus schoepfi*”, March 2000

$500 University of West Florida College of Science and Technology scholarly and creative activity grant awarded for research entitled “Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*”, September 1999

$200 University of West Florida Department of Biology travel grant to attend the Florida Chapter of the AFS annual meeting in Brooksville, FL, February 1999

PUBLICATIONS: 5735 citations, h-index = 44, i_{10}-index = 98; Google Scholar November 2024
SUMMARY: 18 book chapters, **133** journal articles, **8** conference proceedings, **23** editorial commentaries

CHAPTERS IN BOOKS:

151) **Rummer, J.L.** (2024) 45 years of "The respiratory and circulatory systems during exercise" in Fish Physiology, as per David R. Jones and David J. Randall. In Fish Physiology, Randall, D.J., Farrell, A.P., Brauner, C.J., and Eliason, E.J. (eds.). Elsevier. https://doi.org/10.1016/bs.fp.2024.05.001

150) Brauner, C.J., **Rummer, J.L.** (2024) Gas transport and exchange: Interaction between O2 and CO2 exchange. Volume 1, Section 5, Gas Exchange and Ion Homeostasis in *Encyclopedia of Fish Physiology*, 2nd Edition. Gillis, T. & Alderman, S. (eds.). Pages 730-734. ISBN 978-0-323-99761-4 https://doi.org/10.1016/B978-0-323-90801-6.40011-X

149) Rosa, R., **Rummer, J.L.**, Santos, C. (2024) Introduction to elasmobranch physiology. Volume 3, Section 2, Physiological Specializations of Different Fish Groups, in *Encyclopedia of Fish Physiology*, 2nd Edition. Gillis, T. & Alderman, S. (eds.). Pages 323-335. ISBN 978-0-323-99761-4 https://doi.org/10.1016/B978-0-323-90801-6.00186-5

148) **Rummer, J.L.** (2024) Physiological specializations of fish groups: Cool, clever, and sometimes critical physiological adaptations. Volume 3, Section 2, Physiological Specializations of Different Fish Groups, in *Encyclopedia of Fish Physiology*, 2nd Edition. Gillis, T. & Alderman, S. (eds.). Pages 226-228. ISBN 978-0-323-99761-4 https://doi.org/10.1016/B978-0-323-90801-6.00164-6

147) Chin, A., Bierwagen, S. **Rummer, J.L.**, Udyawer, V. (2024) The biophysics of sharks and rays on the Great Barrier Reef. Chapter 21 in Oceanographic Processes of Coral Reefs: Physical and Biological Links in the Great Barrier Reef, 2nd Edition. Wolanski, E., Kingsford, M.J. (eds.). Pages 306-319. doi: 10.1201/9781003320425-24

146) **Rummer, J.L.,** Illing, B. (2022) Coral Reef Fishes in a Multi-Stressor World, Chapter 7 in Fish Physiology, Volume 39, Part B, Conservation Physiology for the Anthropocene - Issues and Applications. Fangue, N.A., Cooke, S.J., Farrell, A.P., Brauner, C.J., and Eliason, E.J. (eds.). Pages 325-391, ISSN 1546-5098, ISBN 9780128242681, https://doi.org/10.1016/bs.fp.2022.04.011. IF: n/a, Citations: 1

145) **Rummer, J.L.,** Bouyoucos, I.A., Wheeler, C., Santos, C.P., Rosa, R. (2022). Climate Change and Sharks, Chapter 25 in Carrier, J.C., Simpfendorfer, C.A., Heithaus, M.R., and Yopak, K.E. (eds) Biology of Sharks and their Relatives, Third Edition. CRC Press. 840pp. https://doi.org/10.1201/9781003262190 IF: n/a, Citations: 2

144) Cooke, S.J., Madliger, C.L., Bergman, J.N., Nguyen, V.M., Landsman, S.J., Love, O.P., **Rummer, J.L.**, Franklin, C.E. (2020). Optimism and opportunities for conservation physiology in the Anthropocene: a synthesis and conclusions, Chapter 19 in Cooke, S.J., Madliger, C.L., Love, O.P., and Franklin, C.E. (eds) Conservation physiology: Integrating physiology into animal conservation and management. Oxford University Press. ISBN: 9780198843627. pp. 319-329. https://doi.org/10.1093/oso/9780198843610.003.0019 IF: n/a, Citations: 2

143) Laubenstein, T.D. and **Rummer, J.L.** (2020). Communication in conservation physiology: linking diverse stakeholders, promoting public engagement, and encouraging application, Chapter 18 in Cooke, S.J., Madliger, C.L., Love, O.P., and Franklin, C.E. (eds) Conservation physiology: Integrating physiology into animal conservation and management. Oxford University Press. ISBN: 9780198843627. pp. 303-317. https://doi.org/10.1093/oso/9780198843610.003.0018 IF: n/a, Citations: 3

142) Bouyoucos, I.A. and **Rummer, J.L.** (2020). Improving "shark park" protections under threat from climate change using the conservation physiology tool box, Chapter 11 in Cooke, S.J., Madliger, C.L., Love, O.P., and Franklin, C.E. (eds) Conservation physiology: Integrating physiology into animal conservation and management. Oxford University Press. ISBN: 9780198843627. pp. 185-204. https://doi.org/10.1093/oso/9780198843610.003.0011 IF: n/a, Citations: 3

141) **Rummer, J.L.** and Brauner, C.J. (2020) Gas Exchange, Chapter 3 in Currie, S. and Evans, D.H (eds) The Physiology of Fishes, 5th Edition. CRC Press/Taylor and Francis Group. pp. 33-45. doi: https://doi.org/10.1201/9781003036401 IF: n/a, Citations: 1
140) Munday, P.L., **Rummer, J.L.**, Baumann, H. (2019) Adaptation and evolutionary responses to high CO_2, in Grosell, M., Munday, P.L., Farrell, A.P., and Brauner, C.J. (eds) Fish Physiology, Volume 37, Elsevier. ISSN 1546-5098, pp. 369-395. doi: https://doi.org/10.1016/bs.fp.2019.07.006 IF: n/a, Citations: 12
139) Brauner, C.J., Harter, T.S., **Rummer, J.L.** (2017) Gas Transport and Exchange: Interaction Between O_2 and CO_2 Exchange, In Reference Module in Life Sciences, Elsevier, ISBN: 978-0-12-809633-8, doi: 10.1016/B978-0-12-809633-8.03114-9 IF: n/a, Citations: 6
138) **Rummer, J.L.**, Isom, L.L. (2015) Communicating Science. In Pritchard, P.A. & Grant, C. (eds.) Success Strategies from Women in STEM: A Portable Mentor, 2nd edition. Elsevier. pp. 201-253. IF: n/a, Citations: 1
137) Darling, E.**, Rummer, J.L.** (2015) Strategically Using Social Media. In Pritchard, P.A. & Grant, C. (eds.) Success Strategies from Women in STEM: A Portable Mentor, 2nd edition. Elsevier. pp. 255-296. IF: n/a, Citations: 1
136) **Rummer, J.L.**, (2015) Networking. In Pritchard, P.A. & Grant, C. (eds.) Success Strategies from Women in STEM: A Portable Mentor, 2nd edition. Elsevier. pp. 23-60.
135) Brauner, C.J., **Rummer, J.L.** (2011) Gas Transport and Exchange: Interaction Between O_2 and CO_2 Exchange. In: Farrell A.P., (ed.), Encyclopedia of Fish Physiology: From Genome to Environment, volume 2, pp. 916–920. San Diego: Academic Press. doi:10.1016/B978-0-1237-4553-8.00115-5
134) **Rummer, J.L.** (2007) Interacting factors affecting release mortality in red snapper with an emphasis on catastrophic decompression and swim bladder form and function. pp.123-144 *in* W.F. Patterson, III, J.H. Cowan, Jr., G.R. Fitzhugh, & D.L. Nieland, eds. Red Snapper Ecology & Fisheries in the U.S. Gulf of Mexico, American Fisheries Society Symp. 60, Bethesda, Maryland. IF: n/a, Citations: 45

JOURNAL ARTICLES: (Average Impact Factor: 5.291, Median Impact Factor: 3.308)
Note: underscored names are postgraduate students/post-docs I supervise or have supervised.
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CONFERENCE PROCEEDINGS:

8) Hernandez, A., Gervais, C.R., **Rummer, J.L.**, Porter, M.E. (2016) Comparing submerged walking and swimming kinematics in epaulette sharks. *Integrative and Comparative Biology* 56: E301.
7) Hess, S., Wenger, A., Ainsworth, A., **Rummer, J.L.** (2015) Too turbid for nemo: Suspended sediment impacts gills and favours pathogenic bacteria in clownfish larvae. 145th Annual Meeting of the American Fisheries Society.
6) **Rummer, J.L.**, Morash, A.J., Miller, G., Iftikar, F.I., Hickey, A., Wilson, J., Munday, P.L. (2015) Effects of ocean acidification on metabolic performance in coral reef fishes. 145th Annual Meeting of the American Fisheries Society.
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2) **Rummer, J. L.**, Regan, M., Brauner, C.J. (2006) Characterization of the haemoglobin and red blood cell system in the copper rockfish, *Sebastes caurinus*. ***Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*** 143(4): S74-S74.
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EDITORIAL COMMENTARIES AND PERSPECTIVES:

23) Heron, S.F., **Rummer, J.L.**, Day, J. (2023) Warm is the new norm for the Great Barrier Reef – and a likely El Niño raises red flags. ***The Conversation***. 7 June 2023. https://biturl.top/QrQvIz
22) Downie, A.T., **Rummer, J.L.** (2023) Tiny aquatic athletes: how baby Nemo can 'just keeping swimming' from the open ocean to the reef. ***The Conversation***. 12 May 2023. http://bitly.ws/EBHi
21) **Rummer, J.L.**, Heron, S.H. (2022) What the next Australian government must do to save the Great Barrier Reef. ***The Conversation***. 12 May 2022. https://bit.ly/3NfTRfL
20) **Rummer, J.L.**, Heron, S.H. (2022) Adapt, move, or die: repeated coral bleaching leaves wildlife on the Great Barrier Reef with few options. ***The Conversation***. 21 March 2022. https://bit.ly/3a6fsZl

19) Cooke, S.J., Hultine, K.R., **Rummer, J.L.**, Fangue, N.A., Seebacher, F., Eliason, E.J., MacMillan, H.A., Fuller, A. Fuller, Franklin, C.E. (2022). Elevating the impact of conservation physiology by building a community devoted to excellence, transparency, ethics, integrity and mutual respect. ***Conservation Physiology***. 10(1), coac015. https://doi.org/10.1093/conphys/coac015
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18) Wheeler, C.W., **Rummer, J.L.**, (2021) Walking sharks. ***Oceanographic***. Issue 21, 102-109.
17) **Rummer, J.L.**, Weideli, O.C. (2021) Sharks and climate change. ***Oceanographic***. Issue 17, 84-93.
16) Cooke, S.J., Cramp, R.L., Madliger, C.L., Bergman, J.N., Reeve, C., **Rummer, J.L.**, Hultine, K.R., Fuller, A., French, S.S., Franklin, C.E. (2021). Conservation physiology and the COVID-19 pandemic. ***Conservation Physiology*** 9, coaa139. doi: https://doi.org/10.1093/conphys/coaa139
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15) **Rummer, J.L.**, Allan, B.J.M., Pattiaratchi, C., Bouyoucos, I.A., Yulianto, I., van der Mheen, M. (2020). It might be the biggest world's biggest ocean, but the mighty Pacific is in peril. ***The Conversation***. 6 December 2020. https://bit.ly/2YSwgK9
14) **Rummer, J.L.** (2020) I studied what happens to coral reef fish after coral bleaching. What I saw still makes me nauseous. ***The Conversation***. 27 March 2020. https://bit.ly/347my8K
13) Tomlinson, S., **Rummer, J.L.**, Hultine, K.R., Cooke, S.J. (2018) Crossing boundaries in conservation physiology. ***Conservation Physiology*** 6 (1): coy015. doi: 10.1093/conphys/coy015
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12) **Rummer, J.L.** (2017) What if you can't sense your enemy… and your enemy is an invasive predator? ***Conservation Physiology*** 5 (1): cox011. doi: 10.1093/conphys/cox011
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11) Cooke, S.J., Hultine, K.R., **Rummer, J.L.**, Franklin, C.E. (2017) Reflections and progress in conservation physiology. ***Conservation Physiology*** 5(1), cow071. doi: 10.1093/conphys/cow071
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10) Reside, A.E., Bridge, T.C.L., **Rummer, J.L.** (2016) Great Barrier Reef: Clearing the way for reef destruction. ***Nature*** 537, 307-307. doi:10.1038/537307d
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9) **Rummer, J.L.** (2010) Communication skills for the biosciences: A graduate guide. ***The Quarterly Review of Biology*** 85, 488-489. doi:10.1086/656837
IF: 4.389, Citations: n/a, Altmetric: n/a
8) **Rummer, J.L.** (2010) Is it cheaper to "grow up" fast? ***Journal of Experimental Biology*** 213: iv. doi:10.1242/jeb.036749
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7) **Rummer, J.L.** (2010) How wooly mammoth blood cheated the cold ***Journal of Experimental Biology*** 213: v. doi:10.1242/jeb.036624
IF: 3.308, Citations: n/a, Altmetric: n/a
6) **Rummer, J.L.** (2010) Ionregulation drives gill development ***Journal of Experimental Biology*** 213:iv. doi:10.1242/jeb.036509
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5) **Rummer, J.L. (**2010. Brrrown adipose tissue: special fat for cold critters ***Journal of Experimental Biology*** 213: vi. doi:10.1242/jeb.036384
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4) **Rummer, J.L.** 2009. Komodo dragon's "pearly whites" pack a 1-2-3 deadly punch ***Journal of Experimental Biology*** 212:iv. doi:10.1242/jeb.023788
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3) **Rummer, J.L.** 2009. The real taste of victory. ***Journal of Experimental Biology*** 212:iv. doi:10.1242/jeb.023796

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2) **Rummer, J.L.** 2009. Global warming could cancel 'journey of a thousand miles.' ***Journal of Experimental Biology*** 212:v. doi:10.1242/jeb.023804
IF: 3.308, Citations: n/a, Altmetric: n/a

1) **Rummer, J.L.** 2009. A little stress for a fetus goes a long way. ***Journal of Experimental Biology*** 212(4):v. doi:10.1242/jeb.023812
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CONFERENCE PRESENTATIONS & SEMINARS: (17 COUNTRIES, 75 INVITED PRESENTATIONS)

122) "Sharks and their relatives in the changing oceans: Where are we, and where do we need to go?" 53rd annual Liège Colloquium, Global Oxygen Network (GO2NE) as part of the UNESCO Intergovernmental Oceanographic Commission (IOC). 16 May 2022. **Invited Presentation**

121) "Marine Biology in the Tropics – Amazing Aquatic Athletes in a Changing World" – Australian Trade and Investment Commission (Austrade) Times Higher Education (THE) Study Australia Masterclass Series (>1,600 students live in South Asia, >13 million impressions via the marketing campaign). 30 June 2021 **Invited Presentation**

120) "What can the toughest shark on the Great Barrier Reef teach us about climate change" in the 2021 Global Biodiversity Festival. Global Biodiversity Festival, 23 May 2021. **Invited Presentation**

119) A Tail of Two Sharks. Citizens of the Great Barrier Reef, Great Reef Census and public outreach regarding reef health, climate change, shark research, and protecting biodiversity – aboard the Spirit of Freedom out of Cairns 30 November – 5 December 2020 (audience of 30) **Invited Presentation**
Info: https://citizensgbr.org/
Video: https://twitter.com/citizensGBR/status/1351039542564970496?s=20

118) Amazing aquatic athletes: Acclimation and adaptation in the Anthropocene", Okinawa Institute of Science and Technology (~50 attendees), 5 October 2020 **Invited Presentation**

117) Amazing aquatic athletes: Acclimation and adaptation in the Anthropocene", University of California at Davis and Bodega Marine Laboratory (~70 attendees), 19 November 2020 **Invited Presentation**

116) Science communication in an age of information overload, Australian Academy of Sciences – Future Earth Australia, Oceans and Coasts, via Zoom to an Australian audience (~50 attendees), 2 July 2020 https://www.futureearth.org.au/ **Invited Presentation**

115) A Tail of Two Sharks. Sharks4Kids Shark Education Program, via Zoom to a global audience (>400 attendees), 1 April 2020 https://www.youtube.com/watch?v=6jHUF4J0neo&t=16s **Invited Presentation**

114) Sharks in Sydney. Sydney Sea Life Aquarium, Sydney, NSW, AUSTRALIA 22 October 2019 **Invited Presentation**

113) Sharks are Sensational! Auburn Elementary Schools, Grade 4, 85 youth, Auburn, Illinois USA 10 October 2019 **Invited Presentation**

112) STEM Stars. National Science Week. Townsville State Highschool, Townsville AUSTRALIA 16 August 2019 **Invited Presentation**

111) Severe coral bleaching on the Great Barrier Reef: how do reef fishes respond to extreme acute heating events? with L. Prescott, B. Allan, T. Ainsworth, B. Illing, and J. Johansen. Symposium: Saving energy in a fluctuating environment: from whole organism to the molecule. Society for Experimental Biology annual conference, Sevilla, SPAIN 2-5 July 2019.

110) The future of coral reef fishes in a changing world. Museu do Amanhã (Museum of Tomorrow) as part of the United Nations Sustainable Development Goals – Agenda for Sustainable Development for 2030 – #14 "Life Below Water" hosted by Academia Brasileira de Ciências (Brazilian Academy of Sciences) Rio de Janeiro, BRAZIL May 2019 **Invited Presentation**

109) Let's talk: Sharks. World Science Festival, Brisbane AUSTRALIA 22-24 March 2019 **Invited Presentation**
108) Saving what we've got: Australia's wildlife under threat. World Science Festival, Brisbane AUSTRALIA 22-24 March 2019 **Invited Presentation**
107) Planet Talks: The fight for the bight against big oil. WOMADelaide Festival, Adelaide AUSTRALIA 8-11 March 2019 **Invited Presentation**
106) Aquatic athletes in a changing world. ARC Centre of Excellence for Coral Reef Studies seminar series, James Cook University, Townsville AUSTRALIA 21 August 2018 **Invited Presentation**
105) Eleven safe havens for baby sharks. "Coral Reef Futures", Public Forum, ARC Centre of Excellence for Coral Reef Studies Symposium 2018, Gallery of Modern Art, Brisbane AUSTRALIA 19-20 July 2018 **Invited Presentation**
104) Fish under high CO_2 conditions: Maintaining oxygen transport and physiological performance. with K.D. Hannan, J.L. Johansen, R. Ern, P.L. Munday, and A.J. Esbaugh. Society for Experimental Biology annual conference, Florence, ITALY 4 July 2018 **Invited Presentation**
103) Physiological performance in a high CO_2 world: The role of maintaining oxygen transport in fish. with K.D. Hannan, J.L. Johansen, R. Ern, P.L. Munday, and A.J. Esbaugh. Lessons from two high CO_2 worlds – future oceans and intensive aquaculture, satellite meeting of the Society for Experimental Biology. São Miguel, Azores PORTUGAL 10-12 April 2018.
102) Today's women in marine science: Diverse leaders, passionate & dynamic communicators. 10th Indo-Pacific Fish Conference. Tahiti, FRENCH POLYNESIA 1-6 October 2017. **Invited Presentation**
101) Physiology meets conservation: Challenges, success stories, & future directions in the Indo-Pacific. With S.J. Cooke. 10th Indo-Pacific Fish Conference. Tahiti, FRENCH POLYNESIA 1-6 October 2017. **Invited Presentation**
100) A tail of two sharks. Gills Club and Atlantic White Shark Conservancy Annual Gala, Boston, Massachusetts, USA 19-21 September 2017. **Invited Presentation**
99) Strategically using social media to communicate science. Introduction to Science Communication Workshop, James Cook University, Townsville, AUSTRALIA 18 August 2017. **Invited Presentation**
98) Phenotypic plasticity at the gills of coral reef fishes: Links to altered performance in response to anthropogenic stress. with L. Prescott, S. Hess, A. Bowden, B. Allan, and T. Ainsworth. Morphology meets physiology: A tribute to Pierre Laurent, Society for Experimental Biology. Göthenburg, SWEDEN 30 June – 6 July 2017. **Invited Presentation**
97) Amazing aquatic athletes in the Anthropocene. New England Aquarium – President's Lecture. Boston, USA 12 May 2017. **Invited Presentation**
96) Past, present, and future: Physiological performance of coral reef fishes in a changing world. New England Aquarium. Boston, USA 12 May 2017. **Invited Presentation**
95) Maximize your impact: Building an online profile for researchers. with Alana Grech and Jackie Wolstenholm. ARC Centre of Excellence for Coral Reef Studies, James Cook University, AUSTRALIA. 14 March 2017. **Invited Presentation**
94) Future ocean conditions and the development, physiology, and behaviour of shallow sharks. 23rd Congress of Zoology (Belgium, Netherlands, and Luxembourg), Antwerp, BELGIUM. 15-17 December 2016. **Invited Presentation**
93) Coral reef fishes in the Anthropocene, Plenary, 23rd Congress of Zoology (Belgium, Netherlands, and Luxembourg), Antwerp, BELGIUM. 15-17 December 2016. **Invited Presentation**
92) Today's scientists: diverse leaders, passionate & dynamic communicators, Opening Keynote, 23rd Congress of Zoology (Belgium, Netherlands, and Luxembourg), Antwerp, BELGIUM. 15-17 December 2016. **Invited Presentation**
91) Ecological physiology of coral reef fishes in a changing world, Keynote Address, Ecological Society of Australia, Fremantle, AUSTRALIA. 28 November 2016. **Invited Presentation**

90) Future ocean conditions and the development, physiology, and behaviour of shallow sharks with C. Gervias, D.D.U. Heinrich, M.S. Johnson, D.W. Kraver, T. J. Nay, and G. M.C. Renshaw, Australian Society for Fish Biology and Oceania Chondrichthyan Society joint conference, Hobart, Tasmania, AUSTRALIA 4-7 September 2016.
89) Past, present, and future: physiological performance of coral reef fishes in a changing world, Australian Society for Fish Biology and Oceania Chondrichthyan Society joint conference, Hobart, Tasmania, AUSTRALIA 4-7 September 2016. **Invited Presentation**
88) Athletes in a changing world – Australian Museum and Lizard Island Reef Research Foundation, annual gala, Sydney, AUSTRALIA 10 August 2016. **Invited Presentation**
87) Today's scientists: Diverse leaders, passionate & dynamic communicators, President's medal award ceremony presentation, Society for Experimental Biology annual conference, Brighton, UK. 4 July 2016 **Invited Presentation**
86) Physiology meets ecology: Coral reef fishes, performance, distribution, & global change – Special Symposium: Conservation Physiology – from problems to solutions, Society for Experimental Biology annual conference, Brighton, UK. 4 July 2016 **Invited Presentation**
85) Strategically using social media to communicate science – Early Career Research Network, University of Exeter, UK. 30 June 2016. doi: 10.6084/m9.figshare.3468890 **Invited Presentation**
84) Blacktip reef sharks (*Carcharhinus melanopterus*) show high capacity for would healing and recovery following injury, with A. Chin and J. Mourier – 13th International Coral Reef Symposium, 19-25 June 2016 in Honolulu, Hawaii USA.
83) Ecological physiology of coral reef fishes in a changing world – 12th International Congress on the Biology of Fishes, plenary presentation at the ICBF biennial conference on 13 June 2016 at Texas State University, San Marcos, Texas USA **Invited Presentation**
82) Underwater athletes: Conservation in a changing world. Ian Potter Foundation, Australian Museum, Lizard Island Reef Research Foundation, Melbourne, AUSTRALIA 11 May 2016. **Invited Presentation**
81) The most successful vertebrates: Will they stay or will they go? Centre de Recherche Insulaire et Observatoire de l'Environnement and Institut des Récifs Coralliens du Pacifique, Moorea, FRENCH POLYNESIA. **Invited Presentation**
80) The most successful vertebrates: Will they stay or will they go? University of Queensland, Department of Biological Sciences, Brisbane, Queensland AUSTRALIA. **Invited Presentation**
79) Fish are remarkable athletes! 6 October 2015. ARC Centre of Excellence for Coral Reef Studies, Symposium – Public Forum. Hobart, Tasmania AUSTRALIA. **Invited Presentation**
78) Networking and communication for researchers. 23 September 2015. Queensland University Libraries Office of Cooperation, Research Support Working Party. Live linked to all Queensland Universities, AUSTRALIA. **Invited Presentation** (https://www.youtube.com/watch?v=nJb-fnBHZ6A)
77) Too turbid for nemo: Suspended sediment impacts gills and favours pathogenic bacteria in clownfish larvae. 17 August 2015. Symposium: Predicting fish impacts due to land and water use. 145th annual American Fisheries Society Conference. Portland, Oregon USA, with S. Hess, A. Wenger, T. Ainsworth.
76) Effects of ocean acidification on metabolic performance in coral reef fishes. 17 August 2015. Symposium: Effects of ocean acidification in wild and cultured marine fauna. 145th annual American Fisheries Society Conference. Portland, Oregon USA, with A. Morash, G. Miller, F. Iftikar, A. Hickey, J. Wilson, P.L. Munday. **Invited Presentation**
75) Too turbid for Nemo? Turbidity levels on the Great Barrier Reef leave clownfish gills thick, slimy, and full of pathogens. 1 July 2015. Symposium: Conservation Physiology: How environmental influences on parents and early developmental stages determine winners and losers. Society for Experimental Biology annual conference. Prague, Czech Republic, with S. Hess, A. Wenger, T. Ainsworth.
74) Ocean acidification and the future of marine fishes: An evolutionary approach. 29 June 2015. Symposium: Science with Impact. Society for Experimental Biology annual conference.

Prague, Czech Republic. **Invited Presentation**

73) Strategically using social media to communicate science, 6 February 2015, James Cook University Public and Indigenous Health Ph.D. cohort workshop, Townsville, AUSTRALIA. **Invited Presentation** (http://dx.doi.org/10.6084/m9.figshare.1301693)
72) Lessons learned form the most successful vertebrates, coping with stress and maintaining performance in a changing world, January 2014, 22nd Annual George A. Bartholomew award presentation for distinguished young investigator award for comparative physiology, biochemistry, and functional and integrative biology, Society for Integrative and Comparative Biology (SICB) annual conference, West Palm Beach, Florida USA. **Invited Presentation**
71) Athletes of the Great Barrier Reef, October 2014, TEDx talks at JCU-Cairns, Torrid Talks – Why Aristotle was wrong. James Cook University, Cairns, AUSTRALIA. **Invited Presentation**
70) Gills gone wild: Physiological responses to climate change in fish, July 2014, Future of Coral Reefs, ARC Centre of Excellence for Coral Reef Studies Symposium, Canberra, AUSTRALIA. **Invited Presentation** (https://www.youtube.com/watch?v=2kmWw9Fvv9Q)
69) Life on the edge: Optimal temperatures for aerobic performance of equatorial reef fishes are close to current day temperatures, December 2013, Groupement de Recherche International (GDRI) biodiversite des Recifs Coralliens, International Research Network Biodiversity of Coral Reefs, Paris, FRANCE. **Invited Presentation**
68) Physiological performance of coral reef fishes in a changing climate, October 2013, Coral Reefs in the 21st Century, Coral Reef Adaptation to Climate Change, Townsville, AUSTRALIA. **Invited Presentation**
67) Climate change and the impacts on physiological performance of coral reef fishes, August 2013, Texas A&M University, College Station and Galveston campuses, Texas, USA. **Invited Presentation**
66) Looking for the unexpected athletes of the marine world: using physiological performance to understand how marine fishes might fare in a changing climate. August 2013, Georgia Institute of Technology, Atlanta, Georgia, USA. **Invited Presentation**
65) Fish performance in a high CO_2 world: Predator vs. prey. August 2013, Georgia Aquarium, Atlanta, Georgia, USA. **Invited Presentation**
64) Finding the best metabolic rate estimates in a coral reef fish. August, 2013, Australian Society for Coral Reef Science, Sydney, AUSTRALIA, with D.G. Roche, S.A. Binning, Y. Bosiger, J.L. Johansen.
63) Looking for the unexpected athletes of the marine world: using physiological performance to understand how marine fishes might fare in a changing climate. July 2013, Japan-Australia marine science workshop: Understanding global change impacts and opportunities in tropical and subtropical marine ecosystems, Tokyo, JAPAN. **Invited Presentation**
62) Know your enemy: links between metabolic traits and aggression in a tropical damselfish. July, 2013, Society for Experimental Biology Symposium on Mechanisms and functions of intraspecific variation: from genes to behavior Valencia, SPAIN, with S.S. Killen, M. Mitchell, M. Welch, D. Chivers, M. Ferrari, M. Meekan, M. I. McCormick.
61) Cognitive impairment in coral reef fishes living in shallow water volcanic CO_2 seeps. July, 2013, Society for Experimental Biology Symposium on Aquatic life in a warmer and higher CO_2 world Valencia, SPAIN, with D.L. Dixson, A. Cheel, K. Fabricius, P.L. Munday.
60) Finding the best metabolic rate estimates in a coral reef fish. July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with D.G. Roche, S.A. Binning, Y. Bosiger, J.L. Johansen.
59) Hypoxia tolerance and resting metabolism are conserved across genetically distinct sub-populations of an iconic, tropical Australian teleost (*Lates calcarifer*). July, 2013, Society for Experimental Biology Symposium on Remodelling of physiological systems in response to environmental change, Valencia, SPAIN, with G.M. Collins, T.D. Clark, and A.G. Carton.
58) Root effect hemoglobins greatly enhance oxygen delivery to the red muscle and gut in teleosts. July, 2013, Society for Experimental Biology Symposium on Challenges to

respiratory gas transport, Valencia, SPAIN, with C.J. Brauner, McKenzie, D.J., Cooper, C., Regan, M., Wilson, R. **Invited Presentation**

57) Will ocean acidification affect the physiology of predatory reef fish? July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with S. Lefevre, G. E. Nilsson, S-A. Watson, J.M. Wilson, P. L. Munday, T.D. Clark. **Invited Presentation**
56) Ocean acidification does not compromise digestion-related metabolism in a predatory coral reef fish. July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with T.D. Clark. **Invited Presentation**
55) Will ocean acidification affect the physiology of predatory reef fish? June, 2013, Ecofisiologia Centro de Investigação Interdisciplinar Marinha e Ambientral (CIIMAR), Porto, PORTUGAL. **Invited Presentation**
54) Climate change and global warming's evil (?) cousin, ocean acidification: Effects on metabolic performance in coral reef fishes. May, 2013, The Australian National University **Invited Presentation**
53) Climate change and global warming's evil (?) cousin, ocean acidification: Effects on metabolic performance in coral reef fishes. March, 2013, University of Tasmania and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) **Invited Presentation**
52) Global warming and climate change's evil (?) cousin, ocean acidification: Effects on aerobic performance in coral reef fishes. August, 2012, ARC Centre of Excellence for Coral Reef Studies seminar series, Queensland, AUSTRALIA. with J.A.W. Stecyk, C.S. Couturier, S-A. Watson, N.M. Gardiner, J.P. Kinch, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
51) Elevated CO_2 enhances aerobic performance of a coral reef fish. July, 2012, International Congress on the Biology of Fish, Madison, Wisconsin, USA. with J.A.W. Stecyk, C.S. Couturier, S. Watson, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
50) Life at the equator: coral reef fishes may already be living at the edge of their thermal optima. July, 2012, International Congress on the Biology of Fish, Madison, Wisconsin, USA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
49) Local adaptation to climate change: fish physiology across latitudes. July, 2012, 12th International Coral Reef Symposium, Cairns, Queensland, AUSTRALIA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson
48) The synergistic effects of high temperature and co_2 on whole animal and mitochondrial metabolism of a tropical coral reef fish. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with Andrea J. Morash, Fathima I. Iftikar, Gabrielle M. Miller, Anthony J.R. Hickey, and Philip L. Munday
47) Elevated CO_2 enhances aerobic scope of a coral reef fish. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with J.A.W. Stecyk, C.S. Couturier, S. Watson, P.L. Munday, and G.E. Nilsson
46) Life at the equator: coral reef fishes may already be living at the edge of their thermal optima. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson
45) Maximum intrinsic heart rate and oxygen uptake of tropical reef fishes at elevated temperature: compensatory changes after warm acclimation. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with J.A.W. Stecyk, C.S. Couturier, P.L. Munday, and G.E. Nilsson
44) Acclimation and adaptation to environmental change: Understanding interacting physiological processes in fish. May, 2011, Jimei University, Xiamen, CHINA. **Invited Presentation**
43) Mechanisms for enhancing oxygen delivery in fish. University of British Columbia, Comparative Physiology Monday Night Seminar Series. October, 2010, Vancouver, CANADA. **Invited Presentation**
42) Red blood cell soluble adenylyl cyclase (sAC) and Na^+/H^+ exchange (NHE): A potential pathway through which fish may exploit the Root effect for general oxygen delivery in the absence of catecholamines. with M. Tresguerres, G. G. Goss, and C.J. Brauner. 9th

International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2010, Barcelona, SPAIN. **Invited Presentation**

41) The physiological mechanism underlying enhanced oxygen delivery to red muscle in rainbow trout. with D.J. McKenzie, A. Innocenti, C.T. Supuran, & C.J. Brauner. 49th Annual Canadian Society of Zoologists conference, May 2010, Vancouver, B.C. CANADA.
40) New Insight into the Evolution of the Root Effect for Oxygen Delivery in Teleost Fish. with D.J. McKenzie, C. Supuran, and C.J. Brauner. 48th Annual Canadian Society of Zoologists conference, May 2009, Toronto, Ontario, CANADA.
39) Sablefish, black cod, butterfish: Delicious dinner or deep-sea fish whose oxygen delivery system is uninhibited by stress? with M. Roshan-Moniri, S.K. Balfry, and C.J. Brauner. UBC Zoology Graduate Student Symposium, April 2009, Vancouver, British Columbia, CANADA.
38) The Root effect and tissue oxygenation in fish. University of British Columbia, Biology 454 Comparative Animal Physiology Course, November 2008, Vancouver, British Columbia, CANADA. **Guest Lecture**
37) Physiological mechanisms of CO_2 tolerance in the primitive fish, the white sturgeon (*Acipenser transmontanus*) with D.W. Baker, K. Huynh, J.M. Wilson, J.D. Morgan, V. Matey, and C.J. Brauner. 8th International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2008, Portland, Oregon, USA. **Invited Presentation**
36) Getting to the Root of tissue oxygenation in teleost fish: A more ubiquitous role for the Root effect in oxygen delivery. with C.J. Brauner. 8th International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2008, Portland, Oregon, USA. **Invited Presentation**
35) Beyond buoyancy and vision: the potential for the Root effect to facilitate oxygen delivery to tissues other than the swim bladder and eye. Society for Experimental Biology Young Scientist of the Year Award Session, July, 2008, Marseille, FRANCE. **Awarded Young Scientist of the Year, 2nd runner up**
34) Beyond buoyancy and vision: the potential for the Root effect to facilitate oxygen delivery to tissues other than the swim bladder and eye. with C.J. Brauner, Society for Experimental Biology Symposium: Physiological Strategies to Optimize Oxygen Delivery, July, 2008, Marseille, FRANCE. **Invited Presentation**
33) Fine tuning of buoyancy control mechanisms in the rockfishes, genus *Sebastes*.in relation to depth. with M. Berenbrink and C.J. Brauner, University of Liverpool, School of Biological Sciences, June 2008, Liverpool, ENGLAND**. Invited Presentation**
32) Fine tuning of buoyancy control mechanisms in the rockfishes, genus *Sebastes*.in relation to depth. with M. Berenbrink and C.J. Brauner, 47th Annual Canadian Society of Zoologists conference, May 2008, Halifax, Nova Scotia, CANADA.
31) Fine tuning of buoyancy control in the rockfishes, genus *Sebastes*. with M. Berenbrink and C.J. Brauner, 15th Annual Western Groundfish Conference, February 2008, Santa Cruz, CA, USA.
30) The Root effect, buoyancy, and depth distribution: A snapshot of adaptive radiation. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, September 2007, Vancouver, British Columbia, CANADA. **Invited Presentation**
29) Exploding fish: Swim bladders and mechanisms for buoyancy control. University of Liverpool, School of Biological Sciences, June 2007, Liverpool, ENGLAND. **Invited Presentation**
28) Characterization of the oxygen transport system in sablefish, *Anoplopoma fimbria*. with M. Roshan-Moniri, S.K. Balfry, and C.J. Brauner. Canadian Society of Zoologists annual meeting, May 2007, McGill Univeristy, Montreal, Québec, CANADA.
27) Beyond buoyancy and vision: Potential for the Root effect to facilitate oxygen delivery in muscle tissue. with C.J. Brauner. Canadian Society of Zoologists annual meeting, May 2007, McGill Univeristy, Montreal, Québec, CANADA.
26) The role of the Root effect in enhancing oxygen delivery other than the teleost swim bladder and eye. with C.J. Brauner. University of British Columbia 16th Annual Zoology Graduate Student Symposium. 2007, Vancouver, British Columbia, CANADA

25) Ionoregulation vs. Osmoregulation: Lessons from the Pacific hagfish (*Eptatretus stoutii*). with C.J. Brauner, D. Baker, B. Sardella, Y. Wang, and J.M. Wilson. VIIth International Congress on the Biology of Fishes. 2006, St. John's, Newfoundland, CANADA
24) Effects of dietary lipid substitution on swimming performance during the early developmental stages of Chinook salmon). with M. Regan, L. Kuchel, S. Huang, S.K. Balfry, D. A. Higgs, R.H. Devlin, P.M. Schulte, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.
23) The onset of the Root effect & the red blood cell β-adrenergic response in the copper rockfish, *Sebastes caurinus.* M. Regan & C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, ENGLAND.
22) Acid-base regulation during exposure to elevated environmental CO_2 in an osmoconformer, the Pacific Hagfish (*Eptatretus stoutii*). with D. Baker, B. Sardella, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.
21) A swimmer's diet: Substituting dietary lipids and the resulting effects on swimming performance in Chinook salmon (*Oncorhynchus tshawytscha*). with A. M. Machala, A. Grant, S.K. Balfry, D. A. Higgs, R.H. Devlin, P.M. Schulte, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.
20) Release mortality in Gulf of Mexico red snapper: Physiological consequences of catastrophic decompression. **Invited Presentation**. Red Snapper Ecology and Fisheries in the U.S. Gulf of Mexico Symposium. Southern Division American Fisheries Society. 2006, San Antonio, Texas USA. **Awarded best student presentation, 1st runner up**
19) The Root Effect: Potential for delivering oxygen to muscle tissue in fish. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, **Invited Presentation**. 2005, Vancouver, British Columbia, CANADA
18) To sink or swim: Effects of alternate dietary lipids on swimming performance of Chinook salmon (*Oncorhynchus tshawytscha*). with A. M. Machala, A. Grant, S.K. Balfry, D. A. Higgs, R. H. Devlin, P. M. Schulte, and C. J. Brauner. Canadian Society of Zoologists annual conference. 2005, Kingston, Ontario CANADA
17) Physiological effects of catastrophic decompression on the Gulf of Mexico red snapper, *Lutjanus campechanus*. Canadian Society of Zoologists annual conference. 2004, Wolfville, Nova Scotia CANADA
16) Rapid swimbladder expansion due to catastrophic decompression: Physiological effects in red snapper, *Lutjanus campechanus*. University of British Columbia 13th Annual Zoology Graduate Student Symposium. 2004, Vancouver, British Columbia, CANADA. **Awarded best student presentation, 1st runner up**
15) Exploding fish: Physiological effects of fisheries-induced catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, 2003. Vancouver, BC, CANADA. **Invited Presentation**
14) Deeper is more devastating: Physiological effects of catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. American Fisheries Society Annual Conference. 2003, Quebec City, Québec CANADA. **Awarded best student presentation**
13) Comparative batoid physiology. with N. A. Fangue and W. A. Bennett. Joint Meeting of Ichthyologists and Herpetologists. 2003, Manaus, Amazonas BRAZIL.
12) Life at the margins: Effects of limiting factors on richness, distribution, and physiology of intertidal fishes. with N. A. Fangue and W. A. Bennett. Joint Meeting of Ichthyologists and Herpetologists. 2003, Manaus, Amazonas BRAZIL.
11) Life at the Margins: Effects of Limiting Factors on Richness, Distribution and Physiology of Intertidal Fishes in Hoga, Indonesia. with W. A. Bennett. International Conference on the Conservation and Natural Resource Management of Tropical Ecosystems. 2003, Kinnersley, ENGLAND.

10) Deeper is more devastating: Physiological effects of catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. Florida Chapter of the American Fisheries Society. 2003, Brooksville, FL USA. **Awarded best student presentation**
9) Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia. with W.A. Bennett and N. A. Fangue. Operation Wallacea **Invited Presentation**. 2002, Pulau Hoga, INDONESIA
8) Thermal Ecology of Batoids. with W. A. Bennett, and N. A. Fangue. Operation Wallacea **Invited Presentation**. 2002, Pulau Hoga, INDONESIA.
7) Utilization of Marginal Habitats by Reef Fishes in Dry Tortugas National Park in June 2001 with K. Fitchett, N. A. Fangue, H. Wallman, B. N. Tiffany, C. M. Pomory, and W. A. Bennett. University of Southern Mississippi Graduate Student Biological Symposium. 2002, Hattiesburg, MS USA.
6) Marginal Habitat Utilization of Rockpool Fishes in Dry Tortugas National Park with K. Fitchett, N. A. Fangue, H. Wallman, B. N. Tiffany, C. Pomory, and W. A. Bennett. Florida Chapter of the American Fisheries Society. 2002, Brooksville, FL USA.
5) Temperature and Hypoxia Tolerance of Selected Fishes from a Hyperthermal Tidepool in the Dry Tortugas. with N. A. Fangue, H. Wallman, and W. A. Bennett. Southern Division of the American Fisheries Society. 2001, Jacksonville, FL USA.
4) Role of Temperature on Behavior and Movement of Atlantic Stingray, *Dasyatis sabina*, from St. Joseph's Bay, Florida. with N. A. Fangue and W. A. Bennett. Southern Division of the American Fisheries Society. 2001, Jacksonville, FL USA. **Awarded best student poster, honourable mention**
3) Thermal and Oxic Tolerances of Selected Fishes from a Hyperthermal Tidepool in the Dry Tortugas. with N. A. Fangue, H. Wallman, and W. A. Bennett. Dauphin Island Sea Lab Graduate Student Symposium. 2001, Dauphin Island, AL USA.
2) Behavior, Movement, and Abundance of Atlantic Stingray, *Dasyatis sabina*, from St. Joseph's Bay, Florida. with W. A. Bennett and N. A. Fangue. Dauphin Island Graduate Student Symposium. 2001, Dauphin Island, AL USA.
1) Thermal tolerance and resistance responses of sheepshead minnow acclimated at various ambient salinities. with N. A. Fangue and W. A. Bennett. Florida Chapter of the American Fisheries Society. 1999, Brooksville, FL USA. **Awarded best student poster, honourable mention**

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