

Jordanna N. Bergman | Curriculum Vitae

Department of Biology, Carleton University, Ottawa, Ontario, Canada
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EDUCATION

Carleton University, Ottawa, ON, CAN 2018-present
PhD Candidate in Biology
Thesis title: Investigating the ecological connectivity of Canada's historic Rideau Canal to inform conservation decisions
Advisors: Dr. Steven Cooke and Dr. Joseph Bennett
Expected graduation: September 2023

University of South Florida, Tampa, FL, US 2010-2015
Bachelor of Science in Marine Biology
Advisor: Dr. Philip Motta
Minors: Geology, Environmental Policy

AWARDS & GRANTS (in CAD)

2020-2023 NSERC Postgraduate Scholarships – Doctoral Program (PGS D) (\$63,000)
2020-2021 Ontario Graduate Scholarship (declined; \$15,000)
2020 Muskies Canada Inc. Research Award (co-PI; \$6,150)
2020 American Fisheries Society E.J. Crossman Award for Best Student Oral Presentation (\$250)
2019-2020 NSERC Canada Graduate Scholarships – Master's Program (CGS M) (\$17,500)
2019-2020 Carleton University Biology Department Award (\$5,900)
2018-2019 Queen Elizabeth II Graduate Scholarship (\$15,000)
2018-2019 Carleton university Biology Department Entrance & Award (\$7,900)
2015 NSERC Undergraduate Student Research Award (USRA) (\$7,000)
2011 Dean's Honour List (top 10%) (honourary)
2010-2015 Florida Bright Futures Scholarship (\$17,377)
2010-2013 University of South Florida Merit Scholarship (\$8,154)

PEER-REVIEWED PUBLICATIONS

Articles published, in press, or accepted in peer-reviewed journals

Bergman, J.N.*, Binley, A.D.*, Murphy, R.E.*, Proctor, C.A.*, Nguyen, A.T.*, Urness, E.S.*, Vala, M.A.*, Vincent, J.G.*, Fahrig, L., Bennett, J.R. (In Press). How to rescue Ontario's Endangered Species Act: A biologist's perspective. *FACETS*. 00:000-000. *equal contributors.

Cooke, S.J., **Bergman, J.N.**, Nyboer E.A., Reid, A.J., Gallagher, A.J., Hammerschlag, N., Van de Riet, K., Vermaire, J.C. (In Press). Overcoming the Concrete Conquest of Aquatic Ecosystems. *Biological Conservation*. 00:000-000.

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). Opportunities and optimism for conservation physiology in the Anthropocene: a synthesis and conclusions. In C.L. Madliger, C.E. Franklin, O.P. Love and S.J. Cooke, eds. *Conservation Physiology: applications for wildlife conservation and management*. Oxford University Press, UK.

- Bergman, J.N.**, Bennett, J.R., Binley, A.D., Cooke, S.J., Vincent, F., Hlina, B.L., Reid, C.H., Vala, M.A., Madliger, C.L. (2019). Scaling from individual physiological measures to population-level demographic change: case studies and future directions for conservation management. *Biological Conservation*. 238: 108242. <https://doi.org/10.1016/j.biocon.2019.108242>
- Krumhansl, K.A., **Bergman, J.N.**, Salomon, A.K. (2017). Assessing the ecosystem-level consequences of a small-scale artisanal kelp fishery within the context of climate-change. *Ecological Applications*. 27: 799-813. <https://doi.org/10.1002/eap.1484>
- Bergman, J.N.**, Lajeunesse, M.J., Motta, P.J. (2017). Teeth penetration force of the tiger shark *Galeocerdo cuvier* and sandbar shark *Carcharhinus plumbeus*. *Journal of Fish Biology*. 91: 460-472. <https://doi.org/10.1111/jfb.13351>

Publications in review

- Buxton, R.*, **Bergman, J.N.***, Lin, H.-Y., Binley, A., Avery-Gomm, S., Schuster, R., Roche, D., Bennett, J. (Submitted). Three lessons conservation science can learn from the COVID-19 pandemic. *Conservation Letters*. *equal contributors.
- Bergman, J.N.**, Buxton, R.T., Lin, H.-Y., Hajdasz, A.C., Rivest, S.A., Nguyen, T.T., Cooke, S.J., Bennett, J.R. (Submitted). The power of posting: a review of the benefits and risks of social media for wildlife conservation. *Conservation Letters*.
- Serving as **peer referee** for *ICES Journal of Marine Science*, *Journal of Fish Biology*, *Conservation Physiology*

NON-PEER REVIEWED PUBLICATIONS

- Bergman, J.N.**, Cooke, S.J. (2019). Tracking Fish in the Rideau Canal Waterway. Muskies Canada Release Journal, Research Special Issue, Vol. 42 No. 4.
http://muskiescanada.ca/RJ/RJ_2019_Vol42_No4.pdf?mc_cid=d1a8e197ed&mc_eid=7e1e47217b
- Bergman, J.N.** (2019). Stress Response of Sifakas to Seasonal Changes and Habitat Degradation: Things are Not What They Appear. Society for Experimental Biology Autumn 2019 Issue.
<https://www.sebiology.org/digital-magazine/Autumn-2019/>
- Bergman, J.N.***, Binley, A.D.*, Murphy, R.E.*, Proctor, C.A.*, Nguyen, A.T.*, Urness, E.S.*, Vala, M.A.*, Vincent, J.G.*, Fahrig, L., Bennett, J.R. (2019). Comment on the 10 Year Review of the Ontario Endangered Species Act. *authors contributed equally. Ontario Environmental Registry (request PDF).
- Bergman, J.N.** (2019). Fish Tagging in the Rideau Canal. Anglers Atlas (request PDF).

CONFERENCE PRESENTATIONS AND SEMINARS

(OP=oral presentation, PP=poster presentation)

- Bergman, J.N.**, Bennet, J.R., Cooke, S.J. (2020). Examining the ecological connectivity of the Rideau Canal Waterway as experienced by native and invasive fish. GLATOS, Ann Arbor, MI, US (OP).
- Bergman, J.N.**, Bennet, J.R., Balshine, S., Raby, G., Cooke, S.J. (2020). Using acoustic telemetry to monitor an invasion front: investigating movement patterns and behaviour of round goby (*Neogobius melanostomus*) in the Rideau Canal Waterway. American Fisheries Society (Ontario Chapter) Annual Meeting, Orillia, ON, CA (*awarded best student oral presentation*, OP).
- Bergman, J.N.** (2020). Identifying Canada's Information Needs – Meeting Biodiversity Conservation Targets. Workshop hosted by Carleton University/Environment and Climate Change Canada. Canadian Museum of Nature, Ottawa, ON, CA (*invited, rapporteur*).

- Bergman, J.N.** (2020). Integrating Ecological Connectivity into Management Strategies. Carleton University's Science Café Series, Ottawa, ON, CA (*invited*, OP).
- Bergman, J.N.**, Bennet, J.R., Cooke, S.J. (2020). Investigating the ecological connectivity of the Rideau Canal Waterway as experienced by native and invasive fish species. Second Annual NSERC Strategic Partnership Grant Meeting. Carleton University, Ottawa, ON, CA (OP).
- Bergman, J.N.** (2019). Maintaining sustainable marine fisheries. Conservation Biology Course, Carleton University, Ottawa, ON, CA (*invited*, OP).
- Bergman, J.N.**, Bennet, J.R., Cooke, S.J. (2019). Investigating fish movements in the Rideau Canal to optimize conservation decisions. Big Rideau Lake Association, Portland, ON, CA (*invited*, OP).
- Bergman, J.N.**, Bennet, J.R., Cooke, S.J. (2019). Fish connectivity in the Rideau Canal. Rideau Canal Waterway Annual Meeting, Chaffey's Lock and Ottawa, ON, CAN (*invited*, OP).
- Bergman, J.N.**, Bennet, J.R., Cooke, S.J. (2018). Can selective fragmentation of Canada's Rideau Canal optimize conservation decisions? First Annual NSERC Strategic Partnership Grant Meeting. Carleton University, Ottawa, ON, CA (OP).
- Bergman, J.N.**, Heppell, S.A., Shea, C.P., Lowerre-Barbieri, S.K. (2017). Seasonal cycles of gonadal development and plasma sex steroid levels in the protogynous gag grouper *Mycteroperca microlepis*. 147th Annual Meeting of the American Fisheries Society, Tampa, FL, US (*invited*, OP).
- Bergman, J.N.**, Lajeunesse, M.J., Motta, P.J. (2017). Teeth penetration force of the tiger shark *Galeocerdo cuvier* and sandbar shark *Carcharhinus plumbeus*. FISH, Ft. Lauderdale, FL, US (OP).
- Krumhansl, K.A., **Bergman, J.N.**, Salomon, A.K. (2015). Impacts of Giant Kelp Canopy Harvest on Temperate Reef Fish. Western Society of Naturalists, Sacramento, CA, US (PP).
- Bergman, J.N.**, Motta, P.J. (2015). Shark conservation and changing public perception. The Great AmeriCA Teach-In, Auburndale, FL, US (*invited*, OP)

RESEARCH EXPERIENCE

Graduate Student

Fall 2018-present

Department of Biology, Carleton University, Ottawa, ON, CAN

- 1) Thesis research: examine the spatial ecology of several invasive and native fish species in the Rideau Canal to inform conservation actions; tracking methods include acoustic telemetry and mark-recapture.
- 2) Serve as a teaching assistant for Fish Ecology and Biology courses: supervise and assist students; support and/or lead field and lab work; guest lecture.
- 3) Supervise and mentor summer students: provide hands-on experiences including experimental design, boat handling, angling, electrofishing (boat, backpack), acoustic telemetry surgeries and receiver deployment & recovery, data collection & analysis, and proper fish handling techniques.

Biological Scientist II

Fall 2015-Fall 2018

Marine Fisheries Research, Fish and Wildlife Research Institute, St. Petersburg, FL:

- 1) Served as field Primary Investigator (PI) for the MARFIN Grant NA15NMF4330155 "Is low male abundance limiting stock productivity? Assessing factors affecting reproductive potential of gag grouper, *Mycteroperca microlepis*, in the Gulf of Mexico," and assist in all aspects of sample collection, data preparation, final reports, and peer-reviewed manuscripts.

Sampling conducted via hook and line fishing 60-100 miles offshore year-round in the Gulf of Mexico

- 2) Responsible for leading a physiology project to analyze sex hormones in blood plasma of sexually mature gag grouper to elucidate sex change, seasonal trends, and reproductive status in gag grouper.

3) Analyzed and managed all videos from an underwater videography array (~8000 hours) for species identification, abundance, and behavioural characteristics that may be related to spawning activities.

NSERC Undergraduate Student Research Award (USRA) Student Summer 2015

Coastal Marine Ecology & Conservation Laboratory, Simon Fraser University, Burnaby, BC:

- 1) Conducted research via dry suit diving in a remote coastal field setting off the Central Coast of British Columbia to investigate harvest impacts of surface canopy from giant kelp on local fish and invertebrate communities; published a scientific paper from this research in *Ecological Applications*.
- 2) Performed invertebrate belt transects for the annual Rocky Reef Monitoring Survey at Hakai Institute to investigate abundance, biomass, and biodiversity shifts with sea otter occupation time.
- 3) Collected and processed field data for measurements of kelp productivity and population dynamics.
- 4) Conducted tensile tests to measure biomechanical properties of giant kelp blades.

Undergraduate Research Student 2014-2015

Integrative Biology Laboratory, University of South Florida, Tampa, FL:

Designed and implemented an independent research project examining tooth penetration force in carcharhinid sharks via biomechanical manipulations and highspeed videography analysis; published a scientific paper from this research in *Journal of Fish Biology*.

Research Volunteer Fall 2010, Summer 2011

South Florida/Caribbean Network (50 hours), National Park Service, Miami, FL:

Assisted in research accuracy assessments of the marine benthic map for Biscayne National Park.

PROFESSIONAL HISTORY

Co-chair for The Ottawa-Carleton Institute of Biology Symposium Fall 2018-Spring 2019

Carleton University, Ottawa, ON:

Responsible for organizing all aspects of this non-profit conference including managing keynote speakers, funding sources, food and drink, the student poster session, oral presentations, and advertising.

PADI Open Water Scuba Instructor 2013-Present

Divemaster & Dive Trainer 2014-2015

Divemaster

2012-2014 (promoted)

Dive Operations, The Florida Aquarium, Tampa, FL:

- 1) Led dive experiences in the coral reef exhibit in close proximity to sharks, rays, and other aquatic organisms, and performed dive interpretive programs using a full-face mask scuba system.
- 2) Trained Dive Operations, Husbandry, and Volunteer divers in all aquarium diving and policies.
- 3) Organized orientations for the Dive with Sharks Program to discuss shark physiology, reproduction, ecology, and conservation.

The Florida Aquarium Husbandry Intern 2011-2012

Wetlands Team (400 service hours), The Florida Aquarium, Tampa, FL:

Monitored the safety and wellbeing of birds, reptiles, fish, rays, eels, and sharks, and served as a Water Quality Laboratory technician.

TEACHING

Laboratory Teaching Assistant

Fall 2018-present

Carleton University, Ottawa, ON:

Instructed 'Foundations of Biology I and II' and 'Fish Ecology'; responsible for educating students in the theory and application of biological principles, experimental design, report writing, and statistical analyses.

Invited Instructor for Environmental Science and Management

Fall 2018 & 2019

Undergraduate course, Carleton University, Ottawa, ON:

1) Instructed 30 students on agroecology and food production systems including organizing an off-campus educational trip to The Central Experimental Farm (Ottawa, ON), Roots and Shoots Farm (Alcove, QC), and Alska Farm (Low, QC).

Volunteer Laboratory Teaching Assistant

Fall 2015

University of South Florida, Tampa, FL:

Instructed 'Fish Biology'; assisted students in learning internal and external anatomy, osteology, myology, taxonomy, and identification of fish, and supported freshwater and marine collection trips.

POPULAR MEDIA

CityTV: Goby fish invading Rideau Canal. (July 15, 2019). Personal interview for TV clip.

<https://toronto.citynews.ca/video/2019/07/15/goby-fish-invading-rideau-canal/>

CFRA 580 News Talk Radio: live interview at 12:33 on round goby research in the Rideau Canal Waterway (July 13, 2019).

CBC News: Invasive round goby fish found in Rideau Canal (July 12, 2019). Online article, radio broadcast of interview, and personal interview for TV clip.

<https://www.cbc.ca/news/canada/ottawa/invasive-goby-fish-found-rideau-canal-1.5208922>;

<https://www.cbc.ca/player/play/1570049603678>

Carleton Newsroom: Where The Wild Fish Go: Carleton students play pivotal role in Rideau waterway research (July 9, 2019). Online article and personal interview.

https://newsroom.carleton.ca/story/wild-fish-research/?utm_source=NewsroomBanner&utm_campaign=July2019

CTV: personal interview and filming crew (June 26, 2019).

<https://ottawa.ctvnews.ca/mobile/video?clipId=1745244&fbclid=IwAR20UL-SOOvODj0UcZY0N3P-uYX2kpw3wR-zyuGq62UUF5wrcuZhF5-n6pw>

TVO, Striking Balance. Multi-day filming crew, personal interview, documentary on Canada's 18

UNESCO-designated biosphere reserves. (May 2019). <https://www.tv.org/programs/striking-balance>

CERTIFICATIONS AND SKILLS

Scuba Diving: AAUS D130 Scientific Diver, CAUS Scientific Diver I, PADI Open Water Scuba Instructor, DUI Dry Suit Diver, NAUI Nitrox, Handicap Scuba Association Buddy, Dive Trainer for The Florida Aquarium, acoustic receiver deployment and retrieval

Computer Skills: R Statistical Analysis, Microsoft Office Suite, Compliance Suite, High speed and underwater videography analysis, SigmaPlot Version 12 Program, ArcGIS 10.3.1

Freshwater and Marine Field Skills: Ontario pleasure craft operator; boat handling and trailering; hook & line fishing (manual and electric); survey, monitor, and/or collect fishes, elasmobranchs, invertebrates, and kelps (canopy, understory) through belt transects, quadrats, and biomass & productivity surveys on snorkel and scuba; underwater navigation and mapping; diving: shore, spring, drift, deep, cavern, boat, exploratory, night and limited visibility, free diving

Laboratory Skills: enzyme-linked immunosorbent assay (EIA) kits, blood extraction and preparation from teleosts, otolith removal, gonad histology preparation and assessment, gross dissections (agnathans, frogs, salamanders, teleosts, elasmobranchs, cats), experimental design, light microscopy, DNA and RNA extraction, PCR, centrifuges, agarose gels, bacterial culture, titration

References

Dr. Philip Motta, Professor

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Dr. Joseph Bennett, Assistant Professor

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