

## Jordanna N. Bergman | Curriculum Vitae

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

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Carleton University, Ottawa, ON, CAN 2018-present  
PhD Candidate in Biology  
Thesis: Investigating fish connectivity in the historic Rideau Canal to inform conservation decisions  
Advisors: Dr. Steven Cooke, Dr. Joseph Bennett

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

### AWARDS & GRANTS

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2022	The Ontario Chapter of the American Fisheries Society EJ Crossman Award, Best Student Oral Presentation	\$250
2022	Clemens-Rigler Travel Award, Canadian Conference for Fisheries Research	\$200
2022	Wyndham Scholarship for Graduate Studies in Biology	\$1300
2021	Canadian Aquatic Resources Section of the American Fisheries Society Peter A. Larkin Award for Excellence in Fisheries (Runner-up)	Honour
2021	Society for Conservation Biology Graduate Student Research Award	\$1000
2021	Muskies Canada Inc. Research Award (co-PI)	\$4500
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)	\$6150
2020	The Ontario Chapter of the American Fisheries Society EJ Crossman Award, 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	\$5900
2018-2019	Queen Elizabeth II Graduate Scholarship	\$15,000
2018-2019	Carleton University Biology Department Entrance & Award	\$7900
2015	NSERC Undergraduate Student Research Award (USRA)	\$7000
2011	Dean's Honour List (top 10%)	Honour
2010-2015	Florida Bright Futures Scholarship	\$17,377
2010-2013	University of South Florida Merit Scholarship	\$8154

### PEER-REVIEWED PUBLICATIONS

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†PhD thesis chapter; \*equal contributors

#### First-author publications

**Bergman JN**,\* Buxton RT,\* Lin H-Y,\* Lenda M, Attinello K, Hajdasz AC, Rivest SA, Nguyen TT, Cooke SJ, Bennett JR (2022) Evaluating the benefits and risks of social media for wildlife conservation. *FACETS* 7: 360-397 <https://doi.org/10.1139/facets-2021-0112>

- †**Bergman JN**, Raby G, Neigel K, Balshine S, Rennie C, Bennett JR, Fisk A, Cooke SJ (2022) Tracking the early stages of an invasion with biotelemetry: behaviour of round goby (*Neogobius melanostomus*) in Canada's historic Rideau Canal. *Biological Invasions* 24: 1149-1173.  
<https://doi.org/10.1007/s10530-021-02705-2>
- †**Bergman JN**, Beaudoin C, Mistry I, Turcotte A, Vis C, Minelga V, Neigel K, Lin HY, Bennett JR, ... Cooke SJ (2021) Historical, contemporary, and future perspectives on a coupled social-ecological system in a changing world: Canada's historic Rideau Canal. *Environmental Reviews* 99: 1-16  
<https://doi.org/10.1139/er-2021-0026> (Editor's Choice)
- Buxton RT,\* **Bergman JN**,\* Lin HY,\* Binley AD, Avery-Gomm S, Schuster R, Roche DG, Bennett JR (2020) Three lessons conservation science can learn from the COVID-19 pandemic: A call to action from early career researchers. *Conservation Biology* 34: 1331-1332  
<https://doi.org/10.1111/cobi.13652>
- Bergman JN**,\* Binley AD,\* Murphy RE,\* Proctor CA,\* Nguyen TT,\* Urness ES,\* Vala MA,\* Vincent JG,\* Fahrig L, Bennett JR (2020) How to rescue Ontario's *Endangered Species Act*: A biologist's perspective. *FACETS* 5: 423-431 <https://doi.org/10.1139/facets-2019-0050>
- Bergman JN**, Bennett JR, Binley AD, Cooke SJ, Fyson V, Hlina BL, Reid CH, Vala MA, Madliger CL (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>
- Bergman JN**, Lajeunesse MJ, Motta PJ (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>

#### Co-author publications

- Twardek WM, Nyboer EA, Tickner D, O'Connor CM, Lapointe NW, Taylor MK, Gregory-Eaves I, Smol JP, Reid AJ, Creed IF, Nguyen VM, Winegardner AK, **Bergman JN**, ...Cooke SJ (2021) Mobilizing practitioners to support the Emergency Recovery Plan for freshwater biodiversity. *Conservation Science and Practice*, 3: e467 <https://doi.org/10.1111/csp2.467>
- Cooke SJ, **Bergman JN**, Madliger CL, Cramp RL, Beardall J, Burness G, Clark TD, Dantzer B, De La Barrera E, Fangue NA, ... Chown SL (2021) One hundred research questions in conservation physiology for generating actionable evidence to inform conservation policy and practice. *Conservation Physiology* 9(1): coab009 <https://doi.org/10.1093/conphys/coab009>
- Cooke SJ, Cramp RL, Madliger CL, **Bergman JN**, Reeve C, Rummer JL, Hultine KR, Fuller A, French SS, Franklin CE (2021) Conservation physiology and the COVID-19 pandemic. *Conservation Physiology* 9: coaa139 <https://doi.org/10.1093/conphys/coaa139>
- Cooke SJ, Madliger CL, **Bergman JN**, Nguyen VM, Landsman SJ, Love OP, Rummer JL, Franklin CE (2021) Optimism and opportunities for conservation physiology in the Anthropocene: a synthesis and conclusions. In Madliger CL, CE Franklin, OP Love, SJ Cooke (eds) *Conservation Physiology: Applications for wildlife conservation and management*. pp 319-329 Oxford University Press, UK
- Cooke SJ, **Bergman JN**, Nyboer EA, Reid AJ, Gallagher AJ, Hammerschlag N, Van de Riet K, Vermaire JC (2020) Overcoming the concrete conquest of aquatic ecosystems. *Biological Conservation* 247: 108589 <https://doi.org/10.1016/j.biocon.2020.108589>
- Krumhansl KA, **Bergman JN**, Salomon AK (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>

#### Publications in review, submitted, or in prep

- †**Bergman JN**, Neigel K, Landsman S, Glassman D, LaRochelle L, Rennie C, Bennet JR, Cooke SJ (in prep) Spatial ecology of muskellunge (*Esox masquinongy*) during winter drawdowns in a regulated, urban waterway in Canada. Target journal: *Ecological Engineering*

- Cooke SJ, **Bergman JN**, Twardek WM, Piczak ML, Casselberry GA, Luterk K, Dahlmo LS, Birnie-Gauvin K, Griffin LP, ... Lennox RJ (submitted 9 Feb 2022; JFB-MS-22-0110) The movement ecology of fishes. *Journal of Fish Biology*.
- Reid J, \* **Bergman JN**, \* Kadykalo A, \* Taylor J, Twardek W, Rytwinski T, Chhor A, Frempong-Manso A, Martel A, Lapointe N, ... Cooke SJ (resubmitted 28 Feb 2022; BIOCON-D-21-01128R2) Developing an Evidence-Based Toolbox for Addressing Freshwater Biodiversity Threats. *Biological Conservation*.

Serving as **peer referee** for *ICES Journal of Marine Science*, *Journal of Fish Biology*, *Conservation Physiology*, *FACETS*

## NON-PEER REVIEWED PUBLICATIONS

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- Bergman JN** (2021) What are the ecological impacts of winter water level drawdowns on muskellunge in Canada's historic Rideau Canal? Exploring winter connectivity and habitat use to inform conservation strategies. Muskies Canada Inc [LINK HERE](#)
- Bergman JN** (2021) SCB Member Spotlight: Jordanna Bergman. Write-up for winning the 2021 Society of Conservation Biology Graduate Student Research Fellowship [LINK HERE](#)
- Bennett J, Cooke S (2021) Building evidence-based tools for biodiversity conservation Report on G&C activities 2018-2021. Request PDF – my PhD thesis research is featured in this report
- Bergman JN**, Cooke SJ (2020) Investigating fish connectivity in the Rideau Canal Waterway to inform conservation decisions. RAEON [LINK HERE](#)
- Bergman JN**, Cooke SJ (2019) Tracking Fish in the Rideau Canal Waterway. Muskies Canada Release Journal, Research Special Issue, Vol 42 No 4 [LINK HERE](#)
- Bergman JN** (2019) Stress Response of Sifakas to Seasonal Changes and Habitat Degradation: Things are Not What They Appear. Society for Experimental Biology Autumn Issue [LINK HERE](#)
- Bergman JN**\*, Binley AD\*, Murphy RE\*, Proctor CA\*, Nguyen AT\*, Urness ES\*, Vala MA\*, Vincent JG\*, Fahrig L, Bennett JR (2019) Comment on the 10 Year Review of the Ontario Endangered Species Act. Ontario Environmental Registry (request PDF)
- Bergman JN** (2019) Fish Tagging in the Rideau Canal. Anglers Atlas (request PDF)

## CONFERENCE PRESENTATIONS AND SEMINARS

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(OP=oral presentation, PP=poster presentation)

### Academic conferences and meetings

- Bergman, J. N.**, Neigel K, Landsman S, *et al.* (2022) Spatial ecology of muskellunge during a winter drawdown in a regulated, urban waterway in Canada. The Ontario Chapter of the American Fisheries Society (AFS-OC) Annual Meeting, Virtual meeting (*awarded best student oral presentation*, OP).
- Bergman JN**, Neigel K, Landsman S, *et al.* (2022) What are the ecological impacts of winter water level drawdowns on muskellunge in Canada's historic Rideau Canal? Great Lakes Acoustic Telemetry Observation System (GLATOS) Annual Meeting, Virtual meeting (OP)
- Bergman JN**, Neigel K, Landsman S, *et al.* (2022) What are the ecological impacts of winter water level drawdowns on muskellunge in Canada's historic Rideau Canal? Canadian Conference for Fisheries Research (CCFFR), Vancouver, BC, CAN (OP)
- Bergman JN**, Raby G, Neigel K, *et al.* (2022) Tracking the early stages of an invasion with biotelemetry: behaviour of round goby in Canada's historic Rideau Canal. CCFFR, Vancouver, BC, CAN (OP)
- Bergman JN**, Raby G, Neigel K, *et al.* (2021) Evaluating a round goby invasion with telemetry. The River Institute's 28<sup>th</sup> Annual River Symposium. Virtual meeting (*invited*, OP)

- Beaudoin C, \* **Bergman JN**, \* Mistry I\* (2021) The patchwork governance of the Rideau Canal: Balancing usage priorities in a jurisdictional quagmire. Canadian Water Resources Association National Conference, Virtual meeting (\*co-presented, OP)
- Bergman, JN**, Negiel, K, Raby, G, *et al.* (2021) Using biotelemetry to monitor an invasion front: investigating movement patterns and behaviour of round goby in the Rideau Canal. LOTEK Webinar Series (*invited*, OP)
- Bergman, JN**, Neigel, K (2021) How connected is the Rideau Canal? Using hydraulic models and acoustic telemetry to investigate fish connectivity and flooding. Third Annual NSERC Strategic Partnership Grant Meeting, Virtual Meeting (OP)
- Bergman, JN**, Bennet, JR, Cooke, SJ (2021) Investigating the longitudinal connectivity of Canada's Rideau Canal Waterway to inform conservation decisions. CCFFR, Virtual Meeting (*invited*, OP)
- Bergman, JN**, Buxton, RT, Lin, H-Y, *et al.* (2020) The power of posting: a review of the benefits and risks of social media for wildlife conservation. North American Congress for Conservation Biology (NACCB), Virtual Meeting (OP)
- Bergman, JN**, Bennet, JR, Cooke, SJ (2020) Examining the ecological connectivity of the Rideau Canal Waterway as experienced by native and invasive fish. GLATOS Annual Meeting, Ann Arbor, MI, USA (OP)
- Bergman, JN**, Bennet, JR, Balshine, S, *et al.* (2020) Using acoustic telemetry to monitor an invasion front: investigating movement patterns and behaviour of round goby (*Neogobius melanostomus*) in the Rideau Canal Waterway. AFS-OC Annual Meeting, Orillia, ON, CAN (*awarded best student oral presentation*, OP)
- Bergman, JN** (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, CAN (*invited*, rapporteur)
- Bergman, JN**, Bennet, JR, Cooke, SJ (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, CAN (OP)
- Bergman, JN**, Bennet, JR, Cooke, SJ (2018) Can selective fragmentation of Canada's Rideau Canal optimize conservation decisions? First Annual NSERC Strategic Partnership Grant Meeting Carleton University, Ottawa, ON, CAN (OP)
- Bergman, JN**, Heppell, SA, Shea, CP, Lowerre-Barbieri, SK (2017) Seasonal cycles of gonadal development and plasma sex steroid levels in the protogynous gag grouper *Mycteroperca microlepis*. 147<sup>th</sup> American Fisheries Society Annual Meeting, Tampa, FL, USA (*invited*, OP)
- Bergman, JN**, Lajeunesse, M, Motta, P (2017) Teeth penetration force of the tiger shark *Galeocerdo cuvier* and sandbar shark *Carcharhinus plumbeus*. FISH, Ft. Lauderdale, FL, USA (OP)
- Krumhansl, KA, **Bergman, JN**, Salomon, AK (2015) Impacts of Giant Kelp Canopy Harvest on Temperate Reef Fish. Western Society of Naturalists, Sacramento, CA, USA (PP)

#### Outreach and public lectures

- Bergman, JN**, Raby, G, Neigel, K, *et al.* (2022) Tracking the early stages of an invasion with biotelemetry: behaviour of round goby in Canada's historic Rideau Canal. Frontenac Arch Biosphere Virtual Invasive [Workshop](#) (*invited*, OP)
- Bergman, JN**, Landsman, S, Neigel, K, *et al.* (2022) What are the ecological impacts of winter water level drawdowns on muskellunge in Canada's historic Rideau Canal? Muskies Science, Fishing, and More (Facebook Group), Virtual Meeting (*invited*, OP)
- Bergman, JN**, Landsman, S, LaRochelle, L, *et al.* (2021) Muskies Movement Ecology Study updates. Muskies Canada Ottawa Chapter, Virtual Meeting (*invited*, OP)
- Bergman, JN**, \* Landsman, S\* (2021) Important Themes in Muskellunge Research – A Rideau River Context. Musky Trader Symposium (\*co-presented, *invited*, OP)
- Bergman, JN**, Landsman, S, Glassman, D, Cooke, SJ (2020) How 'connected' is Canada's historic Rideau Canal Waterway? Muskies Canada Ottawa Chapter, Virtual Meeting (*invited*, OP)



- Bergman, JN** (2020) Integrating Ecological Connectivity into Management Strategies. Carleton University's Science Café Series, Ottawa, ON, CAN (*invited*, OP)
- Bergman, JN** (2019) Maintaining sustainable marine fisheries. Conservation Biology Course, Carleton University, Ottawa, ON, CAN (*invited*, OP)
- Bergman, JN**, Bennet, JR, Cooke, SJ (2019) Investigating fish movements in the Rideau Canal to optimize conservation decisions. Big Rideau Lake Association, Portland, ON, CAN (*invited*, OP)
- Bergman, JN**, Bennet, JR, Cooke, SJ (2019) Fish connectivity in the Rideau Canal Rideau Canal Waterway. Annual Lockmaster Meeting, Chaffey's Lock and Ottawa, ON, CAN (*invited*, OP)
- Bergman, JN**, Motta, PJ (2015) Shark conservation and changing public perception. The Great American Teach-In, Auburndale, FL, USA (*invited*, OP)

## RESEARCH EXPERIENCE

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### PhD Candidate

Fall 2018-present

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

- 1) Thesis research: examine the spatial ecology of invasive and native fishes in the Rideau Canal to inform conservation decisions; tracking methods include acoustic telemetry and mark-recapture.
- 2) Serve as a teaching assistant and instructor for Department of Biology & Environmental Science courses: supervise, mentor, and assist students; support and/or lead field and lab work; provide engaging lectures.
- 3) Supervise and mentor undergraduate and graduate students: provide hands-on learning experiences including experimental design, boat handling, angling, electrofishing (boat, backpack), acoustic telemetry surgeries, receiver deployment & recovery, data collection & analysis, and proper fish handling techniques.
- 4) Grant manager: support NSERC grant management including coordinating annual meetings and writing final reports; create and submit yearly reports to NDMNRF, NSERC, and Parks Canada; coordinate meetings and documents for PIs across federal and academic institutions.

### Biological Scientist II

Fall 2015-Fall 2018

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

- 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, and final reports. *Sampling conducted via hook and line fishing 60-100 miles offshore year-round in the Gulf of Mexico.*
- 2) Led 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.
- 4) Served as an AAUS scientific diver (130 ft rating); conducted underwater surveys and gear service.

### NSERC Undergraduate Student Research Award (USRA) Student

Summer 2015

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

- 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, USA:

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, USA:

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

**PROFESSIONAL HISTORY**

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**AFS-OC Student Subunit Officer: [Secretary-Treasurer](#)**

Fall 2021-present

The Ontario Chapter of the American Fisheries Society, Ontario, CAN:

Responsible to for supporting annual meetings, the parent society, and any outreach events.

**Animal Care Committee (ACC) Member**

Fall 2020-present

Carleton University, Ottawa, ON, CAN:

Ensure the ethical treatment of animals used for research, teaching, or display at Carleton University; provide feedback and input on protocols involving the use of animals.

**Co-chair for The Ottawa-Carleton Institute of Biology Symposium**

Fall 2018-Spring 2019

Carleton University, Ottawa, ON, CAN:

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**

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**Instructor**

Fall Term 2021

Carleton University, Ottawa, ON, CAN:

Co-instructed the undergraduate course (42 students) *Introduction to Environmental Science* (ENSC 1500). Tasks included lecturing, mentoring, providing one-on-one support and guidance, and evaluating written assignments and oral presentations. We provided students with strategies for analyzing and solving the many interdisciplinary environmental problems that challenge our world

today, focusing on training our next generation in reproducible research practices and science communication skills.

**Teaching Assistant**

Fall 2018-present

Carleton University, Ottawa, ON, CAN:

Assisted in the instruction of Foundations of Biology I and II, Fish Ecology, and Herpetology; responsible for educating students in the theory and application of biological principles, experimental design, scientific writing, science communication, species identification, and statistical analyses.

**Invited Lecturer**

Fall 2018 & 2019

Carleton University, Ottawa, ON, CAN:

Engaged 30 students in the *Environmental Science and Management: Theory and Practice* course (ENSC 3000) about agroecology and food production systems; organized off-campus educational trips to The Central Experimental Farm (Ottawa, ON), Roots and Shoots Farm (Alcove, QC), and Alska Farm (Low, QC) for hands-on experience with farmers, produce, and livestock.

**Volunteer Laboratory Teaching Assistant**

Fall 2015

University of South Florida, Tampa, FL, USA:

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

**MEDIA**

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The Toronto Star Newspapers Ltd.: Invasive fish harbours Smiths Falls' Edmonds Lockstation.

Personal interview for newspaper [article](#) (20 Jan 2022).

Canadian Aquatic Resources Section of the American Fisheries Society Peter A. Larkin Award for Excellence in Fisheries: [2021 Larkin Award Results](#) (08 Dec 2021).

Society for Conservation Biology: [SCB Member Spotlight: Jordanna Bergman](#) (27 Oct 2021). Personal interview after being selected for the SCB 2021 Graduate Student Research Fellowship.

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

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

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

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

CTV: [personal interview](#) and filming crew (26 June 2019).

TVO, Striking Balance - Frontenac Arch Biosphere Reserve (scroll to minute -24:55 in [documentary](#) for personal interview; May 2019).

**CERTIFICATIONS AND SKILLS**

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**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 & Marine Field Skills:** Ontario pleasure craft operator; boat handling and trailering; hook & line fishing (manual & 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  
Department of Integrative Biology,  
University of South Florida  
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Dr. Joseph Bennett, Professor  
Department of Biology,  
Carleton University  
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Dr. Sean Landsman, Instructor  
Institute of Environmental and  
Interdisciplinary Science,  
Carleton University  
[sean.landsman@carleton.ca](mailto:sean.landsman@carleton.ca)  
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Dr. Steven Cooke, Professor  
Department of Biology & Institute of  
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[Steven.Cooke@carleton.ca](mailto:Steven.Cooke@carleton.ca)  
(613) 520-2600 x 2143