

RYAN J. KNOTEK

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PROFESSIONAL SUMMARY

Throughout my career, my research has focused on merging cutting-edge technologies and techniques with modern analytics to advance our understanding of how fishing impacts our world’s sharks, skates, and ray populations. My work directly impacts fisheries management measures to promote species conservation while also considering the continued success of the fishing industries that support the livelihoods of so many. Beyond the manuscripts and numbers, I strongly advocate breaking down the communication barrier between science and the public by leveraging the latest and most popular social media platforms to share my research experiences and findings. Education is also essential to my mission as we mentor the next generation of stewards for our world’s oceans.

EDUCATION

2020	University of Massachusetts Boston Boston, MA, USA	Ph.D. Marine Science and Technology GPA: 3.95
2019	University of Massachusetts Boston Boston, MA, USA	M.S. Marine Science and Technology GPA: 3.95
2015	University of New England Biddeford, ME, USA	M.S. Marine Science GPA: 3.96
2012	University of New England Biddeford, ME, USA	B.S. Marine Biology GPA: 3.76

PROFESSIONAL EXPERIENCE

2024 – Present	Research Scientist ; Fisheries Science and Emerging Technologies Program, Anderson Cabot Center for Ocean Life, New England Aquarium
2022 – 2024	Associate Research Scientist ; Fisheries Science and Emerging Technologies Program, Anderson Cabot Center for Ocean Life, New England Aquarium
2021 – 2022	Assistant Scientist ; Fisheries Science and Emerging Technologies Program, Anderson Cabot Center for Ocean Life, New England Aquarium
2019 – 2020	Graduate Research Assistant ; University of Massachusetts Boston
2015 – 2020	Research Technician ; Fisheries Science and Emerging Technologies Program, Anderson Cabot Center for Ocean Life, New England Aquarium
2018 – 2019	Integrative Graduate Education and Research Traineeship Associate Fellow ; University of Massachusetts Boston
2015 – 2018	Graduate Teaching Assistant ; University of Massachusetts Boston - Statistics of Environmental Sciences (ENVSCI 261) (Spring 2018) - Statistics of Environmental Sciences (ENVSCI 261) (Fall 2017)

- Ecophysiology and Conservation of Fishes (ENVSCI 393/693) (Spring 2016)
- Introduction to Coastal Biological Systems (ENVSCI 267) (Fall 2015)

2012 – 2015 Graduate Research Assistant; University of New England

PEER-REVIEWED PUBLICATIONS

- Kneebone, J., Davis, M., **Knotek, R.**, Capizzano, C., Kim, E., McCandless, C. T., ... & Orbesen, E. S. (2025). Integration of Multiple Data Types to Document Spatial Effort in a Recreational Fishery for Highly Migratory Species in Relation to Offshore Wind Development. *Fisheries Oceanography*, e12727.
- Talwar, B. S., Brooks, E. J., Abercrombie, D. L., Anderson, B., Bond, M. E., Brooks, A. M., ... **Knotek, R.** ... & Heithaus, M.R. (2023). Insights into the Relative Abundance, Life History, and Ecology of Oceanic Sharks in the Eastern Bahamas. *Sustainability*, 16(1), 200.
- Talwar, B. S., Bond, M. E., Williams, S., Brooks, E. J., Chapman, D. D., Howey, L. A., **Knotek, R.**, ... & Gelsleichter, J. (2023). Reproductive timing and putative mating behavior of the oceanic whitetip shark *Carcharhinus longimanus* in the eastern Bahamas. *Endangered Species Research*, 50, 181-194.
- Pratt Jr, H., Pratt, T., **Knotek, R.**, Carrier, J., & Whitney, N. (2022). Long-term use of a shark breeding ground: Three decades of mating site fidelity in the nurse shark, *Ginglymostoma cirratum*. *Plos one*, 17(10), e0275323.
- Knotek, R.**, Brooks, E., Howey, L., Gelsleichter, J., Talwar, B., Winchester, M., ... & Mandelman, J. (2022). Merging technologies and supervised classification methods to quantify capture behavior on hook-and-line. *Journal of Experimental Marine Biology and Ecology*, 555, 151782.
- Knotek, R.**, Frazier, B., Daly-Engel, T., White, C., Barry, S., Cave, E., & Whitney, N. (2022). Post-mortality, recovery, and stress physiology of blacknose sharks, *Carcharhinus acronotus*, in the Southeast US recreational shark fishery. *Fisheries Research*, 254, 106406.
- Rudders, D., Benoît, H., **Knotek, R.**, Mandelman, J., Roman, S., & Sulikowski, J. (2022). Discard mortality of sea scallops *Placopecten magellanicus* following capture and handling in the US dredge fishery. *Marine and Coastal Fisheries*, 14(2), e10197.
- Weissman, A., **Knotek, R.**, Mandelman, J., Rudders, D., & Sulikowski, J. (2021). Determining the discard mortality of monkfish (*Lophius americanus*) in the New England scallop dredge fishery. *North American Journal of Fisheries Management*, 41(3), 856–870.
- Innis, C., Jones, E., Cavin, J., **Knotek, R.**, & Mandelman, J. (2020). Temporal stability of in vitro venous blood gas, pH, and lactate values of cownose rays (*Rhinoptera Bonasus*) and red-eared slider turtles (*Pseudemys Scripta Elegans*). *Journal of Zoo and Wildlife Medicine*, 5(11), 110–115.
- Knotek, R.**, Kneebone, J., Sulikowski, J., Curtis, T., Jurek, J., & Mandelman, J. (2020). Utilization of pop-up satellite archival transmitting tags to evaluate thorny skate (*Amblyraja radiata*) discard mortality in the Gulf of Maine groundfish bottom trawl fishery. *ICES Journal of Marine Science*, 77(1), 256–266.
- Kneebone, J., Sulikowski, J., **Knotek, R.**, McElroy, W. D., Gervelis, B., Curtis, T., ... & Mandelman, J. (2020). Using conventional and pop-up satellite transmitting tags to assess the horizontal movements and habitat use of thorny skate (*Amblyraja radiata*) in the Gulf of Maine. *ICES Journal of Marine Science*, 77(7–8), 2790–2803.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2018). The survival of rajids discarded in the New England scallop dredge fisheries. *Fisheries Research*, 198, 50-62.
- Sulikowski, J., Benoît, H., Capizzano, C., **Knotek, R.**, Mandelman, J., Platz, T., & Rudders, D. (2018). Evaluating the condition and discard mortality of winter skate, *Leucoraja ocellata*, following capture and handling in the Atlantic monkfish (*Lophius americanus*) sink gillnet fishery. *Fisheries Research*, 198, 159–164.

- Prohaska, B., Bethea, D., Poulakis, G., Scharer, R., **Knotek, R.**, Carlson, J., & Grubbs, D. (2018) Physiological stress in the smalltooth sawfish: effects of ontogeny, capture method, and habitat quality. *Endangered Species Research*, 36, 121–135.
- Benoît, H., Capizzano, C., **Knotek, R.**, Rudders, D., Sulikowski, J., Dean, M., ... & Mandelman, J. (2015). A generalized model for longitudinal short- and long-term mortality data for commercial fishery discards and recreational fishery catch-and-releases. *ICES Journal of Marine Science*, 72(6), 1834–1847.
- Knotek, R.**, Gill, S., Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2015). The development of a low cost refrigerated flow-through seawater system for at-sea estimation of post-release mortality. *Fisheries Research*, 170, 152–157.

TECHNICAL PRESENTATIONS

- Knotek, R.**, Curtis, T., Collatos, C., Chisholm, J., Morris, J., & Whitney, N. (2024, September 15-19). *Hooked on collaboration: Investigating post-release mortality with fishing industry partners*. Annual Meeting of the American Fisheries Society, Honolulu, HI, United States.
- Kneebone, J., Davis, M., **Knotek, R.**, Capizzano, C., Kim, E., McCandless, C., ... & Orbesen, E. (2024, September 15-19). *Characterizing recreational fishing effort for pelagic fishes in relation to wind development*. Annual Meeting of the American Fisheries Society, Honolulu, HI, United States.
- Knotek, R.**, Kneebone, J., Mandelman, J., Chisholm, J., Curtis, T., & Whitney, N. (2024, July 10-14). *Hooked on collaboration: Investigating shark post-release mortality with a conservation-minded aquarium and fishing industry partners*. Joint Meeting of Ichthyologists and Herpetologists, Pittsburgh, PA, United States.
- Whitney, N., **Knotek, R.**, Collatos, C., Kneebone, J., & Mandelman, J. (2024, July 10-14). *In it for the long term: the potential for aquariums to fill critical gaps in supporting shark research in a changing climate*. Joint Meeting of Ichthyologists and Herpetologists, Pittsburgh, PA, United States.
- Knotek, R.**, Kneebone, J., White, C., Curtis, T., Collatos, C., & Whitney, N. (2023, July 12-16). *I like to move it, move it: advances in the application of acceleration data loggers in fisheries research*. Joint Meeting of Ichthyologists and Herpetologists, Norfolk, VA, United States.
- Pratt, H., Pratt, C., **Knotek, R.**, Carrier, J., & Whitney, W. (2023, July 12-16). *Long-term use of a shark breeding ground: Three decades of mating site fidelity in the nurse shark, *Ginglymostoma cirratum** [virtual presentation]. Joint Meeting of Ichthyologists and Herpetologists, Norfolk, VA, United States.
- Knotek, R.**, Frazier, B., Daly-Engel, T., White, C., Barry, S., Cave, E., ... & Whitney, W. (2021, November 6–10). *Swim, sink, or snack? Cooperative research to assess the post-release mortality of small coastal sharks* [virtual presentation]. 151st Annual Meeting of American Fisheries Society, Baltimore, MD, United States.
- Knotek, R.**, Frazier, B., Daly-Engel, T., White, C., Barry, S., Cave, E., Curtis, T., & Whitney, W. (2021, October 18–22). *The use of biologgers to provide essential data for fisheries management: Post-release mortality of blacknose sharks in a recreational fishery* [virtual presentation]. 7th International Bio-Logging Symposium, Honolulu, HI, United States.
- Knotek, R.**, Kneebone, J., Brooks, E., Curtis, T., Chen, B., & Mandelman, J. (2020, November 13). *Integrating novel tools and techniques to investigate and reduce the impacts of fishing capture* [virtual presentation]. University of Massachusetts Boston, School for the Environment, Dissertation Defense, Boston, MA, United States.
- Knotek, R.**, Brooks, E., Howey, L., Gelsleichter, J., Kneebone, J., Mandelman, J., ... & Grubbs, D. (2019, May

- 16). *The impact of capture-and-handling on oceanic whitetip shark (Carcharhinus longimanus)* [oral presentation]. University of Massachusetts Boston, School for the Environment, 7th Annual Research Colloquium, Boston, MA, United States.
- Sulikowski, J., Weissman, A., **Knotek, R.**, Mandelman, J., & Rudders, D. (2018, August 19–23). *Discard mortality of Lophius americanus in the scallop dredge fishery* [oral presentation]. 148th Annual Meeting of American Fisheries Society; Atlantic City, NJ, United States.
- Cicia, A., Connors, G., Curtis, T., **Knotek, R.**, Mandelman, J., & Sulikowski, J. (2018, August 19–23). *Determining the discard mortality rate of barndoor skates in existing non-directed gillnet fisheries* [oral presentation]. 148th Annual Meeting of American Fisheries Society; Atlantic City, NJ, United States.
- Knotek, R.**, Kneebone, J., Mandelman, J., Sulikowski, J., & Curtis, T. (2017, August 20–24). *Identifying bottom trawl bycatch hotspots and capture-and-handling practices to reduce the incidental mortality of an overfish Species of Concern – the thorny skate – in the Gulf of Maine* [oral presentation]. 147th Annual Meeting of American Fisheries Society, Tampa, FL, United States.
- Sulikowski, J., Benoît, H., **Knotek, R.**, Mandelman, J., & Rudders, D. (2016, August 21–25). *Evaluating the condition and discard mortality of winter skate, Leucoraja ocellata, following capture and handling in the Atlantic monkfish (Lophius americanus) sink gillnet fishery* [oral presentation]. 146th Annual Meeting of American Fisheries Society, Kansas City, MO, United States.
- Rudders, D., **Knotek, R.**, Roman, S., Mandelman, J., Benoît, H., & Sulikowski, J. (2016, August 21–25). *Estimating the discard mortality rate of sea scallops following capture and handling in the commercial dredge fishery* [oral presentation]. 146th Annual Meeting of American Fisheries Society, Kansas City, MO, United States.
- Knotek, R.**, Sulikowski, J., Benoît, H., Capizzano, C., Mandelman, J., Platz, T., & Rudders, D. (2015, April 19–21). *Evaluating the condition and discard mortality of winter skate, Leucoraja ocellata, following capture and handling in the Atlantic monkfish (Lophius americanus) sink gillnet fishery* [oral presentation]. 70th Annual Northeast Fish and Wildlife Conference, Newport, RI, United States.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2014, August 17–21). *The survival of rajids discarded in the New England scallop dredge fishery* [oral presentation]. 144th Annual Meeting of American Fisheries Society, Quebec, QC, Canada.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2014, July 30–August 3). *The survival of rajids discarded in the New England scallop dredge fishery* [oral presentation]. Joint Meeting of Ichthyologists and Herpetologists, Chattanooga, TN, United States.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2014, April 13–15). *The survival of rajids discarded in the New England scallop dredge fishery* [oral presentation]. 69th Annual Northeast Fish and Wildlife Conference, Portland, ME, United States.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2014, April 8–9). *The survival of rajids discarded in the New England scallop dredge fishery* [oral presentation]. Scallop Plan and Development Team Meeting, New Bedford, MA, United States.
- Knotek, R.**, Rudders, D., Mandelman, J., Benoît, H., & Sulikowski, J. (2014, January 29). *The survival of rajids discarded in the New England scallop dredge fishery* [poster presentation]. Annual Meeting of American Fisheries Society Southern New England Division, Hadley, MA, United States.
- Knotek, R.**, Peterson, C., Driggers, W., Hoffmayer, E., & Sulikowski, J. (2012, May 4). *Investigating the reproductive biology of the spiny dogfish (Squalus acanthias) along the United States East Coast* [oral presentation]. University of New England, 13th Annual Undergraduate Arts and Sciences Research and Scholarship Symposium. Biddeford, ME, United States.
- Knotek, R.**, Peterson, C., Driggers, W., Hoffmayer, E., & Sulikowski, J. (2012, April 15). *Investigating the*

reproductive biology of the spiny dogfish (Squalus acanthias) along the United States East Coast [oral presentation]. University of New England, Undergraduate Honors Thesis Defense. Biddeford, ME, United States.

Knotek, R., Peterson, C., Tsang, P., Buble, W., Driggers, W., Hoffmayer, E., & Sulikowski, J. (2012, January 26–29). *Investigating the reproductive biology of the spiny dogfish (Squalus acanthias) along the United States East Coast* [oral presentation]. Annual Meeting of American Fisheries Society Southern Division, Biloxi, MS, United States.

FUNDING

2023	Post-release mortality and behavioral recovery of bull sharks (<i>Carcharhinus leucas</i>) caught in the U.S. South recreational shark fishery. NOAA Fisheries Cooperative Research Program (\$207,104; lead principal investigator)
2022	Post-release mortality and misidentification of a large coastal shark species, the spinner shark (<i>Carcharhinus brevipinna</i>), in the U.S. Southeast recreational shark fishery. NOAA Fisheries Cooperative Research Program (\$219,293; lead principal investigator)
2021	Quantifying porbeagle shark post-release mortality and bycatch susceptibility in the Northeast U.S. bottom trawl fishery. NOAA Fisheries Bycatch Reduction and Engineering Program (\$191,897; lead principal investigator)
2018	Post-release mortality of small coastal sharks: providing high-priority data using a cost-effective technique. NOAA Fisheries Cooperative Research Program (\$237,884; scientific collaborator)
2015	Identifying bottom trawl bycatch hotspots and capture-and-handling practices to reduce the incidental mortality of an overfished Species of Concern -- the Thorny Skate -- in the Gulf of Maine. NOAA Fisheries Bycatch Reduction and Engineering Program (\$223,924; scientific collaborator)
2014	Discard mortality of sea scallops following capture and handling in the sea scallop dredge fishery. NOAA Fisheries Sea Scallop Research Set-Aside Program (\$1,657,181; scientific collaborator)
2012	Evaluating the condition and discard mortality of skates following capture and handling in the sea scallop dredge fishery. NOAA Fisheries Sea Scallop Research Set-Aside Program (\$1,092,642; scientific collaborator)

AWARDS AND HONORS

2021	Young Professional Spotlight, American Institute of Fishery Research Biologists
2018 – 2019	Integrative Graduate Education and Research Traineeship Associate Fellowship, University of Massachusetts Boston
2014	University of New England Graduate Student Award for Excellence in Research
2014	American Fisheries Society, Southern New England Chapter, Winter Meeting – Best Student Poster Award
2011 – 2012	University of New England Scholar-Athlete of the Year
2011 – 2012	NCAA Division III, The Commonwealth Coast Conference, Senior Scholar-Athlete of the Year
2010 – 2012	University of New England, College of Arts and Sciences, Honors Program

2010 – 2012	University of New England, Men’s Basketball Team Captain
2010 – 2012	NCAA Division III, The Commonwealth Coast Conference, Academic All-Conference Team, Men’s Basketball
2010 – 2011	University of New England, College of Arts and Sciences, Summer Research Stipend
2008 – 2009	University of New England, U-Lead Scholarship

OUTREACH AND MEDIA

2025	Boston.com, News article , and YouTube short-format video (Fall 2025) on sand tiger shark research in Boston Harbor.
2025	NPR National, Radio story, news article , and Instagram reel (Summer 2025) on sand tiger shark research in Boston Harbor.
2025	WGBH, Radio story, news article , and Instagram reel (Summer 2025) on sand tiger shark research in Boston Harbor.
2025	New England Aquarium, Instagram, and Facebook social media (Summer 2025) content related to the “Elasmobracket” competition. Link to one of the Instagram posts .
2025	New England Aquarium, World Ocean Day (Summer 2025) outreach event with a virtual reality booth for the Fisheries Science and Emerging Technologies program.
2025	Northeastern High School Marine Science Symposium (Spring 2025), virtual reality booth for the Fisheries Science and Emerging Technologies program.
2025	New England Aquarium, Blog post (Winter 2025) on sand tiger shark research in Boston Harbor.
2024	Boston Herald, News article (Fall 2024) on sand tiger shark research in Boston Harbor.
2024	NBC 10 Boston, News article (Fall 2024) on sand tiger shark research in Boston Harbor.
2024	New England Aquarium, World Ocean Day (Summer 2024) outreach event with a virtual reality booth for the Fisheries Science and Emerging Technologies program.
2024	Northeastern High School Marine Science Symposium (Spring 2024), virtual reality booth for the Fisheries Science and Emerging Technologies program.
2024	New England Aquarium, Blog post (Winter 2024) on spinner shark post-release mortality research.
2023	New England Aquarium, Outreach event (Summer 2023) with the Marine Conservation Action Fund program, hosted an activity booth Kerstin Forsberg.
2023	WHDH, TV interview (Summer 2023) talking about sharks of New England and fisheries research.
2023	Boston 25, TV interview (Summer 2023) talking about sharks of New England and fisheries research.
2023	New England Aquarium, Blog post (Summer 2023) titled, “Get to Know Some of the Sharks We Study.”
2023	New England Aquarium, Blog post (Summer 2023) titled, “The Five Biggest Sharks Myths, Debunked.”
2023	Cape Cod Times, News article (Summer 2023) on climate change and its impact on shark diversity in New England.
2023	Wicked Local, News article (Summer 2023) on sand tiger shark research in Boston Harbor.
2023	New England Aquarium, YouTube short-format video and magazine article (Fall 2023 issue) on spinner shark post-release mortality research.

2020	New England Aquarium, “Virtual Visit” YouTube series (Part 1 and Part 2)(scientist and developer)
2020	“How Fishing Impacts Sharks”, Sharks 4 Kids webinar (scientist)
2019	“Shark vs. Human”, OceanX video (scientist)
2019	New England Aquarium, Live Blue Ambassador Summer “Shark” Program (co-lead instructor)
2019	“Post-ups and Post-Release Mortality: A Selection Sunday Episode with Ryan Knotek”, The Fisheries Podcast interview (scientist)
2018 – 2019	St. Clements elementary school “Shark Talk” presentation and activity, Saratoga Springs, NY, United States (lecturer)
2017 – 2019	Anderson Cabot Center for Ocean Life at the New England Aquarium blog posts (author)
2018	Discovery Channel’s Shark Week, Monster Tag episode, Cat Island, The Bahamas (scientist)
2018	Google Expeditions Virtual Reality Lesson Plan, “Studying oceanic whitetip sharks in the Bahamas”, (scientist and co-developer)
2016 – 2018	New England Aquarium, “Meet the Scientist” Presentation, Boston, MA, USA (lecturer)
2017	New England Aquarium, “Aquarist in Training” Presentation and Activity, Boston, MA, USA (lecturer)
2015	“UNE Student-Athlete Spotlight” video , University of New England, Biddeford, ME, USA (scientist)
2013	“Fishermen, scientists investigate skate mortality in scallop dredges”, Commercial Fisheries News article (author)

Technical Expertise

Technology	<p>Analytical and mapping: R (R-Studio), GitHub, ArcGIS, QGIS, Sigma Plot, Igor Pro, ImageMagick, ImageJ, BORIS, Microsoft Office</p> <p>Electronic tagging: Lotek Wireless satellite tags and software (LAT Viewer Studio and Tag Talk), Vemco acoustic transmitters and VUE software, TechnoSmArt acceleration data loggers and X-manager software, Gulf Coast Data Concepts acceleration data loggers, HOBO loggers and HOBOWare software, Advanced Telemetry Systems VHF receiver and yagi antenna</p> <p>Creative and outreach: Adobe Creative Cloud, Google Sketchup, WIX</p> <p>Other: GoFish video cameras</p>
Field	<p>General: extensive field experience (7,500 + hours) as a research scientist and aboard commercial (scallop dredge, otter-trawl, longline, gillnet, and purse seine; 13 to 36 m) and recreational (sport fishing; 5 to 22 m) fishing vessels, and several research vessels (R/V Oregon II, Albula, and Alucia)</p> <p>Sampling: experienced with electronic (pop-up satellite archival transmitting, acoustic, PIT, and conventional) and conventional tag applications, ethographic analysis of capture behavior (via monitoring with acceleration data loggers and cameras), post-capture health evaluations (reflex impairment and physical trauma), release behavior assessments, water quality assessments with YSIs, and teleost and elasmobranch phlebotomy</p>
Laboratory	<p>Blood chemistry: i-STAT, hematocrit, HemoCue, Accu-Chek, Nova Biomedical Critical Care Xpress, flame photometry, and osmometry</p> <p>Elasmobranch and teleost necropsy</p>

Statistical

Classification: logistic regressions, k-means clustering, K-nearest neighbor, support vector machines, multiplayer perceptron neural networks, random forests, gradient boosted decision trees

Regression: generalized linear and additive models (fixed- and mixed-effects)

Time-series: longitudinal survival analyses (Kaplan-Meier, Cox proportional-hazards, survival-mixture models), Browne-Forsythe-Levene test, ARIMA models