

Daniel J. Madigan

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Harvard University
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Education & Experience

Harvard University , HUCE Environmental Fellow	Sept 2015-present
Stony Brook University and NOAA , NSF Postdoctoral Fellow	2013 - 2015
UC Berkeley , Visiting Scholar	2013
Stanford University , PhD Biology; Graduate Fellow	2007-2013
Dartmouth College , BA Biology/Ecology. Graduated Cum Laude	2001-2005

Honors & Awards

HUCE Fellowship (Harvard University): 2015-2017
Raymond L. Lindeman Award (ASLO)
NSF Post-Doctoral Fellowship: 2013-2015
Myers Trust award (Stanford University)
Giese award (Stanford University)
Lerner-Grey award (American Museum of Natural History)
Stanford Graduate Fellowship: 2007-2010
MOTE symposium student scholarship
Wildlife Computers student scholarship
National Merit Scholarship

Publications in review/revision

Ohkouchi N, Chikaraishi Y, Close HG, Fry B, Larsen T, **Madigan DJ**, McCarthy MD, McMahon KW, Nagata T, Naito Y, Ogawa NO, Popp BN, Steffan S, Takano Y, Tayasu I, Wyatt ASJ, Yamaguchi YT & Y Yokoyama. In review. Progress in the use of amino acid nitrogen isotopic analysis in ecological and biogeochemical studies. *Organic Geochemistry*.

Guerra AS, **Madigan DJ**, McCauley DJ. In review. The worth of giants: The consumptive and non-consumptive use value of the giant seabass (*Stereolepis gigas*). *Aquatic Conservation*.

Madigan DJ, Baumann Z, Snodgrass OE, Dewar H, Berman-Kowalewski M, Nishikawa J, Dutton PH, Weng KC & NS Fisher. In revision. Assessing Fukushima-derived radiocesium in migratory Pacific predators. *Environmental Science & Technology*.

Publications

Madigan DJ. Accepted. Dynamics of trans-Pacific migration in Pacific bluefin tuna based on chemical tracer techniques in BA Block (Ed.), *Bluefin Futures*. Chicago, IL: University of Chicago Press.

Madigan DJ, Baumann Z, Carlisle AB, Snodgrass OE, Dewar H & NS Fisher. 2017. Isotopic insights into migration patterns of Pacific bluefin tuna in the eastern Pacific Ocean. *Canadian Journal of Fisheries & Aquatic Sciences*. DOI: 10.1139/cjfas-2016-0504.

Shiple ON, Brooks EJ, **Madigan DJ**, Sweeting CJ & RD Grubbs. 2017. Stable isotope analysis in deep-sea chondrichthyans: recent challenges, ecological insights, and future directions. *Reviews in Fish Biology and Fisheries*. DOI: 10.1007/s11160-017-9466-1.

- Tsai F-Y, Chiang W-C, Chen C-C, **Madigan DJ** & Y-S Ho. 2016. Feeding ecology of dolphinfish (*Coryphaena hippurus*) in the waters off eastern Taiwan. *Journal of Taiwan Fisheries Research* 24(2): 11-24.
- Lee C-S, Lutcavage ME, Chandler E, **Madigan DJ**, Cerrato RM & NS Fisher. 2016. Declining mercury concentrations in bluefin tuna parallel reduced emissions into the North Atlantic. *Environmental Science & Technology* 50(23): 12825-12830. DOI: 10.1021/acs.est.6b04328.
*Press: Reuters, Washington Post, Bloomberg, Scientific American, Science Daily
- Wang C, Baumann Z, **Madigan DJ** & NS Fisher. 2016. Contaminated marine sediments as a source of cesium radioisotopes for benthic fauna near Fukushima. *Environmental Science & Technology* 50(19): 10448-10455.
- Carlisle AB, Litvin SY, **Madigan DJ**, Lyons K, Bigman J, Ibarra M & JJ Bizarro. 2016. Interactive effects of urea and lipid content confound stable isotope results in elasmobranchs. *Canadian Journal of Fisheries and Aquatic Sciences*. DOI: 10.1139/cjfas-2015-0584.
- Madigan DJ**, Chiang W-C, Wallsgrave N, Popp BN, Kitagawa T, Choy A, Tallmon J, Ahmed N, Fisher NS & C-L Sun. 2016. Intrinsic tracers reveal recent foraging ecology of giant Pacific bluefin tuna at their primary spawning grounds. *Marine Ecology Progress Series* 553: 253-266.
- Kwon SY, Blum JD, **Madigan DJ**, Block BA & BN Popp. 2016. Quantifying mercury isotope dynamics in a captive pelagic fish, Pacific bluefin tuna (*Thunnus orientalis*). *Elementa: Science of the Anthropocene* 4(1): 000088.
- Madigan DJ**, Carlisle AB, Gardner LD, Jayasundara N, Micheli F, Schaefer KM, Fuller DW & BA Block. 2015. Assessing niche width of endothermic fish from genes to ecosystem. *PNAS* 112(27), 8350-8355.*
*Press: Futurity Research News, TBR Newsmedia
- Madigan DJ**, Brooks EJ, Bond ME, Gelsleichter J, Howey LA, Abercrombie DL, Brooks A & DD Chapman. 2015. Diet shift and associated site-fidelity of oceanic whitetip sharks (*Carcharhinus longimanus*) along the edge of the Great Bahama Bank. *Marine Ecology Progress Series* 529: 185-197.
- Lyons K, Preti A, **Madigan DJ**, Wells RJD, Blasius ME, Snodgrass OE, Kacev D, Harris JD, Dewar H, Kohin S, MacKenzie K & CG Lowe. 2015. Insights into the life history and ecology of a large shortfin mako shark (*Isurus oxyrinchus*) captured in southern California. *Journal of Fish Biology* 87(1): 200-211.
- Baumann H, Wells RJD, Rooker JR, Zhang S, Baumann Z, **Madigan DJ**, Dewar H, Snodgrass OE & NS Fisher. 2015. Combining otolith microstructure and trace elemental analyses to infer the arrival of juvenile Pacific bluefin tuna in the California Current Ecosystem. *ICES Journal of Marine Science* 72(7): 2128-2138.
- Carlisle AB, Litvin SY, Hazen EL, **Madigan DJ**, Goldman KJ, Lea RN & BA Block. 2015. Reconstructing habitat use by juvenile salmon sharks links upwelling to strandings in the California Current. *Marine Ecology Progress Series* 525: 217-228.
- Madigan DJ**. 2015. Understanding bluefin migration using intrinsic tracers in tissues in T Kitagawa & S Kimura (Eds.), *Biology & Ecology of Bluefin Tuna*. Boca Raton, FL: CRC Press.

Fisher NS, Fowler SW & **DJ Madigan**. 2015. Perspectives and reflections on the public reaction to recent Fukushima-related radionuclide studies, and a call for enhanced training in environmental radioactivity. *Environmental Toxicology & Chemistry* 34: 707-709.

Carlisle AB, Goldman KJ, Litvin SY, **Madigan DJ**, Bigman JS, Swithenbank AM, Kline Jr TC & BA Block. 2015. Stable isotope analysis of salmon shark vertebrae reveals ontogenetic changes in habitat in a pelagic shark. *Proceedings Royal Society B* 282: 20141446.

Madigan DJ, Baumann Z, Carlisle AB, Hoen DK, Popp BN, Dewar H, Snodgrass OE, Block BA & NS Fisher. 2014. Reconstructing trans-oceanic migration patterns of Pacific bluefin tuna using a chemical tracer toolbox. *Ecology* 95(6): 1674-1683.

Bradley CJ, **Madigan DJ**, Block BA & BN Popp. 2014. Amino acid isotope incorporation and enrichment factors in Pacific bluefin tuna, *Thunnus orientalis*. *PLoS ONE* 9(1): e85818.

Fisher NS, Beaugelin-Seiller K, Hinton TG, Baumann Z, **Madigan DJ** & J Garnier-LaPlace. 2013. An evaluation of radiation doses and associated risk from the Fukushima nuclear accident to marine biota and human consumers of seafood. *PNAS* 110(26): 10670-10675.*
*Press: *CNN, ABC, Science Daily*

Madigan DJ, Baumann Z, Snodgrass OE, Ergül HA, Dewar H & NS Fisher. 2013. Radiocesium in Pacific bluefin tuna *Thunnus orientalis* in 2012 validates new tracer technique. *Environmental Science & Technology* 47: 2287-2294.*
*Press: *LA Times, Scientific American*

Madigan DJ, Baumann Z & NS Fisher. 2012. Pacific bluefin tuna transport Fukushima-derived radionuclides from Japan to California. *PNAS* 109(24), 9483-9486.*
*Press: *Nature, Science, Scientific American, Wall Street Journal, BBC, Forbes, LA Times, Washington Post, Associated Press, Al Jazeera, CNN*

Madigan DJ, Litvin SY, Popp BN, Carlisle AB, Farwell CJ & BA Block. 2012. Turnover rates and fractionation of carbon and nitrogen isotopes in an endothermic teleost, Pacific bluefin tuna (*Thunnus orientalis*). *PLoS ONE* 7(11), e49220.

Madigan DJ, Carlisle AB, Dewar H, Snodgrass OE, Litvin SY, Micheli F & BA Block. 2012. Stable isotope analysis challenges wasp-waist food web assumptions in an upwelling pelagic ecosystem. *Scientific Reports* 2:654.

Carlisle AB, Kim SL, Semmens BX, **Madigan DJ**, Jorgensen SJ, Perle CR, Anderson SD, Chapple TK, Kanive PE & BA Block. 2012. Using stable isotope analysis to understand migration and trophic ecology of northeastern Pacific white sharks (*Carcharodon carcharias*). *PLoS One* (7)2: e30492.

Burge EJ, **Madigan DJ**, Burnett LE & KG Burnett. 2007. Lysozyme gene expression by hemocytes in Pacific white shrimp, *Litopenaeus vannamei*, after injection with *Vibrio*. *Fish and Shellfish Immunology* 22(4): 327-339.

Madigan DJ & C Valderrama. 2005. Effects of tidal stage on the patterns of fishing activity in *Noctilio leporinus*. *Dartmouth Undergraduate Journal of Science* VII(3), 40-41.

Irizarry K, Fish M, **Madigan DJ** & J Taub. 2004. Shelter from the swarm: the malaria-sickle cell connection. *Dartmouth Undergraduate Journal of Science* VII(1), 28-32.

Teaching & Mentoring

Mentor/Advisor, undergraduates at Harvard University: Sophia Lee and Alicia Juang. Marine Conservation Literature: Guest Lecturer. Stony Brook University, 2015.

Mentor/Advisor, undergraduates at Stony Brook: Nazmul Ahmed and Jocelyn Tallmon. Co-authored publication.

Mentor/Advisor: NSF EAPSI Fellowship to Sara Hugentobler. Taiwan, 2015.

Professor. MAR 576: Special Topics-Biological Oceanography. Stony Brook University, 2015.

Mentor, undergraduate at Stony Brook: Anja Kenagy. Summer research (mercury dynamics in pelagic fish) entered into Intel Science Talent Search, Siemens Competition. 2014.

BIOHOPK 172H: Marine Ecology From Organisms to Ecosystems. Stanford University; TA, 2012.

BIOHOPK 182H: Stanford @ SEA. Stanford University; TA, 2010.

Mentor, Stanford VPUE students: Andrew Hines, Sara Crawford, Joseph Adelson. Managed paid summer internships: 2008 & 2009.

Invited Talks

Madigan DJ. 2017. Using chemical tracers to explore the ecology of marine predators. Seminar at Coastal Carolina University, April 6, Conway SC.

Madigan DJ. 2017. Chemical fingerprints of shark movements and feeding. Presentation at Shark Week, Micronesian Shark Foundation, March 7-14, Koror Palau.

Madigan DJ. 2016. Pacific bluefin tuna migration: Filling in knowledge gaps with chemical tracers. Bluefin Futures Symposium, January 18-20, Monterey CA.

Madigan DJ. 2015. Modeling mercury in the ocean's highest mercury fish. Seminar at Stony Brook Southampton School of Marine & Atmospheric Sciences, May 1, Southampton NY.

Madigan DJ. 2015. Fukushima radionuclides: application to marine mammals? Presentation at West Coast Marine Mammal Stranding Network Regional Meeting, Mar 24-25, Cabrillo Aquarium, San Pedro CA.

Madigan DJ. 2015. Modeling mercury in the ocean's highest mercury fish. Seminar at University of Connecticut Avery Point, March 6, Groton CT.

Madigan DJ. 2015. Modeling mercury in the ocean's biggest baddest fish. Seminar at School of Marine & Atmospheric Sciences, Jan 30, Stony Brook University, Stony Brook NY.
<https://www.youtube.com/watch?v=iEOvckgh2G0>

Madigan DJ. 2014. Nukes, nigiri, and nonsense: the many faces of Fukushima fish. Talk at 2014 Joint Aquatic Sciences Meeting, May 19-23, Portland OR.

Madigan DJ. 2013. Fish swim in the ocean and other insights gained from chemical tracers in pelagic fish. Seminar at School of Marine & Atmospheric Sciences, Stony Brook University, Stony Brook NY.

Madigan DJ, Carlisle AB, Litvin SY, Dewar H, Snodgrass OE & BA Block. 2011. Stable isotope insights into tuna ecology and migration. Grice Marine Laboratory, July 25, Fort Johnson SC

Presentations

Dutton J, Gioia KA, Fisher NS & **Madigan DJ**. 2016. Tissue distribution of mercury in female spiny dogfish (*Squalus acanthias*). Society of Environmental Toxicology and Chemistry (SETAC) South-Central Regional Meeting. April 22-23, Fort Worth, TX.

Madigan DJ, Chiang W-C, Wallsgrove N, Popp BN, Kitagawa T, Choy A, Fisher NS & C-L Sun. 2016. Recent movements and ecology of giant Pacific bluefin tuna at their primary spawning grounds. Poster presentation at Bluefin Futures Symposium, January 18-20, Monterey, CA.

Tsai F-Y, Chiang W-C, Chen C-C, **Madigan DJ** & Y-S Ho. 2016. Foraging ecology of dolphinfish (*Coryphaena hippurus*) off eastern Taiwan analysed through stable isotope analyses. Presentation at Annual Fisheries Meeting, Taipei, Taiwan.

Wang C, Baumann Z, **Madigan DJ**, Nishikawa J & NS Fisher. 2015. Sediments as a source of Fukushima Cesium for marine fauna in coastal Japan. Presentation at STAR Project Final Dissemination Event, June 9-11, Aix-en-Provence, France.

Phillips J, Neville D, Snodgrass OE, **Madigan DJ**, Ciannelli L, Brodeur R & W Percy. 2015. Radionuclide tracers suggest different migratory patterns in two groups of North Pacific albacore (*Thunnus alalunga*). American Fisheries Society Meeting, Aug 16-20, Portland, OR.

Madigan DJ, Snodgrass OE & H Dewar. 2014. From migrants to mossbacks: SIA-inferred habitat shift in the California yellowtail *Seriola lalandi*. Poster in 65th Tuna Conference, May 19-22, Lake Arrowhead, CA.

Preti A, Lyons K, Dewar H, Spivey K, Blasius M, Kohin S, Harris J, MacKenzie K, **Madigan DJ**, Snodgrass O, Spear N & CG Lowe. 2014. Insights into the life history and ecology of a record shortfin mako shark (*Isurus oxyrinchus*) caught in the Southern California Bight. Poster in 65th Tuna Conference, May 19-22, Lake Arrowhead, CA.

Fisher NS, **Madigan DJ** & Z Baumann. 2012. Fukushima-derived radionuclides in Pacific biota. Presentation at NOAA Headquarters, March, Silver Spring, MD.

Fisher NS, **Madigan DJ** & Z Baumann. 2012. Hot tuna! Fukushima radioactivity and Pacific biota. Presentation at Bigelow Laboratory for Ocean Sciences, July, Boothbay Harbor, ME.

Madigan DJ, Carlisle AB, Dewar H, Snodgrass OE, Litvin SY, Micheli F & BA Block. 2012. Stable isotope analysis challenges wasp-waist food web assumptions in an upwelling pelagic ecosystem. Poster in 63rd Tuna Conference, May 21-24, Lake Arrowhead, CA.

Klaus JE, **Madigan DJ** & CR Hammerschmidt. 2012. Mercury speciation in tuna from the North Pacific Ocean. Poster at North Central GSA Meeting, April 23-24, Dayton, OH.

Carlisle AB, Goldman, KJ, **Madigan DJ**, Kline, TC & BA Block. 2012. Reconstructing the life of a pelagic shark using stable isotope analysis. Ocean Sciences Meeting, February 20-24, Salt Lake City, UT. Poster presentation.

Madigan DJ, Carlisle AB, Gardner L, Jayasundara N, Micheli F & BA Block. 2011. Ecological consequences of being a warm fish. Talk at 8th International William R & Lenore MOTE symposium, November 8-10, Sarasota, FL.

Madigan DJ, Litvin SY, Carlisle AB, Farwell CJ & BA Block. 2011. Insights into Pacific bluefin migration using stable isotope analysis. Poster at 62nd Tuna Conference, May 16-19. Lake Arrowhead, FL.

Madigan DJ, Carlisle AB, Schaefer K & BA Block. 2010. Habitat utilization and trophic ecology for three co-occurring tuna species in the EPO. Talk at 61st Tuna Conference, May 17-20. Lake Arrowhead, CA.

Madigan DJ, Schaefer KM & BA Block. 2008. Tagging data and stable isotope analysis suggest vertical niche partitioning in three Pacific tuna species. Poster in 3rd International Biologging Science Symposium, Sept 1-5, Pacific Grove, CA.

Burge EJ, **Madigan DJ**, Burnett LE & KG Burnett. 2005. Expression of lysozyme in the Pacific white shrimp, *Litopenaeus vannamei*, after exposure to hypoxia and challenge with *Vibrio campbellii*. Abstract in XXXV International Congress of Physiological Sciences, March 31-April 5.

External Funding

STAR Grant (Co-PI): €100,000

Moore Foundation Grant (co-PI, Stony Brook University): \$514,268

NOAA grant (co-PI, Stony Brook University): \$117,522

Popular Press

Madigan DJ & C Safina. 2012. Eating Tuna: What's in Your Roll? What's in Your Can? Huffington Post Green, December 4

Select Media Coverage

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Declining Mercury in Atlantic Bluefin Tuna:	Reuters (video)
Using Radiocesium to Track Large Pelagics:	LA Times Full Cover Story
Bluefin Transport Fukushima Radiocesium:	NPR
Bluefin Transport Fukushima Radiocesium:	Forbes
Bluefin Transport Fukushima Radiocesium:	Wall Street Journal
Radiocesium as Migration Tracer:	Stanford Press Release
Radiocesium as Migration Tracer:	Scientific American
Radiocesium in Pacific Bluefin Tuna:	Reuters
Radiocesium in Pacific Bluefin Tuna:	BBC
Assessing Risk (PNAS paper):	CNN
Radioactive Tuna:	ABC Australia
Niche Width of Endothermic Tunas:	Futurity Research News

Related Experience

Stable Isotope Ecology Course , <i>Attendee</i>	University of Utah, Summer 2009
Stanford@SEA , <i>Teaching Assistant</i>	Tahiti & Hawai'i, Spring 2009
Cornell Cooperative Extension , <i>Fisheries Technician</i>	Riverhead NY, June 2006 - Jan 2007
Florida International University , <i>Fisheries Technician</i>	Miami FL, Aug 2005-Apr 2006
Dartmouth Foreign Study Program: Biology , <i>Student</i>	Costa Rica & Jamaica, Winter 2005
Grice Marine Laboratory , <i>REU Intern</i>	Charleston, SC, Summer 2004

Research Cruises

149 Total Days

Palau: March 2017. DSV *Ocean Hunter I*. Genetics, electronic tagging, BRUVs, isotope analysis of sharks in Palau Shark Sanctuary.

St Helena Island, South Atlantic: November 2016. FV *Swordfish*. Electronic tagging/sampling of yellowfin tuna.

Eastern Pacific Ocean: July 2016. FV *Shogun*. Electronic tagging/sampling of Pacific predators.

Southern California Bight: September 2015. FV *New Lo-An*. NOAA pelagic biota sampling cruise.

Southern California Bight: July 2015. FV *New Lo-An*. NOAA pelagic biota sampling cruise.

Cat Island, Bahamas: May 2014. Tagging and biological sampling of oceanic whitetip sharks.

Fukushima, Japan: September 2013. RV *Dai-San Kaiyo Maru*. Impacts of Fukushima on marine biota.

Fukushima, Japan: May 2013. RV *Umitaka Maru*. Impacts of Fukushima on marine biota.

Southern California Bight: June 2012. FV *Ventura II*. NOAA shark abundance survey.

Eastern Pacific Ocean: August 2011. FV *Shogun*. Electronic tagging/SIA of Pacific tuna.

Eastern Pacific Ocean: August 2010. FV *Shogun*. Electronic tagging/SIA of Pacific tuna.

Eastern Pacific Ocean: August 2009. FV *Shogun*. Electronic tagging/SIA of Pacific tuna.

Stanford@SEA, Tahiti to Hawaii: May-June 2009. SSV *Robert C. Seamans*.

Eastern Pacific Ocean: July 2008. FV *Shogun*. Electronic tagging/SIA of Pacific tuna.

Prince William Sound, Alaska: August 2007. FV *Solstice*. Electronic tagging/SIA of salmon sharks.

Eastern Pacific Ocean: July 2007. FV *Shogun*. Electronic tagging/SIA of Pacific tuna.

Manuscript reviews

Journal of Experimental Marine Biology & Ecology, Canadian Journal of Fisheries & Aquatic Sciences, Environmental Science & Technology, Marine Ecology Progress Series, ICES Journal of Marine Science, Progress in Oceanography, Nature Scientific Reports, Fish & Fisheries, PLOS ONE, Ecology, Aquatic Biology, Aquatic Ecology, Marine Biology, Aquaculture Research, Helgoland Marine Research, Royal Society Open Science, Science of the Total Environment, Isotopes in Environmental & Health Studies, Rapid Communications in Mass Spectrometry, Elsevier/Academic Press, Bluefin Futures Symposium Proceedings (book)

Professional Advising

IUCN Tuna & Billfish Specialist Group

Advisor to AsiaPacific-FishWatch

Reviewer, NOAA RESTORE ACT Science Program 2017

Scientific Advisor to Legal Counsel: effects of Fukushima on commercial fisheries

Reviewer of Monterey Bay Aquarium's Seafood Watch guidelines

Advisor to Center for Biological Diversity on Pacific bluefin tuna migration patterns

Skills & Interests

stable isotope analysis, AA-CSIA, gamma-spectroscopy, mercury analysis, methylmercury and stable isotopes of mercury, MATLAB, ArcGIS, SCUBA certified (PADI), free-diving, airboat and outboard operation, Helicopter Safety & Efficiency training, electronic tagging of fishes, Spanish (intermediate), Japanese (basic)

Professional References

- Dr. George V. Lauder** *Postdoctoral advisor*
Professor of Organismic & Evolutionary Biology
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Harvard University
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- Dr. Nicholas S. Fisher** *Postdoctoral advisor*
Distinguished Professor & Director
Consortium for Inter-Disciplinary Environmental Research
Stony Brook University
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- Dr. Fiorenza Micheli** *PhD advisor*
Professor of Marine Sciences
Hopkins Marine Station
Stanford University
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