

ANDRIJ Z. HORODYSKY, PhD

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Dept. of Marine & Environmental Science
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RESEARCH INTERESTS

I am a broadly-trained aquatic ecologist with research interests centered on the ecophysiology, behavior, and conservation of fishes and other living marine resources affected by anthropogenic activities in the world's aquatic habitats. I use comparative interdisciplinary approaches that integrate laboratory and field techniques with tools ranging in scale from microscopes to satellites. My research interests manifest in basic and applied contexts, with emphases on: (i) providing mechanistic behavioral and ecophysiological insights into the relationships between form, function, and the environment, (ii) identifying mechanisms through which climate change, ocean acidification, and anthropogenic interactions affect living marine resources, and (iii) increasing post-release survival in recreational fisheries.

EDUCATION

Doctor of Philosophy, Marine Science 2009

Advisors (co): Drs. Robert J. Latour and John A. Musick

Dissertation: *Comparative sensory and energetic ecology of sciaenid fishes and their competitors in Chesapeake Bay, Virginia*

VIMS, College of William & Mary
Dept. of Fisheries Science

Master of Science, Marine Science 2004

Advisor: Dr. John E. Graves

Thesis: *Survival and habitat preferences of white marlin (*Tetrapturus albidus*) released from the western North Atlantic recreational fishery*

VIMS, College of William & Mary
Dept. of Fisheries Science

Bachelor of Science, Marine Science/Marine Biology 2000

Thesis: *Larval ingress and subadult mortality in two populations of ladyfish (*Elops*) (Teleostei: Elopidae) in the Indian River Lagoon, FL*

Eckerd College

PROFESSIONAL EXPERIENCE

Sep 2014	to	present	Assistant Professor (Tenure Track), Hampton University
Sept 2012	to	Aug 2014	Assistant Professor (Annual), Hampton University
Sep 2009	to	Aug 2012	Assistant Research Professor, NOAA LMRCS – Hampton University
Jun 2004	to	Aug 2009	Graduate Assistant (PhD), VIMS, William & Mary
Aug 2001	to	May 2004	Graduate Assistant (MS), VIMS, William & Mary
Feb 2000	to	Aug 2001	Fisheries Biologist, Florida Marine Research Institute
Jun 1999	to	Sept 1999	Research Staff, Florida Marine Research Institute

ACADEMIC CONTRIBUTIONS (2004-present) *undergraduate, †graduate

COURSES TAUGHT (course number, title, institution, year)

BIO 518*/618†	Ichthyology: Fish and Fisheries. Hampton University, 2010, 2013, 2016.
BIO 525*	Conservation Biology, Hampton University, 2014
MES 101*	First Year Seminar. Hampton University, 2012.
MES 130*	Introduction to Environmental Science, Hampton University, 2012-17.
MES 131*	Laboratory Techniques in Environmental Science, Hampton University, 2013-17.
MES 201*	Mid-Atlantic Watershed Biodiversity, Hampton University, 2016-17.
MES 210*	Biometry. Hampton University, 2013-17.
UNV 290 H7*	Global Climate Change. Hampton University, 2012-15.

STUDENTS MENTORED/SUPERVISED IN RESEARCH

- 2017 Kendra Dorsey* (HU) and Olivera Stojilovic* (HU): ocean acidification & sensory biology
2016 Michaella McFarland* (HU): energetics & fish growth
2015 Larry Redd, Jr[†] (HU), Danielle Budden* (HU): aquaculture
2014 Larry Redd, Jr[†] (HU), Malik Breland* (HU): aquaculture
2013 Larry Redd, Jr[†] (HU), Krista Kraskura* (HU): aquaculture
2012 Malik Breland* (HU) and Cedric Shamley[†] (HU): sensory ecophysiology & behavior
2011 Elizabeth Seagroves* (HU), Krysten Rybyzyske* (UMES): sensory ecophysiology & behavior
2010 Kendyl Crawford* (HU), Joe'Ella Caddle* (UMES): sensory ecophysiology

GRADUATE COMMITTEE SERVICE

MS: As *Advisor and Committee Chair*: Larry Redd Jr (HU). As *external member*: Emily Loose (VIMS), Ben Barker (Nova SE), Krista Kraskura (Towson), Douglas Jensen (VIMS)
PhD: As *external member*: CJ Sweetman (VIMS)

PEER-REVIEWED PUBLICATIONS

JOURNAL ARTICLES IN PRINT/PRESS (25) *undergraduate student, [†]graduate student

- [25] Barker[†] BD, **AZ Horodysky**, DW Kerstetter. (In press). Hot, or not? Comparative behavioral thermoregulation, critical temperature regimes, and thermal tolerances of the invasive lionfish *Pterois* sp. versus native western North Atlantic reef fishes. *Biological Invasions*. doi:10.1007/s10530-017-1511-4.
- [24] Lennox[†] RJ, J Alos[†], SJ Cooke, **AZ Horodysky**, T Klefoth[†], C Monk[†], R Arlinghaus. 2017. What makes fish vulnerable to capture by hooks? A conceptual framework and a review of key determinants. *Fish and Fisheries*. 18: 986-1010.
- [23] Cooke SJ, RJ Lennox[†], SD Bower[†], **AZ Horodysky**, MK Treml, E Stoddard, LA Donaldson & AJ Danylchuk. 2017. Fishing in the dark – the science and management of recreational fisheries at night. *Bulletin of Marine Science*. 93(2): 519-538.
- [22] Hilton EJ, B Kynard, MT Balazik, **AZ Horodysky**, & CB Dillman. 2016. Review of the biology, fisheries, and conservation status of the Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus* Mitchell, 1815. *Journal of Applied Ichthyology* (2016): 1-37. DOI: 10.1111/jai.13242.
- [21] Ward[†] TD, DA Algera[†], AJ Gallagher, E Hawkins, **A Horodysky**, C Jørgensen, SS Killen, DJ McKenzie, JD Metcalfe, MA Peck, M Vu & SJ Cooke. 2016. Understanding the individual to implement the ecosystem approach to fisheries management. *Conservation Physiology*. 4(1):cow005.
- [20] **Horodysky AZ**, SJ Cooke, JE Graves & RW Brill. 2016. Fisheries conservation on the high seas: linking conservation physiology and fisheries ecology for the management of large pelagic fishes. *Conservation Physiology*. 4(1):cov059
- [19] **Horodysky AZ**, SJ Cooke & RW Brill. 2015. Physiology in the service of fisheries science: Why thinking mechanistically matters. *Reviews in Fish Biology and Fisheries*. 25:425-447.
- [18] Graves JE & **AZ Horodysky**. 2015. The challenges of estimating post-release mortality of istio-phorid billfishes caught in the recreational fishery: A review. *Fisheries Research*. 166:163-168.
- [17] Braun[†], CD, MB Kaplan[†], **AZ Horodysky** & JK Llopiz. 2015. Satellite telemetry reveals physical processes driving billfish behavior. *Animal Biotelemetry*. 3:2.
- [16] Kalinoski[†] M, A Hiron, **A Horodysky** & R Brill. 2014. Spectral sensitivity, luminous sensitivity, and temporal resolution of the visual systems in three sympatric coastal shark species: *Carcharhinus plumbeus* (sandbar shark), *Mustelus canis canis* (smooth dogfish), and *Squalus acanthias* (spiny dogfish). *Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology*. 200(12): 997-1013.
- [15] Adams, AJ, **AZ Horodysky**, RS McBride, K Guindon, J Shenker, TC MacDonald, HD Harwell, R Ward & K Carpenter. 2014. Global conservation status and research needs for tarpons (Megalopidae), ladyfishes (Elopidae), and bonefishes (Albulidae). *Fish and Fisheries*. 15(2): 280-311.

- [14] **Horodysky AZ**, RW Brill, KC Crawford*, ES Seagroves* & AK Johnson. 2013. Comparative visual ecophysiology of mid-Atlantic temperate reef fishes. *Biology Open*. 2:1371-1381.
- [13] McComb DM, TM Frank, **AZ Horodysky** & SM Kajiura. 2013. Comparative visual function in predatory fishes from the Indian River Lagoon. *Physiological & Biochemical Zoology*. 86:285-297.
- [12] Graves JE, **AZ Horodysky** & DW Kerstetter. 2012. Incorporating circle hooks into Atlantic pelagic fisheries: case studies from the commercial tuna/swordfish longline and recreational billfish fisheries. *Bulletin of Marine Science*. 88(3):411-422
- [11] **Horodysky AZ**, RW Brill, PG Bushnell, JA Musick & RJ Latour. 2011. Comparative metabolic rates of common western North Atlantic sciaenid fishes. *Journal of Fish Biology*. 79:235-255.
- [10] Graves JE & **AZ Horodysky**. 2010. Asymmetric conservation benefits of circle hooks in multispecies billfish recreational fisheries: a synthesis of hook performance and analysis of blue marlin post-release survival. *Fishery Bulletin*. 108:433-441.
- [9] Patterson MR, **AZ Horodysky**, BW Deffenbaugh & RW Brill. 2010. Using active echo cancellation to minimize stimulus reverberations during hearing studies conducted with the auditory brain response (ABR) technique. *Journal of Biomedical Science and Engineering*. 3(2010):861-867.
- [8] **Horodysky AZ**, RW Brill, EJ Warrant, JA Musick & RJ Latour. 2010. Comparative visual function in four piscivorous fishes inhabiting Chesapeake Bay. *Journal of Experimental Biology*. 213:1751-1761.
- [7] Graves JE, **AZ Horodysky** & RJ Latour. 2009. Use of pop-up satellite archival tag technology to study postrelease survival and habitat utilization of estuarine and coastal fishes: an application to striped bass. *Fishery Bulletin*. 107:373-383.
- [6] **Horodysky AZ**, RW Brill, EJ Warrant, JA Musick & RJ Latour. 2008. Comparative visual function in five sciaenid fishes. *Journal of Experimental Biology*. 211(22):3601-3612.
- [5] **Horodysky AZ**, RW Brill, ML Fine, JA Musick & RJ Latour. 2008. Acoustic pressure and acceleration thresholds in six sciaenid fishes. *Journal of Experimental Biology*. 211(9):1504-1511.
- [4] Graves JE & **AZ Horodysky**. 2008. Does hook choice matter? The effects of three circle hook models on post-release survival of white marlin. *North American Journal of Fisheries Management*. 28:471-480.
- [3] **Horodysky AZ**, DW Kerstetter, RJ Latour & JE Graves. 2007. Habitat utilization and vertical movements of white marlin (*Tetrapturus albidus*) released from commercial and recreational fishing gears in the western North Atlantic Ocean: inferences from short duration pop-up archival satellite tags. *Fisheries Oceanography*. 16(3):240-256.
- [2] **Horodysky AZ** & JE Graves. 2005. Application of pop-up satellite archival tag technology to estimate postrelease survival of white marlin (*Tetrapturus albidus*) caught on circle and straight-shank ("J") hooks in the western North Atlantic recreational fishery. *Fishery Bulletin*. 103:84-96.
- [1] McBride RS & **AZ Horodysky**. 2004. Mechanisms maintaining sympatric distributions of two ladyfish (Elopidae: *Elops*) morphs in the Gulf of Mexico and western North Atlantic Ocean. *Limnology and Oceanography*. 49(4):1173-1181.

JOURNAL MANUSCRIPTS IN REVIEW/PREPARATION (1)

Redd[‡] L, MH Schwarz, RB Johnson, S Urick, D Gibson, M Breland*, & **AZ Horodysky**. Effects of temperature and feed type on the gastric evacuation of Florida pompano. *J. World Aquacult. Soc.*

BOOK CHAPTERS (1 in preparation): Horodysky sections submitted in 2012; revised 2016

Rosenberger AE, C Zimmerman, EB Taylor, J Musick, M Neilson, **A Horodysky**, D Noakes, & J Neilson. Salmonidae: Salmo, trout, char, and whitefish. Chapter submitted to Warren, M.L. and B. M. Barr, editors. Diversity of North American Freshwater Fishes: Natural History, Ecology, and Conservation. Volume II.

GRANTSMANSHIP (\$1,799,720 overall; \$1,254,714 (70%) to my Universities)

- 2019- NSF-HRD. \$359,998. "Research Initiation Award (RIA): Linking environment to form and
2016 function by quantifying the effects of ocean acidification on visual and auditory neurobiology in marine fishes (*OANeuro*)". (HU Budget \$359,998)
- 2018- NOAA-EPP, LMRCSC Program. \$59,228. The impact of increasing sea surface temperatures on
2017 piscivore and planktivore species dynamics: an ecosystem-based modeling approach" (HU Budget: \$59,228)
- 2018- NOAA-EPP, LMRCSC Program. \$53,953 "Discard mortality of sub-legal black sea bass in the
2017 commercial trap fishery: Impacts of air exposure and acute temperature changes". with UMES (HU Budget: \$6,553)
- 2016- NOAA-EPP, LMRCSC Program. \$40,407. "Effect of low taurine diet on visual function in
2015 aquacultured cobia, *Rachycentron canadum*"; with UMCES-IMET. (HU Budget: \$22,542).
NOAA-EPP, LMRCSC Program. \$55,921. "Bycatch and discard mortality for the commercial black sea bass trap fishery: Assessment of behavioral and physiological predictors of mortality"; with UMES. (HU Budget: \$6,021).
- 2015- NOAA-EPP, LMRCSC Program. \$46,384. "Comparison of NOAA Montlake meal and Otohime
2014 feed performance in aquacultured pompano: feed ration, feed frequency, feed conversion ratio, and feed efficiency"; with Virginia Tech (HU Budget: \$46,384).
NOAA-EPP, LMRCSC Program. \$45,094. "Isolating functional microsatellite markers in chinook salmon to inform riverscape genetic analysis", with Oregon State University (HU Budget: \$9,009).
- 2015- NSF-HRD. \$298,926. "Targeted Infusion Project: Educational Partnership in Climate Change and
2011 Sustainability (EPiCCS)"; with ECSU & VIMS (HU budget: \$163,749).
- 2014- NOAA Sea Grant. \$71,327. "Sustainable Fisheries and Aquaculture Outreach, Education and
2013 Training for Under-Represented Groups and Aquaculture Producers"; with Virginia Tech & Virginia Aquarium (HU budget: \$23,847).
NOAA-EPP, LMRCSC Program. \$41,449. Effects of temperature and feed type on gastric evacuation of aquacultured Florida pompano (*Trachinotus carolinus*); with Virginia Tech (HU Budget: \$41,449).
NOAA-EPP, LMRCSC Program. \$47,773. "Effects of climate change and anthropogenic stressors on piscivore-planktivore trophic interactions". (HU Budget \$47,773).
NOAA-EPP, LMRCSC Program. \$49,420. "Microsatellite markers isolation (EST-SSR's) for association tests of reproductive phenotypes in the context of environmental variability for Chinook salmon"; with Oregon State University (HU budget: \$11,688).
- 2013- NOAA-EPP, LMRCSC Program. \$97,660. "Role of seascape characteristics of submerged
2012 aquatic vegetation"; with RSMAS, Univ. of Miami (HU budget: \$14,435).
- 2012- NOAA-EPP, LMRCSC Program. \$88,497. "Temperature preferences of Atlantic croaker under
2011 hypoxic and normoxic conditions"; with UMES (HU budget: \$33,350)
NOAA-EPP, LMRCSC Program. \$28,708. "Feeding and growth of doliolids as related to food concentration and temperature: Toward a model of doliolid population dynamics"; with UMCES (HU budget: \$17,674).
NOAA-EPP, LMRCSC Program. \$18,763. "Sensory ecology of Atlantic sturgeon: ecophysiological auditory and visual performance measures" (HU Budget: \$18,763).
- 2011 NOAA-EPP, LMRCSC Program. \$24,490. "Sensory ecology of tautog: ecophysiological auditory and visual performance measures"; with UMES (HU budget: \$19,080).
- 2010 NOAA-EPP, LMRCSC Program. \$38,951. "Sensory ecology of juvenile and adult black sea bass: ecophysiological auditory & visual performance measures"; with UMES (HU budget: \$20,400).

- 2009 Virginia Marine Resources Comm. \$90,369. "Use of pop-up satellite tags to determine the fate, movements, and habitat utilization of red drum released from Virginia's recreational fishery."
- 2008 Virginia Marine Resources Comm. \$71,371. "Pilot study: Application of pop-up satellite archival tags (PSATs) to assess the postrelease survival, habitat utilization and short term movement of striped bass in Virginia's winter recreational fishery."
- 2006-2007 Virginia Marine Resources Comm. \$94,568. "Visual function in Chesapeake Bay sportfishes: summer flounder, bluefish, cobia, Atlantic menhaden."
- 2005 NOAA CMER Program. \$33,625. "Energy density of common prey species of recreationally and commercially important marine fishes in Chesapeake Bay."
- 2005 Virginia Marine Resources Comm. \$42,838. "Visual function in Chesapeake Bay sportfishes: striped bass, weakfish, spotted seatrout, Atlantic croaker, spot, and red drum."

OTHER PUBLICATIONS

GREY LITERATURE

Horodysky AZ 2009. The visual world of fishes. In: *2009 World Record Game Fishes*. International Game Fish Association, Ft. Lauderdale, Fl.

Adams A, K Guindon, **A Horodysky**, T MacDonald, R McBride, J Shenker & R Ward. 2012. *Megalops atlanticus*, *M. cyprinoides*, *Elops saurus*, *E. smithi*, *E. lacerta*, *E. senegalensis*, *E. hawaiiensis*, *E. machnata*, *E. affinis*, *Albula nemoptera*, *A. oligolepis*, *A. sp. B.*, *A. sp. cf. vulpes*, *A. vulpes*, *A. glossodonta*, *A. argentea*, *Pterothrissus bellocci*, *P. gissou*. In: IUCN 2012. *IUCN Red List of Threatened Species*. Version 2012.2

Horodysky AZ, & GH Burgess. 2006. *Centrophorus acus*, *Etmopterus bigelowi*, *E. bullisi*, *E. virens*. In: IUCN 2010. *IUCN Red List of Threatened Species*. Version 2010.3.

Herndon AP, **AZ Horodysky**, & GH Burgess. 2006. *Etmopterus schultzi*. In: IUCN 2010. *2010 IUCN Red List of Threatened Species*. IUCN. Gland, Switzerland. Version 2010.3

Horodysky, AZ, DW Kerstetter, & JE Graves. 2003. Habitat preferences and diving behavior of white marlin (*Tetrapturus albidus*) released from recreational rod-and-reel and commercial pelagic longline fisheries in the western North Atlantic Ocean: implications for habitat-based stock assessment models. *ICCAT (Int. Comm. Cons. Atl. Tunas) SCRS/2003/033*.

PRESENTATIONS AND POSTERS (*denotes presenter, †student)

SELECT PRESENTATIONS (n = 27, 2013 – present shown)

2017 **Horodysky* AZ**, RW Brill, MH Schwarz, & TP Hurst. Blinding Nemo? The "pH"ingerprints of ocean acidification on neurosensory dysfunction in orange clownfish (*Amphiprion percula*). 147th Ann. Mtg. Am. Fish. Soc. Tampa, FL.

Horodysky* AZ & RW Brill. Hear no evil? Auditory function of mid-Atlantic living marine resources in an era of anthropogenic effects. 147th Ann. Mtg. Am. Fish. Soc. Tampa, FL.

2015 Redd[†] Jr L, MH Schwarz, S Urick, M Breland[†], & **A Horodysky**. Comparison of growth and gastric evacuation of aquacultured Florida pompano (*Trachinotus carolinus*) raised on two feed types. 145th Annual Ann. Mtg. Am. Fish. Soc., Portland, OR.

Horodysky AZ*, RW Brill, SJ Cooke, & JE Graves. Conservation physiology on the high seas: linking environment to ecology in pelagic fishes. Conservation Physiology of Marine Fishes - Current Status and Prospects for Policy. COST FA1004 Final Conference. Montpellier, France.

Redd^{***} Jr L, MH Schwarz, S Urick, M Breland[†], & **A Horodysky**. Effects of temperature and feed type on gastric evacuation of aquacultured pompano (*Trachinotus carolinus*). 2015 Aquat. Sci. Mtg., Grenada, Spain. (****Outstanding Student Presentation Award for L. Redd, Jr.**)

- 2013 **Horodysky AZ***, RW Brill, MS Breland[†], PG Bushnell, H Wolfer[†], & AK Johnson. Behavioral thermoregulation of Atlantic croaker under hypoxic and normoxic conditions. 143rd Ann. Mtg. Am. Fish. Soc., Little Rock, AK.
- Graves JE & **AZ Horodysky***. Connectivity, habitat utilization, and post-release survival of adult red drum (*Sciaenops ocellatus*) in Chesapeake Bay and surrounding waters. 143rd Ann. Mtg. Am. Fish. Soc., Little Rock, AK.
- Breland MS^{*†}, **AZ Horodysky**, RW Brill, PG Bushnell, H Wolfer[†], & AK Johnson. Behavioral thermoregulation of Atlantic croaker under hypoxic and normoxic conditions. Aquatic. Sci. Mtg. New Orleans, LA.

SELECT POSTERS (n = 8, 2014-present shown)

- 2016 **Horodysky A***. Project *OANeuro*: Quantifying the effects of ocean acidification on *neurobiology* in marine fishes via inquiry-based experiential learning with undergraduates. 2016 Aquat Sci. Mtg. Honolulu, HI.
- Budden^{*†} D, M Schwarz, S Urick., L Redd[†], & **A Horodysky**. A comparison of growth and mortality of aquacultured juvenile Florida pompano fed fishmeal and plant-based diets. 2016 Aquat. Sci. Mtg. Honolulu, HI.
- 2014 Kraskura^{*†} K, S Urick, MH Schwarz, ML Jahncke, & **AZ Horodysky**. Effects of feeding rate and feeding frequency on growth of juvenile tilapia (*Oreochromis niloticus/O. aureus*). Ocean. Sci. Mtg. Honolulu, HI.

PROFESSIONAL SERVICE

JOURNAL EDITORSHIP

2010-2014. *Associate Editor*, North American Journal of Fisheries Management

COMMITTEES AND PROGRAM SERVICE

2014-present. Vice Chair, HU IACUC
 2012-present. Member, Publications Oversight Committee, American Fisheries Society
 2010-present. Mentor, ASLO Multicultural Program
 2010-2014. Early Career Committee, Assoc. for the Sciences of Limnology & Oceanography (ASLO).
 2011. Participant, IUCN Red List of Threatened Species workshop: Megalopidae, Elopidae, Albulidae
 2003-7. Graduate Student Representative, VIMS Academic Council
 2004-6. President's Aide, College of William & Mary
 2004. Participant, IUCN Red List of Threatened Species workshop: Elasmobranchs

JOURNAL MANUSCRIPT REVIEWS

Nature Scientific Reviews	J. Exp. Biol.	Estuaries & Coasts	Fisheries Research
Trans. Am. Fish. Soc.	Fishery Bulletin	Bull Mar. Sci.	PNAS
N. Am. J. Fish. Manag.	Fish Physiol. Biochem	Can J. Fish Aquat.Sci	Env. Biol. Fishes

GRANT REVIEWS

NSF-CAREER	EPA STAR Review Panel (Aquatic Systems Ecology)
NSF-HBCU-UP-TIP Panel	NOAA Cooperative Research Program
NOAA Saltonstall-Kennedy Program	

HONORS AND AWARDS

Signature Fly Designer, Umpqua Feather Merchants (2001-present)
 Graduate advisor of 2016 *John A. Knauss Marine Policy Fellowship* recipient L. Redd, Jr.
 Research mentor/advisor of 2012 *Marshall Scholarship* recipient K.C. Crawford
 Matthew Fontaine Maury Student Fellowship Award, VIMS (2007-2008)
 Dr. James T. Wright Conservation Award, Virginia Beach Angler's Association (2007)
 Ryan Kelley Memorial Scholarship, International Women's Fishing Association (2006-8)
 Barry M. Goldwater Scholar (1999)