

# Brooke Bessesen, PhD, CVT

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## BRIEF BIO

As a marine biologist and award-winning natural history author, I strive to inform and inspire protection of the natural world. My research has been recognized worldwide with coverage in *Science News*, *Newsweek*, and *BBC Wildlife* among dozens of other news outlets. Scientific interests include biodiversity, evolution, marine ecology, field methods, conservation science, and the rare Golfo Dulce yellow sea snake, *Hydrophis platurus xanthos*. I am currently a Contract Researcher for the School of Biological Sciences at the University of Reading, UK and a Research Affiliate at the Field Museum of Natural History, Chicago, Illinois, USA. **ORCID 0000-0003-0272-3889**

## EDUCATION

- 2019–2022 Doctor of Philosophy, University of Reading, Department of Ecology and Evolutionary Biology, School of Biological Sciences, Reading, UK
- 1996–current, Certified Veterinary Technician, continuing education, certified veterinary technician, Arizona State Veterinary Medicine Examining Board, Phoenix, Arizona, USA
- 1986–1988, Associate Degree, Phoenix College, Biology Major (4.0 GPA, Phi Theta Kappa), Phoenix, Arizona, USA
- 1984–1985, Arizona State University, College of Public Communications, Tempe, Arizona, USA

## PEER-REVIEWED PUBLICATIONS

1. **Bessesen B.** (In press). Habitat study suggests America's canary-colored sea snake could be at risk. *Current Conservation*.
2. **Bessesen B**, Udyawer V, Crowe-Riddell JM, Lillywhite H. & Sanders K. 2024. *Hydrophis platurus* ssp. *xanthos*. The IUCN Red List of Threatened Species 2024: e.T239753560A239753681. Accessed on 27 June 2024.
3. **Bessesen BL**, Garrido-Cayul C, González-Suárez M. 2023. Habitat suitability and area of occupancy defined for rare New World sea snake. *Conservation Science and Practice* 5(1): e12865.
4. Pelayo-González L, Oviedo L, Herra-Miranda D, Pacheco-Polanco JD, Márquez-Artavia A, **Bessesen B**, Guzmán HM. 2022. Habitat use of Southeast Pacific humpback whales (*Megaptera novaeangliae*; Borowski 1781) in Golfo Dulce, Costa Rica. *Marine and Freshwater Research* 73(12): 1465-1474
5. Oviedo L, **Bessesen BL**, Pacheco-Polanco JD, Herra-Miranda D. 2022. Golfo Dulce IMMA. Important Marine Mammal Area designation resulting from the Meeting of the Marine Mammal Protected Areas Task Force, 6–10 June, <https://www.marinemammalhabitat.org/imma-eatlas/>.
6. **Bessesen BL**. 2022. *Hydrophis platurus xanthos*, the unique ecology of an endemic sea snake. PhD thesis, University of Reading, UK. 169 pp.
7. **Bessesen BL**, Oedekoven CS, Galbreath GJ, González-Suárez M. 2022. Population abundance and density estimates for Costa Rica's endemic sea snake, *Hydrophis platurus xanthos*. *Frontiers in Marine Science* 9: 924966.
8. **Bessesen BL** and M González-Suárez. 2022. Safe from sunburn: The divergent diel pattern of a *Hydrophis* sea snake. *Ecology and Evolution* 12(1): e8436
9. **Bessesen BL**, M González-Suárez, D Herra-Miranda and L Oviedo. 2021. *Hydrophis platurus xanthos* (Golfo Dulce Yellow Seasnake): Harassment by dolphins. *Natural History Note. Herpetological Review* 52(2): 425–426.

10. **Bessesen BL** and M González-Suárez. 2021a. The value and limitations of local ecological knowledge: Longitudinal and retrospective assessment of flagship species in Golfo Dulce, Costa Rica. *People and Nature* 3:627–638.
11. **Bessesen BL** and M González-Suárez (traducido por Daniel Colgan). 2021b. El valor y limitaciones del conocimiento ecológico local: Una evaluación longitudinal y retrospectiva de especies bandera en Golfo Dulce, Costa Rica. Universidad de Reading CentAUR DOI: 10.48683/1926.00100401.
12. **Bessesen BL** and GJ Galbreath. 2017. A new subspecies of sea snake, *Hydrophis platurus xanthos*, from Golfo Dulce, Costa Rica. *ZooKeys* 686: 109–123.
13. **Bessesen BL**. 2015 [invited paper]. Occurrence and distribution patterns of several marine vertebrates in Golfo Dulce, Costa Rica. *Revista de Biología Tropical* 63 (Supl.1): 261–272.
14. **Bessesen BL**, L Oviedo, LB Hart, D Herra-Miranda, JD Pacheco-Polanco, L Baker, G Saborío-Rodríguez, L Bermúdez-Villapol, and A Acevedo-Gutiérrez. 2014. Lacaziosis-like disease among bottlenose dolphins *Tursiops truncatus* photographed in Golfo Dulce, Costa Rica. 2014. *Diseases of Aquatic Organisms* 107: 173–180.
15. **Bessesen BL**. 2012. Geospatial and behavioural observations of a unique xanthic colony of pelagic sea snakes, *Pelamis platurus*, residing in Golfo Dulce, Costa Rica. *Herpetological Review* 43: 22–26.
16. **Bessesen BL** and G Saborío-R. 2012. Tropical fiord habitat as a year-round resting, breeding, and feeding ground for East Pacific green sea turtles (*Chelonia mydas*) off Costa Rica. *Herpetological Review* 43: 539–541.
17. **Bessesen BL**, and G Saborío-R. 2009. First report of Vesper rat, *Nyctomys sumicrasti* (Rodentia: Muridae) feeding on Palm fruits. *Brenesia* 71–72: 73–76.

## NATURAL HISTORY BOOKS

1. **Bessesen B**. 2018. *Vaquita: Science, Politics, and Crime in the Sea of Cortez*. Washington DC: Island Press. 320 pp.
2. **Bessesen B**. 2016. *Arizona Highways Wildlife Guide*. Phoenix: Arizona Highways Books. 160 pp.
3. **Bessesen B**, illustrated by Campbell J. 2014. *Zachary Z. Packrat Backpacks the Grand Canyon*. Phoenix: Arizona Highways Books. 40 pp.
4. **Bessesen, B**. 2011. *Invertebrates*. Tucson: Learning A-Z. 24 pp.
5. **Bessesen B**. 2009. *Look Who Lives in the Ocean*. Phoenix: Arizona Highways Books. 48 pp.
6. **Bessesen B**, illustrated by Campbell J. 2008. *Zachary Z. Packrat and His Amazing Collections*. Phoenix: Arizona Highways Books. 40pp.
7. **Bessesen B**. 2004. *Look Who Lives in the Desert*. Phoenix: Arizona Highways Books. 48 pp.

## RESEARCH PROJECTS AND SUPPORT

### Principal Investigator

- 2022-2025 Examining taxonomic distinctiveness in *Hydrophis platurus xanthos* (with collaboration and funding from University of Adelaide, Field Museum of Natural History, Northwestern University and support from Osa Conservation)
- 2020-2022, Diving deeper into the ecology of the *Hydrophis platurus xanthos* population and other marine vertebrates in Golfo Dulce (with support from University of Reading and Osa Conservation)
- 2017, Morphology and behaviour of *Hydrophis platurus* in Golfo Dulce (with collaboration and funding from Northwestern University and support from Osa Conservation)
- 2011, Rainy season extension of the multispecies marine sighting survey in Golfo Dulce (with funding from Greg Gund Memorial Fund and support from Osa Conservation)

2010, Multispecies marine sighting survey in Golfo Dulce (with funding from Greg Gund Memorial Fund and support from Osa Conservation)

#### **Funding Awards**

2024, Field Museum Women's Board Field Dreams Research Funding Grant (with Sara Ruane)

2023, University of Reading School of Biological Sciences full-time research contract

2023, University of Reading Research Endowment Trust Fund (RETF)

2023, Field Museum Research Funding Grant

2010-2011, Osa Conservation Greg Gund Memorial Fund Fellowship

## **ACADEMIC SKILLS & SERVICES**

### **Computer Programs**

RStudio, QGIS, Distance, Maxent, ipyrad, Phyluce, Geneious, Excel, PhotoShop.

### **Manuscript reviewer**

People and Nature, Marine Policy, Ecology and Evolution, Royal Society Open Science, Marine Environmental Research, International Journal of Tropical Biology and Conservation

## **PRESS COVERAGE**

### **For scientific work (selected)**

"The Extraordinary Golfo Dulce," chapter in *Sweet Gulf* by Tom Olivo. In prep.

"Open Access Week 2021 – The benefits of publishing open access: an interview with Brooke Bessesen" by Karen Rowlett. Opening Research at Reading Blog (ORRB), 19 October 2021.

"Biodiverse images showcase major marine conference" (photo essay). *DIVE Pacific Magazine*, April 2021, p. 39.

"What behavior did scientists observe in a newly discovered sea snake?" Question on German game show *Wer weiß den sowas? (Who knows?)* produced by UFA SHOW & FACTUAL, November 2017

"Hanging Around." *BBC Wildlife Magazine*, October 2017, p. 15.

"Yellow is the new sea snake." *Science News Magazine*, 16 September 2017, p. 5.

"The many unique features of the Yellow Seasnake – such as its hunt" by Janaki Lenin. *The Wire* (Science), posted online 14 August 2017.

"Bizarre sea snake that preys on fish from above discovered in Costa Rican fjord" by Douglas Main. *Newsweek* (Tech & Science), posted online 1 August 2017.

"Newly discovered sea snake lives a very strange life" by Tom Hale. *IFL Science*, posted online 1 August 2017.

"Descubren serpiente con técnica de caza aterradora; está en peligro." *PuenteLibre.mx* (Mexico; translated from text by Pensoft Publishers), posted online 1 August 2017.

"Nowy podgatunek czeka na ofiary w unikatowej pozycji." *KopalniaWiedzy.pl* (Poland; translated from text by Pensoft Publishers), posted online 1 August 2017.

"Chiến thuật săn mồi đáng sợ của rắn biển Costa Rica." *VNExpress* (Vietnam; translated from text by Pensoft Publishers), posted 1 August 2017.

"Новый подвид морской змеи оказался однотонной желтой окраски." *Полит.ру* (Russia; translated from text by Pensoft Publishers), posted online 1 August 2017.

"Nova cobra marinha estrategia caca assustadora." *Gizmodo.br* (Brazil; translated from text by Pensoft Publishers), posted online 1 August 2017.

"Kopfüber auf Beutejagd: Neu entdeckte Seeschlange überrascht mit ungewöhnlicher Pose." *Scinexx.de* (Germany; translated from text by Pensoft Publishers), posted 1 August 2017.

### **For Vaquita (selected)**

"Will Mexico save its vanishing vaquita?" by Richard Parker. *New York Times*, 19 March 2019.

- Book review of *Vaquita* (“a powerful invitation to think about the sometimes blurred lines between science, politics, culture, and economy”). *Conservation Biology*, 2019, 33(4): 981.
- Book review of *Vaquita* by Michael Stachowitsch (“precisely what most of us marine ecologists with any connection to fieldwork are confronted with today, making this book a case study for the situation worldwide”). *Marine Ecology* 2019, 00: e12576
- “*Vaquita*” by Todd L. Capson (“Bessesen approaches the plight of the vaquita with the thoroughness and inquisitiveness of a scientist and the passion of an environmentalist”). *Science*, 2018, 361(6406): 967–968.
- Book review of *Vaquita* by Barbara Kiser (“intrepid conservation detective story”). *Nature*, 2018, 561: 31.
- “‘The posterchild for entangled marine mammals around the globe’: Q&A with author of ‘*Vaquita*’” by Mike Gaworecki. *Mongabay*, posted online 19 October 2018.
- Starred book review of *Vaquita* by Nancy Bent. *Booklist*, 15 October 2018.
- Book review of *Vaquita* by Diana Hartle (“compelling”). *Library Journal*, August 2018, pp. 115–116.
- “*Vaquita*: The world’s most endangered marine mammal” by Matthew L. Miller. *Nature Conservancy, Cool Green Science*, posted online 20 August 2018.
- Kirkus review of *Vaquita* (“A well-told and moving tale of environmentalism and conservation”). *Kirkus Reviews* 1 August 2018.
- Book review of *Vaquita* (“a heartfelt and alarming tale”). *Publishers Weekly*, 11 June 2018.

## PRESENTATIONS

### Conference talks

1. **Bessesen B.** 2024. Updates on America’s endemic (and endangered) sea snake. Sea snake symposium, 10<sup>th</sup> World Congress of Herpetology, Kuching, Sarawak, Borneo, 6 August.
2. **Bessesen B.** 2021. The value and limitations of local ecological knowledge (awarded Best Second-Year Presentation). SBS Doctoral Research Symposium, University of Reading, UK, 29 June.
3. **Bessesen B,** Galbreath GJ, González-Suárez M. 2021. Grappling with a sea snake: Journey from discovery to understanding. Pacific Ecology and Evolution Conference, British Columbia, Canada, 19 February.
4. **Bessesen B,** González-Suárez M. 2020. Decadal data show dynamics of tropical fiord biodiversity. 5<sup>th</sup> World Conference on Marine Biodiversity, Auckland, New Zealand, 12 December.
5. **Bessesen B.** 2020. Unraveling the mysteries of xanthos (awarded Best 3-Minute Talk). SBS Doctoral Research Symposium, University of Reading, UK, 26 June.
6. **Bessesen B.** 2018. *Vaquita*: Exploring strategies for a porpoise on the brink. 26<sup>th</sup> Annual Marine Mammal Symposium, University of British Columbia, Vancouver, Canada, 24 November.
7. **Bessesen B,** Gero S, Jefferson T, Notarbartolo di Sciara G, Parsons C, Smith Z. 2018. Cetaceans on the edge of forever: panel discussion. American Cetacean Society biennial conference. 3 November.

### Invited talks (recent)

2024. Cabrillo Marine Aquarium/ACS Los Angeles. A Deeper Dive with Brooke Bessesen: Hope for *Vaquita*.
2023. Loreto Puerto de la Ciencia. Esperanza para la vaquita marina (Hope for vaquita).
2023. Centro de Investigaciones Biologas el Noroeste S.C. (CIBOR). Unraveling the mysteries of America's endemic sea snake.
2023. Universidad Pedagógica National. Esperanza para la vaquita marina (Hope for vaquita).

2023. Guadalajara International Book Fair (FIL). Vaquita marina: protección urgente (Vaquita: urgent protection).
2023. Osa Conservation Piro Research Station. To xanthos with love: Studying Costa Rica's extraordinary endemic sea snake.
2022. University of Reading, School of Biological Science. *Hydrophis platurus xanthos*, the unique ecology of an endemic sea snake.
2021. Humane Society of the United States. Tale of two endemics: The role of animal welfare in species protection and science.
2021. EcCo Lab, University of Reading. How many Golfo Dulce yellow sea snakes are there?
2020. Osa Conservation Piro Research Station. 100 days on the water: a decade of marine research in Golfo Dulce.
- 2019 and 2020. Ursinus College, Environmental Studies course by Prof. Richard Wallace. Q&A with students about the complexities of marine conservation.
2018. Aquarium of the Pacific. How Do We Save a Species?
2018. Arizona Geographic Alliance STEMSS Institute. Explore, Discover, Communicate: The journey of science.
2018. University of Arizona, CEDO Lecture Series. Buying Time: Exploring Solutions to the Vaquita Crisis.
2018. Island Press. Saving Vaquita: Considerations in the Race Against Extinction (webinar, 500+ registrants from six continents).
2018. Vancouver Aquarium. Entangled: A deep dive into the vaquita crisis.
2018. National Wildlife Society, San Francisco Chapter. Entangled: A deep dive into the vaquita crisis.
2018. Living Desert Zoo & Gardens. Entangled: A deep dive into the vaquita crisis.
2018. American Cetacean Society, Monterey Bay Chapter, Hopkins Marine Station of Stanford University. Entangled: A deep dive into the vaquita crisis.
2018. American Cetacean Society, Los Angeles Chapter, Cabrillo Marine Aquarium. Entangled: A deep dive into the vaquita crisis.

## SCIENTIFIC COMMUNICATION

### Environmental Film Festival Juror

2021 Jackson Wild Media Awards: judged long-form conservation films

### GolfoDulce.org

2015–current, webmaster: created bilingual online database to make all peer-reviewed and relevant articles available to Costa Rica's conservation organizations and policy makers.

### Authors for Earth Day

2010–2020, Organization Founder and Executive Director: established an international coalition of award-winning children's authors who generously donate their school-visit speaking fees (total donations >\$100,000) to conservation organizations worldwide, as directed by well-researched student votes.

### Public articles, reports, and research-related blogs

1. **Bessesen B.** "La conservación de las especies significa proteger los regalos de la naturaleza" (invited article). *Biodiversidad intencional y futuro posible*. Obsidiana Ciencia y Cultura por Mexico, February 2023.
2. **Bessesen B.** "Dinner after dark" (full spread, plus cover photo). *Graduate School Research Highlights 2021*, University of Reading, publication date 9 May 2022.
3. **Bessesen B.** "Human knowledge can supplement vital marine studies". *Ramblings of an ecóloga*, blog of Dr. Manuela González-Suárez, 4 June 2021.



4. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Drawing conclusions." *News + Stories*, blog of Osa Conservation, 12 October 2012.
5. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: More species, more understanding." *News + Stories*, blog of Osa Conservation, 30 August 2012.
6. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Different kinds of dolphins." *News + Stories*, blog of Osa Conservation, 19 June 2012.
7. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Canary-colored sea snakes." *News + Stories*, blog of Osa Conservation, 26 April 2012.
8. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: So many sea turtles!" *News + Stories*, blog of Osa Conservation, 6 April 2012.
9. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Photo-identification of bottlenose dolphins." *News + Stories*, blog of Osa Conservation, 23 March 2012.
10. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Humpback whale hotspot." *News + Stories*, blog of Osa Conservation, 2 March 2012.
11. **Bessesen B.** "Osa Conservation supports research in Golfo Dulce: Two seasonal marine surveys." *News + Stories*, blog of Osa Conservation, 9 February 2012.
12. **Bessesen B.** "Do I Know You? Building a Foto-ID Catalog of Bottlenose Dolphins in Golfo Dulce." Personal blog, 23 September 2011.
13. **Bessesen B.** "Grant Approved for Extension Survey of Golfo Dulce." Personal blog, 11 February 2011.
14. **Bessesen B.** "Golfo Dulce on OBIS SEAMAP." Personal blog, 14 January 2011.
15. **Bessesen, B.L.** 2011. Rainy season extension of the multi-species marine sighting survey in Golfo Dulce, Costa Rica: Final Report and Comparative Summary. Public report, Osa Conservation.
16. **Bessesen, B.L.** and G. Saborío-R. 2010. Reporte Final del Monitoreo de Especies Marinas en el Golfo Dulce, Costa Rica, Enero-Febrero 2010. Public report, Osa Conservation.
17. **Bessesen, B.L.** 2010. Project report and summary of multi-species marine sighting survey in Golfo Dulce, Costa Rica, January-February 2010. Public report, Osa Conservation.
18. **Bessesen B.** "Hotspot for Humpbacks." *Osa Peninsula Chronicles*, blog of Friends of the Osa, 4 June 2010.
19. **Bessesen B.** "Granjas Atuneras Amenazan el Golfo Dulce." *Osa Peninsula Chronicles*, blog of Friends of the Osa, 14 April 2010.
20. **Bessesen B.** "Tuna Farm Threatens Golfo Dulce." *Osa Peninsula Chronicles*, blog of Friends of the Osa, 14 April 2012.

## VETERINARY WORK

### **Certified Veterinary Technician (selected)**

2014–2023, Senior Animal Rescue Responder, Global Rescue and Response Team, Humane Society of the United States, Maryland, USA

2007–2014, Hospital keeper/CVT (contractor), Animal Care Center, Phoenix Zoo, Arizona, USA

1995–2014, Rescue/transport technician, Liberty Wildlife, Scottsdale, Arizona, USA

1994–1998, Hospital keeper/CVT (staff), Animal Care Center, Phoenix Zoo, Arizona, USA

1997–2001, Handler/CVT, Southwest Wildlife, Scottsdale, Arizona, USA

1994, Rescue/transport technician, Marine & Mountain Wildlife Rescue, Malibu, California, USA

1994, Animal care technician, Marine Mammal Care Center, San Pedro, California, USA