

---

---

# Curriculum Vitae

## Matthew Scott Savoca

[MatthewSavocaEcology.weebly.com](http://MatthewSavocaEcology.weebly.com) | msavoca13@gmail.com | 718-490-9356 (cell)  
Hopkins Marine Station | Stanford University | 120 Ocean View Blvd, Pacific Grove, CA 93950

---

---

### Education

---

- Ph.D. Ecology** **2017**  
University of California, Davis, Davis, CA
- B.S. Natural Resources (Applied Ecology)** **2010**  
Cornell University, Ithaca, NY  
*Magna cum laude* with Distinction in Research

### Employment History

---

- Principal Investigator** **2023 – present**  
California Marine Sanctuary Foundation  
Monterey, CA
- Research Associate** **2023 – present**  
Hopkins Marine Station, Stanford University  
Pacific Grove, CA
- Postdoctoral Research Fellow** **2018 – 2023**  
Hopkins Marine Station, Stanford University  
Pacific Grove, CA
- NOAA Sea Grant Science-Policy Fellow** **2017-2018**  
Environmental Research Division, Southwest Fisheries Science Center  
Monterey, CA

### Honors & Awards

---

- Zhu-Peterson Early Career Scientist Award** **2022**  
North Pacific Marine Science Organization (PICES)  
Sidney, British Columbia, Canada
- NSF Postdoctoral Research Fellowship in Biology** **2019-2022**  
National Science Foundation, Arlington, VA
- Science & SciLifeLab Prize for Young Scientists** **2018**  
The American Association for the Advancement of Science, Washington, DC  
Science for Life Laboratory, Stockholm, Sweden
- California Sea Grant State Fellowship** **2017-2018**  
National Oceanic and Atmospheric Administration &  
Scripps Institution of Oceanography  
University of California, San Diego, La Jolla, CA
- Professors For The Future Fellowship** **2015-2016**

Office of Graduate Studies University of California, Davis, Davis, CA	
<b>NSF Graduate Research Fellowship</b>	<b>2010-2015</b>
National Science Foundation, Arlington, VA	
<b>Ecology Graduate Student Fellowship</b>	<b>2010-2015</b>
Graduate Group in Ecology University of California, Davis, Davis, CA	
<b>Hunter R. Rawlings III Cornell Presidential Research Scholarship</b>	<b>2008-2010</b>
Cornell University, Ithaca, NY	

## Peer-reviewed Publications

---

\*student mentee

Google Scholar citation record: <https://bit.ly/3S791FY>

2024 and in review

- Beltran, R.S., Kilpatrick, A.M., Picardi, S., Abrahms, B., Barrile, G.M., Oestreich, W.K., Smith, J.A., Czapanskiy, M.F., Favilla, A.B., Reisinger, R.R., Kendall-Bar, J.M., Payne, A.R., **Savoca, M.S.**, Palance, D.G., Andrzejaczek, S., Shen, D.M., Adachi, T., Costa, D.P., Storm, N.A., Hale, C.M. and P.W. Robinson. *In review*. Maximizing biological insights from instruments attached to animals.
- Hazen, E.L., **Savoca, M.S.**, Clark-Wolf, T.J., Czapanskiy, M.F. Rabinowitz, P.J. and B.A. Abrahms. *In review*. Ecosystem sentinels as early warning indicators in the Anthropocene.
- Collins, J.R., Boenish, R.E., Cape, M.R., Benitez-Nelson, C.R., Doney, S.C., Fujita, R., Gaines, S.D., Gruby, R.L., Jin, D., Kim, H.H., Kleisner, K.M., Mariani, G., Moore, L.A., Pershing, A.J., Rader, D.N., Roman, J., Saba, G.K., Sanchirico, J.N., Saul, S., **Savoca, M.S.**, Waller, A. *In review*. The potential of marine biota to sequester blue carbon: current evidence and research needs.
- Savoca, M.S.**, Robuck, A.R., Cashman, M.A., Cantwell, M.G., Agvent, L.A., Wiley, D.N., Rice, R., Todd, S., Hunter, N.E., Robbins, J., Goldbogen, J.A. and R. Lohmann. *In revision*. Establishing baleen as a biomonitor for per- and polyfluoroalkyl substances (PFAS) in marine food webs. *Environmental Science & Technology Letters*
- Dodson, S., Oestreich, W.K., **Savoca, M.S.**, Hazen, E.L., Bograd, S.J., Ryan, J.P., Fiechter, J. and B.A. Abrahms. *In revision*. Long-distance communication enables collective migration in a dynamic seascape. *Scientific Reports*
- Savoca, M.S.**, \*Kumar, M., Sylvester, Z., Czapanskiy, M.F., Meyer, B., Goldbogen, J.A. and C.M. Brooks. *In revision*. Whale recovery and the emerging human-wildlife conflict over Antarctic krill. *Nature Communications*
- Werth, A.J., Kahane-Rapport, S., Potvin, J., Goldbogen, J.A. and M.S. Savoca. 2024. Baleen-plastic interactions reveal high risk to all filter-feeding whales from filter clogging, ingestion, and entanglement. *Oceans* 5(1): 48-70.
- \*Price, S.E., **Savoca, M.S.**, Kumar, M., Czapanskiy, M.F., McDermott, D., Cade, D.E., Litvin, S.Y. and J.A. Goldbogen. 2024. Energy densities of key prey species in the California Current Ecosystem. *Frontiers in Marine Science* 10: 1345525

## 2023

- \*Braun, C., Hamilton, B.M., **Savoca, M.S.**, Bardarsson, B., Vermaire, J. and J. Provencher. 2023. Anthropogenic microparticle ingestion by Icelandic capelin. *Marine Pollution Bulletin* 196: 115551
- Welch, H., **Savoca, M.S.**, Brodie, S., Jacox, M.G., Muhling, B.A., Clay, T.A., Cimino, M., Benson, S.R., Block, B.A., Conners, M.G., Costa, D.P., Jordan, F.D., Leising, A.W., Mikles, C.S., Palacios, D.M., Shaffer, S.A., Thorne, L.H., Watson, J.T., Bograd, S.J. and E.L. Hazen. 2023. Impacts of marine heatwaves on top predator distributions are variable but predictable. *Nature Communications* 14: 5188
- Conor, R., Santangelo, Stephenson, B.M., Wilson, E.A. and **M.S. Savoca**. 2023. Commercial krill fishing within a foraging supergroup of fin whales in the Southern Ocean. *Ecology* 104(4): e4002
- Pearson, H.C., **Savoca, M.S.**, Costa, D.P., Lomas, M.W., Molina, R., Pershing, A.J., Smith, C.R., Villaseñor-Derbez, J.C., Wing, S.R., Roman, J. 2023. Whales in the carbon cycle: Can recovery remove carbon dioxide? *Trends in Ecology and Evolution* 38(3): 238-249 (cover feature)

## 2022

- Durfort, A., Mariani, G., Tulloch, V., **Savoca, M.S.**, Troussellier, M., and D. Mouillot. 2022. Recovery of carbon benefits by overharvested baleen whale populations is threatened by climate change. *Proceedings of the Royal Society B* 291: 20220375
- \*Kahane-Rapport S.R., Czapanskiy, M.F., Fahlbusch J.A., Friedlaender, A.S., Calambokidis, J., Hazen, E.L., Goldbogen, J.A. and **M.S. Savoca**. 2022. Field measurements reveal the risk of microplastic ingestion by marine megafauna. *Nature Communications* 13: 6327
- Gough, W.T., Cade, D.E., Czapanskiy, M.F., Potvin, J., Fish, F.E., Kahane-Rapport, S.R., **Savoca, M.S.**, Bierlich, K.C., Johnston, D.W., Friedlaender, A.S., Szabo, A., Bejder, L. and J.A. Goldbogen. 2022. Energetic tradeoffs and scaling of high-speed foraging in rorqual whales. *Integrative Organismal Biology* 4(2): obac038
- Savoca, M.S.**, Kühn, S., Sun, C., Avery-Gomm, S., Choy, C.A., Dudas, S., Hong, S., David Hyrenbach, D., Li, T., Ng, C.K., Provencher, J.F. and J. Lynch. 2022. Towards a North Pacific Ocean long-term monitoring program for plastic pollution: A review and recommendations for plastic ingestion bioindicators. *Environmental Pollution* 310: 119861
- Savoca, M.S.**, Machovsky-Capuska, G.E., Andrades, R. and R.G. Santos. 2022. Plastic ingestion: Understanding causes and impacts. *Frontiers in Marine Science* 9: 905336
- Pollack, L., Munson, A., **Savoca, M.S.**, Trimmer, P.C., Ehlman, S.M., Gil, M.A., and A. Sih. 2022. Enhancing the ecological realism of evolutionary mismatch theory. *Trends in Ecology and Evolution* 37(3): 233-245

## 2021

- Savoca, M.S.**, Czapanskiy, M.F., Kahane-Rapport, S.R., Gough, W.T., Fahlbusch, J.A., Bierlich, K.C., Segre, P.S., Di Clemente, J., Penry, G.S., Wiley, D.N., Calambokidis, J., Nowacek, D.P., Johnston, D.W., Pyenson, N.D., Friedlaender, A.S., Hazen, E.L. and J.A. Goldbogen.

2021. Baleen whale prey consumption based on high-resolution foraging measurements. *Nature* 599: 85-90 (cover feature)
- Gough, W.T., Smith, H., **Savoca, M.S.**, Czapanskiy, M.F., Fish, F., Potvin, J., Bierlich, K.C., Cade D.E., Di Clemente, J., Kennedy, J., Segre, P., Stanworth, A., Weir, C., and J.A. Goldbogen. 2021. Scaling of oscillatory kinematics and Froude efficiency in baleen whales. *Journal of Experimental Biology* 224(13): 237586
- Czapanskiy, M.F., **Savoca, M.S.**, Gough, W.T., Segre, P., Wisniewska, D., Cade, D.E. and J.A. Goldbogen. 2021. Modeling short-term energetic costs of sonar disturbance to cetaceans using high resolution foraging data. *Journal of Applied Ecology* 58(8): 1643-1657
- Kashiwabara, L., Kahane-Rapport, S.R., King, C., DeVogelaere, M., Goldbogen, J.A. and **M.S. Savoca**. 2021. Microplastics and microfibers in surface waters of Monterey Bay National Marine Sanctuary, California. *Marine Pollution Bulletin* 165: 112148
- Savoca, M.S.**, McInturf, A.G. and E.L. Hazen. 2021. Plastic ingestion by marine fish is widespread and increasing. *Global Change Biology* 27(10): 2188-2199

## 2020

- Kahane-Rapport, S.R., **Savoca, M.S.**, Cade, D.E., Segre, P.S., Bierlich, K.C., Calambokidis, J.A., Dale, J., Friedlaender, A.S., Johnston, D.W., Werth, A.J. and J.A. Goldbogen. 2020. Lunge filter feeding biomechanics constrain rorqual foraging ecology across scale. *Journal of Experimental Biology* 223(20): 224196
- Savoca, M.S.**, Brodie, S., Welch, H., Hoover, A., Benaka, L.R., Bograd, S.J., and E.L. Hazen. 2020. Comprehensive bycatch assessment in U.S. fisheries for use in prioritizing management. *Nature Sustainability* 3(4): 472-480
- Pfaller, J.B. Goforth, K., Gil, M.A, **Savoca, M.S.** and K.J. Lohmann. 2020. Odors from marine plastic debris elicit foraging behaviors in sea turtles. *Current Biology* (30)5: R213-R214

## 2019

- Goldbogen, J.A., Cade, D.E., Wisniewska, D.M., Potvin, J., Segre, P.S., **Savoca, M.S.**, Hazen, E.L., Czapanskiy, M.F., DeRuiter, S.D., Gero, S., Tønnesen, P., Gough, W. T.L, Hanson, M.B., Holt, M., Kahane-Rapport, S.R., Jensen, F.H., Simon, M., Stimpert, A.K., Arranz, P. Nowacek, D.P., Parks, S., Visser, F., Friedlaender, A.S., Tyack, P L., Madsen, P.T., and N.D. Pyenson. 2019. Why whales are big but not bigger: Physiological drivers and ecological limits in the age of ocean giants. *Science* 366(6471): 1367-1372 (cover feature)
- Goldbogen, J.A., Cade, D.E., Calambokidis, J., Czapanskiy, M.F., Fahlbusch, J., Friedlaender, A.S., Gough, W.T., Kahane-Rapport, S.R., **Savoca, M.S.**, Ponganis, K.V., Ponganis, P.J. 2019. Extreme bradycardia and tachycardia in the world's largest animal. *PNAS* 116(50): 25329-25332
- Hazen, E.L., Abrahms, B.L., Scales, K.L., Jacox, M.G., Brodie, S., **Savoca, M.S.**, Carroll, G. and S.J. Bograd. 2019. Marine top predators as climate-ecosystem sentinels. *Frontiers in Ecology and the Environment* 17(10): 545-574
- Gough, W.T., Segre, P.S., Bierlich, K.C., Cade, D.E., Potvin, J., Fish, F.E., Dale, J., di Clemente, J., Friedlaender A.S., Johnston D.W., Kahane-Rapport, S., Kennedy, J., Long J.H.,

Oudejans, M., Penry, G., **Savoca, M.S.**, Simon, M., Videsen, S.K.A., Visser, F., Wiley, D.N. and J.A. Goldbogen. 2019. Scaling of swimming performance in baleen whales. *Journal of Experimental Biology* 222: jeb204172

Abrahms, B., Hazen E.L., Aikens, E., **Savoca, M.S.**, Goldbogen, J.A, Bograd, S.J., Jacox, M., Irvine, L.M., Palacios D.M. and B.R. Mate. 2019. Memory and resource tracking drive blue whale migrations. *PNAS* 116(12): 5582-5587

Weber, A., Weber, M., and **Savoca, M.S.** 2019. Quantifying marine debris associated with coastal golf courses. *Marine Pollution Bulletin* 140: 1-8

## 2018

**Savoca, M.S.** 2018. The ecology of an olfactory trap. *Science* 362(6416): 904

**Savoca, M.S.**, Gardiner, J., Colbourne, R. and A.J.D. Tennyson. 2018. Vertebrate prey in the diets of free-ranging kiwi (*Apteryx* spp.). *Notornis* 65(4): 242-244

**Savoca, M.S.** 2018. Chemoattraction to dimethyl sulfide links the sulfur, iron, and carbon cycles in high-latitude oceans. *Biogeochemistry* 138(1): 1-21 (cover feature)

## 2017 and earlier

**Savoca, M.S.**, Tyson, C.W., McGill, M. and C.J. Slager. 2017. Odours from marine plastic debris induce food search behaviours in a forage fish. *Proceedings of the Royal Society B* 284: 20171000

**Savoca, M.S.**, Wohlfeil, M.E., Ebeler, S.E. and G.A. Nevitt. 2016. Marine plastic debris emits a keystone infochemical for olfactory foraging seabirds. *Science Advances* 2(11): e1600395

Meek, M.H., Wells, C., Tomalty, K.M., Ashander, J., Cole, E.M., Gille, D.A., Putnam B.J., **Savoca, M.S.**, Rose, J.P., Yamane, L., Hull, J.M., Rodgers, D.L., Rosenblum, E.B., Shogren, J.F., Swaisgood, R.R. and B. May. 2015. Fear of failure in conservation: the problem and potential solutions to aid conservation of extremely small populations. *Biological Conservation* 184: 209-217

**Savoca, M.S.** and G.A. Nevitt. 2014. Evidence that dimethyl sulfide facilitates a tritrophic mutualism between marine primary producers and top predators. *PNAS* 111(11): 4157-4161

Cooper, C.B., Loyd, K.A., Murante, T., **Savoca, M.S.** and J.L. Dickinson. 2012. Natural history traits associated with detecting mortality within residential bird communities: can citizen science provide insights? *Environmental Management* 50(1): 11-20

**Savoca, M.S.**, Bonter, D.N., Zuckerberg, B., Dickinson, J.L. and J.C. Ellis. 2011. Nesting density is an important factor affecting chick growth and survival in the Herring Gull. *The Condor* 113(3): 565-571

## Professional reports

---

**Savoca, M.S.** and S.K. Kim. 2021. The (Virtual) International Symposium on Plastics in the Arctic and Sub-Arctic Regions. PICES press 29(2): 14-16.

Roman, J., J.J. Kiszka, H. Pearson, **M.S. Savoca**, and C. Smith. 2021. Ecological Roles and Impacts of Large Cetaceans in Marine Ecosystems. International Whaling Committee. IWC SC/68C/EM/05

## Research Funding (\$1,225,753 total; \$724,614 as PI)

---

<b>California Ocean Protection Council &amp; California Sea Grant</b> (\$374,664)	<b>2023 – present</b>
<i>Principal investigator</i>	
“From watershed to whales: Tracking the source and transport of microplastics in Monterey Bay to inform risk assessments”	
Ocean Protection Council, Sacramento, CA & California Sea Grant, La Jolla, CA	
<b>Oregon Sea Grant</b> (\$49,985)	<b>2022 – present</b>
<i>Co-investigator</i>	
“Coastal Oregon zooplankton investigation: An interdisciplinary approach to understanding microfiber impacts on gray whale prey in the context of climate change”	
Oregon State University, Corvallis, OR	
<b>Environmental Venture Program</b> (\$199,490)	<b>2022 – present</b>
<i>Associate investigator</i>	
“Reconstructing ecological regime shifts in the Southern Ocean as a blueprint for pelagic ocean restoration”	
Stanford University, Stanford, CA	
<b>MAC3 Impact Philanthropies</b> (\$99,124)	<b>2020 – present</b>
<i>Senior personnel</i>	
“Incorporating whales into the global carbon cycle”	
<b>NSF Postdoctoral Research Fellowship in Biology</b> (\$207,000)	<b>2019-2022</b>
<i>Principal investigator</i>	
National Science Foundation, Arlington, VA	
<b>National Geographic Early Career Grant</b> (\$9,950)	<b>2019-2020</b>
<i>Principal investigator</i>	
National Geographic Society, Washington D.C.	
<b>National Observer Program RFP Recipient</b> (\$93,529)	<b>2019-2020</b>
<i>Senior personnel</i>	
National Oceanic and Atmospheric Administration, Silver Spring, MD	
<b>Ecology Graduate Student Endowment</b> (\$2,161)	<b>2015-2016</b>
Graduate Group in Ecology	
University of California, Davis, Davis, CA	
<b>Henry A. Jastro Research Fellowship</b> (\$2,241)	<b>2014-2015</b>
Graduate Group in Ecology	
University of California, Davis, Davis, CA	
<b>Natural Reserve System Grant</b> (\$2,894)	<b>2014</b>
University of California, Davis, Davis, CA	
<b>Grant-in-Aid of Research</b> (\$1,000)	<b>2014</b>
Society for Integrative and Comparative Biology, McLean, VA	
<b>NSF Graduate Research Fellowship</b> (\$133,000)	<b>2010</b>
<i>Principal investigator</i>	
National Science Foundation, Arlington, VA	
<b>Ecology Graduate Student Fellowship</b> (\$41,215)	<b>2010</b>

Graduate Group in Ecology  
University of California, Davis, Davis, CA

**SEASPACE Research Scholarship** (\$1,500)  
SEASPACE Inc., Houston, TX

**2010**

**Rawlings Cornell Presidential Research Scholarship** (\$8,000)  
Cornell University, Ithaca, NY

**2008-2010**

## Selected Scientific Presentations

---

### *Oral Presentations \*Invited*

- \*Savoca, M.S.** 6 October 2023. Baleen whale prey consumption and the Antarctic krill fishery. Oxford University Museum of Natural History, Oxford, UK.
- \*Savoca, M.S.** 27 April 2023. Plastic pollution in marine food webs: trends, pathways, and risk assessments. Hatfield Marine Science Center, Oregon State University, Newport, OR.
- \*Savoca, M.S.** 5 April 2023. Plastic pollution in marine food webs: trends, pathways, and risk assessments. Estuary and Ocean Science Center, San Francisco State University, Tiburon, CA.
- \*Savoca, M.S.** 30 January 2023. From the top down: How baleen whales influence the structure, function, and recovery of the Southern Ocean Ecosystem. Alfred Wegener Institute for Polar and Marine Science, Bremerhaven, Germany
- \*Savoca, M.S.** 23 September 2022. Microplastic pollution in Monterey Bay: From water to whales. Workshop on: Anthropogenic stressors, mechanisms and potential impacts on Marine Birds, Mammals, and Sea Turtles. PICES Annual Meeting, Busan, South Korea
- \*Savoca, M.S.** and E.L. Hazen. 4 May 2022. Baleen whale prey consumption, ecosystem services, and conservation in the Anthropocene. NOAA Science Seminar Series.
- \*Savoca, M.S.** and L. Kashiwabara. 15 April 2022. Plastic pollution in Monterey Bay: From water to whales. Monterey Bay National Marine Sanctuary Advisory Council Meeting. Monterey, CA
- Savoca, M.S.,** Kühn, S., Sun, C., Avery-Gomm, S., Choy, C.A., Dudas, S., Hong, S., David Hyrenbach, D., Li, T., Ng, C.K., Provencher, J.F. and J. Lynch. 6 September 2021. Towards a Long-Term Monitoring Program of Plastic Ingestion by Marine Organisms in the North Pacific. ICES Annual Science Conference.
- \*Savoca, M.S.** 30 September 2020. Whales eat a lot, and it matters. Bio at Noon Seminar Series. University of Rhode Island.
- \*Savoca, M.S.** 10 January 2020. Foraging behavior and physiology of baleen whales: implications for past and present oceans. Animal Behavior Graduate Group Seminar Series. UC Davis.
- Savoca, M.S.,** Kahane-Rapport S.R., Cade, D.E., Czapanskiy, M.F., Fahlbusch, J.A., Segre, P.S., Calambokidis, J., Nowacek D.P., Johnston, D.W., Bierlich, K.C., Dale, J., Hazen, E.L., Friedlaender, A.S., and J.A. Goldbogen. 22 October 2019. Rorqual ingestion estimates for the Eastern North Pacific based on direct measures of feeding rates and prey quality. PICES 2019 Annual Meeting, Victoria, British Columbia, Canada  
*Best Presentation Award, Biological Oceanography Section*
- Savoca, M.S.** 12 December 2018. The ecology of an olfactory trap. *Science* and SciLifeLab Prize Symposium. Science for Life Laboratory, Stockholm, Sweden
- \*Savoca, M.S.** 21 October 2018. On polymer seas: The rising tide of plastic in the ocean and what to do about it. The Great Scientific Exchange National Meeting. Atlanta, GA

- Savoca, M.S.** 29 August 2017. Something smells fishy: The science of how and why marine wildlife eat plastic. Monterey Bay Aquarium Seminar Series, Monterey Bay Aquarium, Monterey, CA
- Savoca, M.S.**, Ebeler, S.E. and Nevitt, G.A. 8 April 2016. Olfaction as a mechanism for plastic debris ingestion by marine wildlife. Interdisciplinary Graduate and Professional Student Symposium. University of California, Davis. Davis, CA  
*Chancellor's Grand Prize for Best Oral Presentation*
- Savoca, M.S.**, Wohlfeil, M.E., Van Alstyne, K.L., Ebeler, S.E. and Nevitt, G.A. 20 February 2015. Marine plastic debris as an olfactory trap for procellariiform seabirds. 42<sup>nd</sup> Pacific Seabird Group Conference. San Jose, CA  
*Honorable Mention, Outstanding Student Paper Award*
- Savoca, M.S.** and G.A. Nevitt. 12 August 2014. Can a marine infochemical facilitate a tritrophic mutualism between primary producer and top predator? 99<sup>th</sup> Ecological Society of America Annual Meeting, Sacramento, CA
- Savoca, M.S.**, Wohlfeil, M.E., Ebeler, S.E. and G.A. Nevitt. 15 February 2014. Marine plastic debris as an olfactory trap for procellariiform seabirds. 7<sup>th</sup> Annual Graduate Student Symposium in Ecology. University of California, Davis. Davis, CA  
*Best Student Presentation Award*
- Savoca, M.S.** and G.A. Nevitt. 5 January 2013. Tritrophic interactions involving a global climate regulator mediate foraging in marine top predators: Evidence from a 50-year seabird dietary database in the Southern Ocean. Society for Integrative and Comparative Biology Annual Meeting. San Francisco, CA
- Savoca, M.S.** and G.A. Nevitt. 18 February 2012. Evidence for a marine tri-trophic interaction mediated by an induced defense: examining 50 years of diet data in a Southern Ocean seabird assemblage. 5<sup>th</sup> Annual Graduate Student Symposium in Ecology. University of California, Davis. Davis, CA  
*Best Student Presentation Award*

### *Poster Presentations*

- Savoca, M.S.**, Hazen, E.L., Bograd, S.J., Hoover, A.L. and L. Benaka. 12 February 2018. Evaluating US fisheries' capacity for uptake of dynamic ocean management. 19<sup>th</sup> Ocean Sciences Joint Meeting. Portland, OR
- Savoca, M.S.**, Van Alstyne, K., Ebeler, S.E. and G.A. Nevitt. 24 February 2014. Marine plastic debris as an olfactory trap for procellariiform seabirds. 17<sup>th</sup> Ocean Sciences Meeting. Honolulu, Hawaii  
*Outstanding Student Presentation Award*
- Savoca, M.S.** and G.A. Nevitt. 17 and 18 August 2012. Evidence for a marine tri-trophic interaction mediated by an induced defense: examining 50 years of diet data in a Southern Ocean seabird assemblage. 5<sup>th</sup> North American Ornithological Conference. Vancouver, British Columbia, CA

### **Selected Outreach Presentations**

---

- Savoca, M.S.** 29 January 2022. Migration and climate change: Chasing an endless summer. Science Saturday Series on Animal Migration Pacific Grove Natural History Museum, Pacific Grove, CA
- Savoca, M.S.** 6 October 2018. My search for inspiration in a sea of debris. Ocean Plastic Pollution Summit. Monterey Bay Aquarium, Monterey, CA



*Keynote lecture*

- Savoca, M.S.** and A.G. McInturf. 13 June 2018. Whale tales and shark stories. Sacramento Science Distilled. Sacramento, CA.
- Savoca, M.S.** 26 April 2018. Plastic and the ocean: What we know and what we can do. American Cetacean Society – Monterey Bay Chapter. Pacific Grove, CA
- Savoca, M.S.** 22 January 2017. Pollution stinks: Why do marine animals eat our plastic trash? TEDxUC Davis. Davis, CA
- Savoca, M.S.** 22 April 2016. What the nose knows: Smell helps explain why marine animals eat plastic. University of California GradSlam Finals. San Francisco, CA  
*\*UC Davis campus champion & representative*
- Savoca, M.S.** 4 April 2016. Adventures (and misadventures) of foraging on the high seas: the sensory ecology of tube-nosed seabirds. Oakland Museum of California advanced docent training. Oakland, CA
- Savoca, M.S.** 21 February 2015. Using sensory ecological theory to investigate the cause of plastic debris consumption in marine wildlife. NOAA Marine Debris Program Outreach Event. San Francisco, CA.
- Savoca, M.S.** 11 August 2014. The biology and sensory ecology of the Albatrosses and Petrels. Winged Ambassadors -- Ocean Literacy through the Eyes of Albatross. Bay Model Visitor Center. Sausalito, CA
- Savoca, M.S.** 22 April 2014. Living in a plastic prison - Causes and effects of plastic ingestion in marine organisms. Earth Day Symposium on: Ecological Effects of Global Anthropogenic Change. Folsom Lake College, Folsom, CA  
*\*Event creator & organizer*
- Savoca, M.S.** 27 June 2013. Seabirds: A look into their world. Winged Ambassadors -- Ocean Literacy through the Eyes of Albatross. Oakland Museum of California, Oakland, CA

## Popular Science Writing

---

- Savoca, M.S.** *Seabirds that swallow ocean plastic waste have scarring in their stomachs – scientists have named this disease ‘plasticosis’.* First published on The Conversation 21 March 2023. URL: <https://tinyurl.com/ye24f9dt>
- Savoca, M.S.** 2023. “Whales and carbon: A Natural and Human History” Pages 133–141 in Blue Natural Capital ed. Cristina Mittermeier
- Savoca, M.S.** *Plastics are the tip of the iceberg.* First published on Think Global Health on 25 July 2022. URL: <https://bit.ly/3qi4m8n>
- Savoca, M.S.** Spring 2022 issue. *Fall of the great ocean farmers.* The Marine Biologist 22: 6-9. [Cover article] URL: <https://bit.ly/3KswPjI>
- Savoca, M.S.,** Robuck, A.R. and L. Kashiwabara. *Plastic trash in the ocean is a global problem, and the US is the top source – a new report urges action.* First published on The Conversation 3 December 2021. URL: <https://bit.ly/3snARCI>
- Savoca, M.S.** *Comprehensive bycatch assessment in U.S. fisheries.* First published on Springer Nature’s Sustainability Community Blog 30 March 2020. URL: <https://bit.ly/2V5uvqO>
- Savoca, M.S.,** Goldbogen, J.A. and N.D. Pyenson. *Why are whales big, but not bigger?* First published on The Conversation 12 December 2019. URL: <https://bit.ly/34PzPRZ>

Republished by over two-dozen outlets including Gizmodo, Salon, San Francisco Chronicle, and Houston Chronicle

**Savoca, M.S.** *A teen scientist helped me discover tons of golf balls polluting the ocean.* First published on The Conversation 18 January 2019. URL: <https://bit.ly/2TqqPhi>

Republished by The San Francisco Chronicle on 18 January 2019.

**Savoca, M.S.** *Bait and switch: Anchovy eat plastic because it smells like prey.* First published on The Conversation 16 August 2017. URL: <https://tinyurl.com/3eu6fyur>

Republished by The Washington Post on 4 September 2017. URL: [goo.gl/ZBDac7](http://goo.gl/ZBDac7)

**Savoca, M.S.** *The oceans are full of plastic, but why do seabirds eat it?* First published on The Conversation 9 November 2016. URL: <https://tinyurl.com/yc55fsx9>

Republished by Scientific American on 10 November 2016.

## Selected Media Appearances

---

**“Missing Giants: The lasting wound of industrial whaling”** Only One: Science in Antarctica. 1 November 2023. URL: <https://www.youtube.com/watch?v=bF-rDm0qlFc>

**“Why whales matter”** Interviewed by Justin Rowlett on BBC World Service’s Business Daily. 19 April 2022. URL: <https://bbc.in/3vWgga7>

**“Stanford lab develops high-tech tools to study whales in the wild”** Stanford News feature. 15 July 2020. URL: <http://bitly.ws/95aa>

**“Selling without selling out: How to communicate your science”** Panelist for AAAS/*Science* webinar. 29 May 2019. URL: <https://bit.ly/2kWj2vK>

**“Can whales’ secret lives unlock the future of the sea?”** Interviewed by Kait Parker on The Weather Channel’s Warming Signs podcast. 25 February 2019. URL: [goo.gl/SgtKTQ](http://goo.gl/SgtKTQ)

**“Thousands of golf balls found off the California coast”** Featured on ABC7 News. 1 February 2019. URL: <https://abc7ne.ws/2D74cYr>

**“Teenage diver finds tons of golf balls rotting off California”** Interviewed by Chris Joyce on NPR’s All Things Considered. 17 January 2019. URL: <https://n.pr/2W8j0Pf>

**“Why this student collected more than 50,000 golf balls out of the ocean”** Featured on HBO’s Vice News Tonight. 31 July 2018. URL: [goo.gl/KjJFgb](http://goo.gl/KjJFgb)

**“Fish are eating our rubbish.”** Interviewed by Jesse Mulligan on Radio New Zealand’s Afternoons programme. 18 August 2017. URL: [goo.gl/bSvaux](http://goo.gl/bSvaux)

**“Why do fish eat our trash? Because it smells yummy.”** Interviewed by Lindsey Hoshaw on KQED Sacramento. 17 August 2017. URL: [goo.gl/3wU6nF](http://goo.gl/3wU6nF)

**“Do plastics in the ocean smell like food to ocean seabirds?”** Featured guest on Jenny Stock’s KWMR’s Ocean Currents Radio Show. 1 May 2017. URL: [goo.gl/4jLaA6](http://goo.gl/4jLaA6)

**“California’s force for research innovation.”** Profiled for the University of California’s Graduate Research Advocacy Day. 17 April 2017. URL: [goo.gl/JGbKUG](http://goo.gl/JGbKUG)

**“Plastic and seabirds: a lethal combination.”** Interviewed by Alison Ballance on Radio New Zealand’s Our Changing World. 6 April 2017. URL: [goo.gl/3pb7KD](http://goo.gl/3pb7KD)

“Are yoga pants bad for fish?” Television interview on CBS-Sacramento evening news. 15 March 2017. URL: [goo.gl/bdv1HE](http://goo.gl/bdv1HE)

“Why are seabirds eating plastic?” Interviewed on Radio New Zealand’s This Way Up programme. 10 December 2016. URL: [goo.gl/4Ty2aG](http://goo.gl/4Ty2aG)

“Why seabirds love to gobble plastic floating in the ocean.” Interviewed by Chris Joyce on NPR’s All Things Considered. 10 November 2016. URL: [goo.gl/HPjc43](http://goo.gl/HPjc43)

## Teaching Experience

---

### Stanford University

- **Lead Instructor**, Grant-writing workshop **July – Aug 2019**  
Hopkins Marine Station

### UC Davis

- **Teaching Assistant**, Current Issues in the Environment (ESP 10) **Jan – Mar 2017**  
Department of Environmental Science and Policy
- **Co-Lead Instructor**, Mechanisms in Animal Behavior (NPB 102) **June – July 2016**  
Department of Neurobiology, Physiology, and Behavior
- **Teaching Assistant**, Mechanisms in Animal Behavior (NPB 102) **Apr – June 2012, 2016**  
Department of Neurobiology, Physiology, and Behavior
- **Teaching Assistant**, Principles of Ecology and Evolution (BIS 2B) **Jan – Mar 2016**  
Department of Ecology and Evolution
- **Co-Lead Instructor**, NSF Graduate Research Fellowship Workshop **Sept – Oct 2015**  
Graduate Group in Ecology
- **Teaching Assistant**, Introduction to Ecology (EVE 101) **June – July 2013**  
Department of Evolution and Ecology

### Cornell University

- **Teaching Assistant**, Field Ornithology (BIOSM 3740) **May – June 2010**  
Shoals Marine Laboratory
- **Teaching Assistant**, Field Biology (NTRES 2100) **Aug – Dec 2009**  
Department of Natural Resources

**Head Instructor**, Earth Camp **July – Aug 2006 – 2010**  
Staten Island Museum, Staten Island, NY

## Mentoring Experience

---

### Students Mentored

- **Allie Vann** **2023-present**  
Monterey Bay Regional Ocean Science Research Experiences for Undergraduates (REU), National Science Foundation  
Project: Evaluating the energy density of ghost shrimp (*Neotrypaea californiensis*), an important prey item for gray whales, in Puget Sound, Washington
- **Maddie English** **2023-present**  
Master’s Student, Oregon State University  
Project: Plastic ingestion and the role of trophic transfer in the salmon shark (*Lamna ditropis*) food chain of the Eastern North Pacific

- **Samuel Price** **2022-present**  
 Undergraduate research intern, Stanford University  
Project: Energetics of key prey species in Monterey Bay. Published in *Frontiers in Marine Science*.
  - **Mehr Kumar** **2021-present**  
 MAC3 Research Technician, Stanford University  
Project: The role of krill in Southern Ocean and North Pacific Ecosystems
  - **Shirel Kahane-Rapport** **2018-2022**  
 Ph.D. student, Hopkins Marine Station of Stanford University  
Project: Quantitative risk assessment of plastic ingestion by baleen whales. Published in *Nature Communications*.
  - **Lindsey Filgas** **2019**  
 Biology Summer Undergraduate Research Program, Stanford University  
Project: Microplastic filtration by rorqual baleen
  - **Hayden Smith** **2019**  
 Monterey Bay Regional Ocean Science Research Experiences for Undergraduates (REU), National Science Foundation  
Project: Drag and thrust production by swimming baleen whales to measure propulsive efficiency. Published in *Journal of Experimental Biology*.
  - **Lauren Kashiwabara** **2018-2019**  
 Undergraduate Research Opportunities Center Scholar (UROC), CSU Monterey Bay  
Project: Microplastic concentrations in surface seawater of the Monterey Bay National Marine Sanctuary. Published in *Marine Pollution Bulletin*.
  - **Alex Weber** **2017-2019**  
 High school researcher  
Project: The removal and quantification of golf balls from the nearshore marine environment in Carmel, California. Published in *Marine Pollution Bulletin*.
  - **Avery Williamson** **2017-2018**  
 High school researcher  
Project: Association of algal-sourced dimethyl sulfide on plastic in the freshwater environment
  - **Martha Wohlfeil** **2015-2016**  
 Undergraduate research intern, UC Davis  
Project: Headspace analysis of marine plastics for volatile sulfur compounds. Published in *Science Advances*.
- Founder and Leader**, Peer Mentorship Program **2015 – 2017**  
 Professors For The Future Service Project  
 University of California – Davis, Davis, CA
- Peer Advisor**, Graduate Academic Achievement and Advocacy Program **2010 – 2012**  
 University of California – Davis, Davis, CA
- Research Peer Mentor**, Cornell Presidential Research Scholars Program **2010**  
 Cornell University, Ithaca, NY
- Professional Service**
- 
- Scientific Consultant – Solomon R. Guggenheim Museum** **2023**

**Topic editor – Frontiers in Marine Science** **2021-2022**  
Guest editor on journal special issue “Plastic ingestion: Understanding causes and impacts”

**Conference sessions convened**

- **Ocean Sustainability and the UN Decade** **2022**  
21st Ocean Sciences Joint Meeting  
Honolulu, Hawaii, (convened virtually)
- **Environmental Indicators of Plastic Pollution in the North Pacific** **2022**  
21st Ocean Sciences Joint Meeting  
Honolulu, Hawaii, (convened virtually)
- **Using environmental indicators to assess baselines, targets, and risk of plastic pollution in the North Pacific** **2021**  
North Pacific Marine Science Organization (PICES) Annual Meeting  
Qingdao, China, (convened virtually)
- **Environmental indicators of plastic pollution in the North Pacific** **2019**  
North Pacific Marine Science Organization (PICES) Annual Meeting  
Victoria, BC, Canada
- **Analytical techniques to address plastic pollution** **2018**  
The Great Scientific Exchange (SciX) National Meeting  
Federation of Analytical Chemistry and Spectroscopy Societies  
Atlanta, GA

**Expert groups**

- Founder and Chair, Global Plastic Bioindicators Project **2023 – present**  
UN Decade of Ocean Science for Sustainable Development
- U.S. Representative, Committee on Marine Environmental Quality **2022 – present**  
North Pacific Marine Science Organization (PICES)
- U.S. Representative, Advisory Panel on Early Career Ocean Professionals **2020 – present**  
North Pacific Marine Science Organization (PICES)
- U.S. Representative, Working Group on Marine Microplastics **2018 – Pres**  
North Pacific Marine Science Organization (PICES)
- U.S. Representative, Advisory Panel on Early Career Ocean Professionals **2020 – Pres**  
North Pacific Marine Science Organization (PICES)
- Workshop participant, Baleen whale-krill fishery interactions **2023**  
Pew Bertarelli Ocean Legacy & British Antarctic Survey
- Workshop participant, Functioning of whales in ocean ecosystems **2021**  
International Whaling Commission (IWC)
- Workshop participant, Open ocean blue carbon assessment **2021**  
Environmental Defense Fund (EDF)
- Workshop participant, Green whale science & research symposium and workshop **2021**  
Whale and Dolphin Conservation (WDC)

**Photographs used and reprinted by:**

National Geographic, The Atlantic, Reuters, BBC, Nature, Ocean Conservancy, Smithsonian, NOAA, The Conversation

**Moderator and Panelist**

- Legislative panelist focusing on marine plastic pollution convened by the Leonardo DiCaprio Foundation at the California State Capitol on 7 June 2018.
- Moderator for a panel “The Future is Not Plastics” hosted by the Stanford Woods Institute for the Environment on 1 March 2022. The panelists were representatives from the Ocean Conservancy and the Surfrider Foundation

**Peer Reviewer**

**2012 – Pres**

Journals:

Science, PNAS, Nature Ecology & Evolution, Nature Sustainability, Nature Communications, Proceedings of the Royal Society B, Global Change Biology, Physical Review X, Environmental Pollution, Behavioral Ecology, PLoS One, Ethology Ecology & Evolution, Climate Change Ecology, Chemosphere, Science of the Total Environment, Marine Ecology Progress Series, ICES Journal of Marine Science, Progress in Oceanography, Marine Pollution Bulletin, Frontiers in Marine Science, Marine and Freshwater Research, Arctic Science, Environmental Reviews, Environmental Research Letters

Granting agencies:

NOAA Ocean Acidification Program/National Oceanographic Partnership Program (NOPP), North Pacific Research Board (NPRB), National Geographic Society, California State University Council on Ocean Affairs, Science & Technology (COAST), University of Southern California Sea Grant Program, New Jersey Sea Grant Program, California Sea Grant State Fellowship Program

- Scientific Contractor**, Cordell Bank National Marine Sanctuary **2013 – 2018**  
Point Reyes National Seashore, CA
- Graduate Student Representative**, Committee on Public Service **2015 – 2017**  
Academic Senate of UC Davis  
University of California, Davis, Davis, CA
- Head Organizer**, Earth Day Public Education Symposium **Feb – Apr 2014**  
Ecological Effects of Global Anthropogenic Change  
Folsom Lake College, Folsom, CA
- Executive Board Member**, Cornell Undergraduate Research Board **2008 – 2010**  
Cornell University, Ithaca, NY
- Science Writer**, Cornell Laboratory of Ornithology **2009**  
Cornell University, Ithaca, NY

**Professional Certificates**

---

- Unlearning Racism in Geoscience**, National Science Foundation **Spring 2021**  
University of California, San Diego (virtual)
- College Teaching**, Center for Educational Excellence **Fall 2015**  
University of California, Davis
- Responsible Conduct of Research**, Office of Research **2014 – 2015**  
University of California, Davis
- Strategies for Student Engagement**, Graduate Teaching Community **Winter 2015**  
Center for Excellence in Teaching and Learning  
University of California, Davis