What if We Understood What Animals Are Saying?: The Legal Impact of AI-Assisted Studies of Animal Communication

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This Article explores the burgeoning fields of artificial intelligence and bioacoustics and their potential to reshape nonhuman animal law. Historically, Western science dismissed nonhuman animal vocalizations as simple and lacking complexity. However, recent advancements in recording technology, artificial intelligence, and interdisciplinary collaborations have revealed that many species, from whales to honeybees, possess sophisticated communication systems. Pioneering projects, like Project Cetacean Translation Initiative's (CETI) work with sperm whales, are challenging long-held assumptions about animal communication and opening the door to new legal and ethical considerations. This Article examines the legal implications of understanding nonhuman animal communication by asking: If these initiatives succeed, how might the legal terrain be reshaped?

Proving that cetaceans possess linguistic capacities would challenge the notion that language is exclusive to humans and could reshape legal frameworks, as seen in past reforms following discoveries about great apes. By demonstrating what is already possible, we set the stage for the forward-looking analyses that considers the impact of understanding the content of cetacean communication.

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Current knowledge about cetacean suffering and needs has been insufficient to fully protect them from human-induced harms, but understanding the content of communication could offer profound insights into their behavior, suffering, and social life, in ways that enable legal change. Insight into communication content could improve regulation of chronic underwater noise pollution under existing laws, catalyze new rights for cetaceans, and spark a fundamental transformation of the station that cetaceans occupy under the law—from property to legal personhood. While this Article focuses on the nonhuman animal whose communications have been most studied, it aims to illuminate the legal implications of the growing number of studies on various nonhuman animals—from birds to elephants and countless others. We invite you to explore this emerging legal landscape with us.

INTRODUCTION

As recently as this past century, scientists assumed that broad swaths of the nonhuman world—from bats to whales—did not speak.[1] For the nonhuman animals that produced sounds within our range of hearing, their vocalizations were viewed as mere noise devoid of complex structure or significant meaning.[2] In contrast with many Indigenous practices,[3] Western science before the twentieth century generally did not listen deeply to nonhuman animals. That, however, is quickly changing.

Pioneering biologists who suspected these sounds possessed purpose have spent the last few decades recording nonhuman animal communication.[4] They have now been joined by roboticists, artificial intelligence (AI) experts, and linguists in what is becoming a planetary listening exercise. The evolving field of bioacoustics now includes efforts to record, interpret, and potentially translate nonhuman animal communication.[5] Researchers have used this technology to achieve astounding findings: Elephants address members of their family with individual "name-like calls,"[6] zebra finches prefer male partners that sing like

1. *See, e.g.*, Mary Bates, *Discovering Sonar in Bats*, AM. ASS'N FOR THE ADVANCEMENT OF SCI. (June 30, 2011), https://www.aaas.org/taxonomy/term/10/discovering-sonar-bats (noting certain bats were thought to be silent before Donald Griffin discovered in 1938 that they emitted sounds in ultrasonic range); Donald R. Griffin & Robert Galambos, *The Sensory Basis of Obstacle Avoidance by Flying Bats*, 86 J. EXPERIMENTAL ZOOLOGY 481, 499 (1941) (claiming bat "supersonic cries" plays a role in flight); MARIE POLAND FISH, MARINE MAMMALS OF THE PACIFIC WITH PARTICULAR REFERENCE TO THE PRODUCTION OF UNDERWATER SOUND 5 n.1 (Charles J. Fish ed., 1949) (noting the first record of underwater sounds attributable to whales were in 1942 submarine war patrol reports).

2. *See, e.g.,* Alan D. Grinnell, *Early Milestones in the Understanding of Echolocation in Bats*, 204 J. COMPAR. PHYSIOLOGY A 519, 522 (2018) (noting Georg von Békésy, the premier auditory expert of the time, telling scientist Griffin "that it would be a waste of time to examine other kinds of bats, since their sounds are merely noise bursts and a bat is a bat").

3. Indigenous people, ranging from South Asia and Africa to the Americas, have long believed communication is a trait possessed by all living beings and practiced inter-species listening and communication. *See, e.g.*, Lisa Kemmerer, *Indigenous Traditions*, *in* ANIMALS AND WORLD RELIGIONS 26, 27, 30, 37, 39, 54 (2011); José Gualinga Montalvo & Carlos Andrés Baquero-Díaz, *"The Jungle is a Living, Intelligent, and Conscious Being*," *in* MORE THAN HUMAN RIGHTS: AN ECOLOGY OF LAW, THOUGHT AND NARRATIVE FOR EARTHLY FLOURISHING 119-120 (César Rodriguez-Garavito ed., 2024) (discussing how the Indigenous Sarayaku people listen to and communicate with the forest and nonhuman animals like the anaconda).

4. *See generally, e.g*., Arthur N. Popper & Robert J. Dooling, HISTORY OF ANIMAL BIOACOUSTICS, 112 J. ACOUSTICAL SOC'Y AMERICA 2368 (2002) (describing the history of bioacoustics and the significant uptick in research beginning in the 1970s).

5. *Infra* notes 6-8, 20 and accompanying text.

6. Michael A. Pardo et al., *African Elephants Address One Another with Individually Specific Name-like Calls*, 8 NATURE ECOLOGY EVOLUTION 1353, 1353 (2024).

the birds they grew up with,[7] and honeybee swarms choose new homes by using "democratic decision-making" during flight, including collective fact finding, debate, consensus building, and a complex stop signal that prevents impasses.[8]

The natural sciences and digital technologies are thus helping us appreciate the "immense world of delight" that had until recently been "clos'd by [our] sense five," as poet William Blake famously wrote.[9] The potential impact of bioacoustics and AI on environmental law and nonhuman animal law is difficult to overstate. Indeed, we may be on the cusp of a new, immense legal world. In the past, novel scientific findings provided empirical grounds for new legal norms and institutions. From knowledge about biological functions and needs fueling protective laws to nonhuman animal ethology and neuroscience fueling the recognition of sentience in legislation, science has instrumentally accompanied momentous legal shifts.[10] In California, for example, scientific findings on elephants' long-term memories, learning abilities, empathy, and self-awareness played a role in the historic Ojai City Council ordinance, the first city in the United States to recognize the legal right to liberty of a nonhuman animal.[11]

The history of nonhuman animal law makes clear that science and public sentiment have and will continue to play a leading role in moving the needle on the treatment, protection, and conservation of nonhuman animals.[12] Moreover, scientists often understand that their work can shift societal perceptions and legal frameworks, and sometimes scientists even advocate for these paradigm shifts.[13] Such pioneering science and related advocacy efforts challenge years of

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7. Lois Parshley, *Artificial Intelligence Could Finally Let Us Talk with Animals*, SCI. AM. (Oct. 1, 2023), https://www.scientificamerican.com/article/artificial-intelligence-could-finally-let-us-talk-with-animals.

8. KAREN BAKKER, THE SOUNDS OF LIFE: HOW DIGITAL TECHNOLOGY IS BRINGING US CLOSER TO THE WORLDS OF ANIMALS AND PLANTS 146 (2022).

9. WILLIAM BLAKE, THE MARRIAGE OF HEAVEN AND HELL 12 (1906).

10. *See* RAFFAEL N. FASEL & SEAN C. BUTLER, ANIMAL RIGHTS LAW 16 (2023); *Octopuses, Crabs and Lobsters to be Recognised as Sentient Beings Under UK Law Following LSE Report Findings*, LONDON SCH. OF ECON. (Nov. 19, 2021), https://www.lse.ac.uk/news/latest-news-from-lse/k-november-21/octopuses-crabs-and-lobsters-welfare-protection (noting the inclusion of decapod crustaceans and cephalopod mollusks follows the findings of a scientific review of over three hundred studies on sentience).

11. Courtney Fern, *California City Passes Historic Animal Rights Legislation*, NONHUMAN RTS. PROJECT (Sept. 27, 2023) https://www.nonhumanrights.org/blog/ojai-animal-rights/; CARL ALAMEDA & MARK SCOTT, SECOND READING AND ADOPTION OF ORDINANCE ADDING THE RIGHT TO BODILY LIBERTY FOR ELEPHANTS TO CHAPTER 4, TITLE 5 OF THE OJAI MUNICIPAL CODE 1 (2023), https://drive.google.com/file/d/1mzbgmWVxfNhqnKLw9OxEwZSnj302Zf0p/view.

12. E.g., *infra* notes 35-42, 125-133, 134-144 and accompanying text.

13. *The New York Declaration on Animal Consciousness: Background*, N.Y. UNIV. (Apr. 19, 2024), https://sites.google.com/nyu.edu/nydeclaration/background; Evan Bush, *Scientists Push New Paradigm of Animal Consciousness, Saying Even Insects May Be Sentient,* NBC NEWS (Apr. 19, 2024), https://www.nbcnews.com/science/science-news/animal-consciousness-scientists-push-new-paradigm-rcna148213.

scientific and legal orthodoxy to better reflect what nature already demonstrates: Humans and nonhuman beings share an ever-expanding list of capacities and characteristics.

The view that progress for nonhuman animals is hindered by our inability to understand them, or their inability to advocate on human terms, is not novel.[14] Philosopher Martha Nussbaum, when drawing a parallel between nonhuman animals and the historical evolution of women's legal status from property to personhood, underscored that progress will be slower for nonhuman animals "because their voices are not recorded, and they don't participate directly in public policy."[15] But what if humans were able to understand nonhuman animal voices? What if the current trajectory of bioacoustics allowed us to not only record but also *decode* nonhuman animal communication?

This Article explores the implications of such advancements for nonhuman animal law. It does so by offering the first analysis of the potential legal impact of what has been referred to as the "most ambitious" and "most technologically sophisticated [] effort ever made to communicate with another species": the Project Cetacean[16] Translation Initiative (Project CETI).[17] Project CETI is a nonprofit science organization that is applying advanced machine learning, robotics, natural language processing, linguistics, cryptography, complexity science, and marine biology to listen to, translate, and put into context, the communication of sperm whales located near the island of Dominica.[18] Project CETI's work is guided by a simple question: "What would it mean to understand what whales are saying?"[19]

Building on the Dominica Sperm Whale Project's existing, substantial data on the whales' sounds, social lives, and behavior, Project CETI is creating a large-scale dataset and advanced machine learning pipeline to translate sperm

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14. PETER SINGER, ANIMAL LIBERATION 307 (40th Anniversary ed., 2015) (noting that animals' inability to reason or talk renders their interests easily ignored and counting "only when they do not clash with human interests"); *see generally* MARC BEKOFF, THE EMOTIONAL LIVES OF ANIMALS (2007) (exploring how limited human understanding of animal communication affects our ability to fully appreciate and address animal sentience and welfare).

15. David Marchese, *Do Humans Owe Animals Equal Rights? Martha Nussbaum Thinks So*, N.Y. TIMES (Dec. 6, 2022), https://www.nytimes.com/interactive/2022/12/05/magazine/martha-nussbaum-interview.html.

16. Cetaceans are nonhuman animals belonging to the order Cetacea, which includes whales, dolphins, and porpoises. *Cetacean*, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/cetacean (last visited Feb. 24, 2025). While Project CETI is focused on one particular type of cetacean, sperm whales, this Article explores the implications resulting from the potential translation of sperm whale communication for the entire order, unless otherwise specified.

17. Elizabeth Kolbert, *Talk to Me*, NEW YORKER (Sept. 4, 2023), https://www.newyorker.com/magazine/2023/09/11/can-we-talk-to-whales.

18. Ashley Zafaranlou et al., *2023 Annual Report*, PROJECT CETI, https://2023annualreport.projectceti.org/ (last visited Feb. 24, 2025).

19. *Project CETI*, PROJECT CETI, https://www.projectceti.org (last visited June 3, 2024).

whale vocalizations.[20] The core listening apparatus includes fixed underwater hydrophone arrays that create a three-dimensional, interactive map of whale vocalizations across twenty square kilometers.[21] This core data is then combined with data collected by small, on-whale sensors, underwater robotic gliders, and expert whale biologist observations.[22] On-whale sensors are robotic tags that reach the whales via aerial drones and are attached temporarily via bioinspired suction cups[23] which include three microphones, a heart rate sensor, inertial measurement units (measuring acceleration, orientation, angular rates, and other gravitational forces), and depth and temperature sensors.[24] CETI's underwater robotic gliders are 2.7-meter-long robotic sensors with powerful microphones that can navigate up to one thousand meters of depth, and track individual whales based on the characteristics of their voices.[25] The multi-modal data pipeline delivers highly contextual information necessary to decode the recorded data.[26] As will be detailed in Subpart II.A, Project CETI's ongoing work gives cause to believe that sperm whales have a complex communication system that is in many aspects akin to human language.

AI, sometimes called advanced machine learning, is among the many cutting-edge technologies Project CETI employs to comprehensively analyze sperm whales' communication systems. AI encompasses a set of approaches that use computational approximations of human neural processing to solve a variety of tasks.[27] The field of AI research has experienced recent breakthroughs with

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20. *Id*.

21. Jacob Andreas et al., *Toward Understanding the Communication in Sperm Whales*, 25 iSCIENCE 8, Figure 4 (2022) (describing the core listening apparatus, data collection methods, and recording equipment).

22. Daniel M. Vogt et al., *An Open-Source Sensor Tag for Studying Marine Animal Behavior and Communication*, IEEE J. OCEANIC ENG'G 1, 18 (2025) (forthcoming) (on file with authors).

23. For more information see Leah Burrows, *Using Suction Cups Inspired by Fish to Listen in on Whale Conversations: Project CETI Researchers Develop Gentle, Resilient, and Reversible Tags*, HARVARD SCH. OF ENG'G AND APPLIED SCIS. (Mar. 26, 2024), https://seas.harvard.edu/news/2024/03/using-suction-cups-inspired-fish-listen-whale-conversations; *see generally* Alyssa M. Hernandez et al., *Stickiness in Shear: Stiffness, Shape, and Sealing in Bioinspired Suction Cups Affect Shear Performance on Diverse Surfaces*, 19 BIOINSPIRATION & BIOMIMETICS 1 (2024); Alyssa M. Hernandez et al., *Bioinspired Surface Structures for Added Shear Stabilization in Suction Discs*, 15 SCI. REPS. 1 (2025).

24. Andreas et al., *supra* note 21, at 7-9 (describing recording equipment and process); Ninad Jadhav et al., *Reinforcement Learning-Based Framework for Whale Rendezvous Via Autonomous Sensing Robots*, 9 SCI. ROBOTICS 1, 2-5 (2024) (describing the various sensors used).

25. Andreas et al., *supra* note 21, at 7-9 (describing recording equipment and process); Avid Abu et al., Multiple Mobile Target Detection and Tracking in Small Active Sonar Array, 17(11) REMOTE SENSING 1, 1-3 (2025) (discussing CETI's gliders).

26. For more information, see Andreas et al., *supra* note 21; SHAFI GOLDWASSER ET AL., A THEORY OF UNSUPERVISED TRANSLATION MOTIVATED BY UNDERSTANDING ANIMAL COMMUNICATION (2023), https://openreview.net/pdf?id=DP2lioYIYl; Ninad Jadhav et al., *Reinforcement Learning–Based Framework for Whale Rendezvous Via Autonomous Sensing Robots*, 9 SCI. ROBOTICS 1 (2024).

27. Yann LeCun et al., *Deep Learning*, 521 NATURE 436, 436 (2015).

the rise of deep learning.[28] A primary advantage of AI technology is its capacity to uncover patterns that human researchers might miss due to anthropocentric biases.[29] Among the most powerful subtypes of advanced machine learning are unsupervised and generative AI models. Unsupervised learning uses unlabeled data to discover structure in the inputs; generative learning means that the model learns to autonomously generate data.[30] By employing these AI models, Project CETI is better able to set aside anthropocentric biases as it attempts to decode sperm whale communication.

Project CETI's impact is likely to extend beyond the scientific community. Project CETI is situated within a diverse landscape of scientists and organizations who utilize advanced machine learning and are engaged in multifaceted efforts to better understand animal behavior, characteristics, emotions, capacities, consciousness, intelligence, and communication.[31] These organizations and individuals employ a variety of methodologies and their investigations encompass a wide range of nonhuman animals, from birds and bees to domestic pets and farm animals.[32] The diverse efforts being made to unravel the mysteries of nonhuman animal communication and cognition underscores the significance of this field of study. For the purposes of this Article, we focus on Project CETI's efforts.

If the story of Roger and Katy Payne's *Songs of the Humpback Whale* in the 1970s provides any analogical instruction, Project CETI's intended findings could dramatically alter public sentiment about cetaceans[33] and, in turn, influence the legal landscape. Roger Payne, an acoustic biologist, began his career when unrestricted commercial whaling was decimating cetacean populations.[34] Determined to study whales, Roger and Katy Payne soon found themselves in Bermuda listening to hours of eerie sounds recorded by Navy

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28. LeCun, Bengio, & Hinton describe deep learning as a "class of techniques" within machine learning that uses several layers of representation to learn from data. *Id*.

29. *See, e.g.*, Andreas et al., *supra* note 21, at 4; Gašper Beguš et al., *Vowels and Dipthong-like Spectral Patterns in Sperm Whale Codas* 4-5 (Open Mind, 2024) [hereinafter Beguš et al., *Vowels and Diphthongs*]; Gašper Beguš et al., *Approaching an Unknown Communication System by Latent Space Exploration and Causal Inference* 2 (ArXiv, 2023) [hereinafter Beguš et al., *Approaching an Unknown Communication System*].

30. KEVIN P. MURPHY, MACHINE LEARNING: A PROBABILISTIC PERSPECTIVE 9 (2012) (describing unsupervised learning); IAN GOODFELLOW, NIPS 2016 TUTORIAL: GENERATIVE ADVERSARIAL NETWORKS 2-3 (2017) (describing generative models and how they generate data).

31. Parshley, *supra* note 7(describing the various institutions, organizations, and individuals involved in efforts to decode animal communication).

32. *Id*.

33. *See generally* Alaina Claire Feldman, *Minor Listening, Major Influence: Revisiting Songs of the Humpback Whale*, 118 E-FLUX J. 1 (2021).

34. *See, e.g.*, REMINGTON KELLOGG, WHALES, GIANTS OF THE SEA: WONDER MAMMALS, BIGGEST CREATURES OF ALL TIME, SHOW TENDER AFFECTION FOR YOUNG, BUT CAN MAIM OR SWALLOW HUMAN HUNTERS 38-40 (1940) (on file with author) (describing the speed of whaling in 1940 as "appalling," "in excess of the natural rate of reproduction," and resulting in regional depletions).

engineer Frank Watlington.[35] Watlington eventually gifted the Paynes hundreds of hours of recordings with one simple request: "Go save the whales."[36] Roger Payne and fellow scientist Scott McVay would go on to publish a landmark paper in *Science* describing how whales strung together intricate sounds with complex structure and rhythm.[37] Using the then-controversial term "songs" to describe the varied sounds that were repeated with "considerable precision," this novel observation challenged the prevailing notion that whale sounds were merely random.[38]

In 1970, the Paynes produced Watlington's recordings as a musical album, *Songs of the Humpback Whale,* and sparked a cultural phenomenon culminating in revolutionary legal protections for marine mammals. The album became the soundtrack for the "Save the Whales" movement, "one of the most successful conservation initiatives in history,"[39] which contributed to highly influential domestic and international legislation. For example, in 1972, Congress passed the Marine Mammal Protection Act (MMPA), marking the end of commercial whaling in the United States.[40] Additionally, in 1982, the International Whaling Commission instituted a temporary moratorium on commercial whaling, pausing the practice across most oceans.[41] Today, "no marine mammal species has gone extinct in U.S. waters since the MMPA was enacted," and the commercial whaling moratorium remains in effect, albeit with a few countries continuing the practice.[42]

In what would become Roger Payne's final publication before his passing in 2023, he issued a call to action:

> Fifty years ago, people fell in love with the songs of humpback whales, and joined together to ignite a global conservation movement. It's time for us to once again listen to the whales—and, this time, to do it with every bit of empathy and ingenuity we can muster so that we might possibly understand them.[43]

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35. BAKKER, *supra* note 8, at 21.

36. *Id*.

37. *Id*. at 22.

38. *Id*. (internal quotations omitted).

39. Roger Payne, *I Spent My Life Saving the Whales. Now They Might Save Us*, TIME (June 5, 2023), https://time.com/6284884/whale-scientist-last-please-save-the-species.

40. *Id*.; Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h.

41. Jennifer Mishler, *Whale Hunting Still Exists in 3 Countries, but It Is Declining*, SENTIENT MEDIA (Sept. 1, 2023), https://sentientmedia.org/whale-hunting; INT'L WHALING COMM'N, CHAIRMAN'S REPORT OF THE 34TH MEETING 21 (1982), https://iwc.int/document_3719.

42. Sarah Sharp, *Celebrating 50 Years of the Marine Mammal Protection Act in the US*, IFAW (Oct. 19, 2022), https://www.ifaw.org/journal/50-years-of-mmpa; Mishler, *supra* note 40.

43. Payne, *supra* note 39.

Project CETI, of which the late Roger Payne was a principal advisor, endeavors to heed this call. If Project CETI and other initiatives succeed, how might the legal terrain be reshaped? This Article explores this question in two parts. While this Article puts forth a capacious proposition—that the discovery and translation of language in nonhuman animals could catalyze legal reforms—it does so through explorations pertinent to cetaceans. Drawing on the scientific community's current understanding of cetacean behaviors, needs, abilities, and suffering, Project CETI's significant progress with sperm whales, and current laws and jurisprudence, we assess the practical contributions that discovery and translation of whale language may offer. Through a case study of cetaceans, we concretize the argument that the field of bioacoustics and AI-assisted translation technologies may bring about legal change for nonhuman animals more generally.

Part II asks: What if it were proved that cetaceans have the *capacity*[44] for language? This Part establishes why this would be a first-of-its-kind scientific discovery and how such a finding might result in significant changes in law. Proving cetaceans have a capacity for language would fundamentally disrupt the field of linguistics, which currently believes language to be the singular providence of humans.[45] Taking instruction from research into nonhuman great apes' language capacities, this Part also examines historical instances where scientific discoveries about great apes' capacities have shifted societal perceptions, spurred advocacy efforts, and led to legal reforms. But given how much the scientific community and society already knows about cetaceans, only proving a *capacity* for language might be insufficient for legal change. Nevertheless, these historical examples illustrate that a deep understanding of nonhuman animal capacities (e.g., intelligence, sentience, tool use, social learning) can galvanize legal protections and set a solid foundation for tangible progress from which to explore the more groundbreaking change analyzed in Part III.

Part III asks: What if humans understood the *content* of whale communication? Current knowledge of cetacean capacities, needs, and suffering

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44. "Capacity" is used throughout the Article to refer to capabilities; in other words, the power or ability to do something. "Capacities" is often used by scholars and courts in a similarly synonymous fashion. *See, e.g.*, *Animal Cognition*, STANFORD ENCYCLOPEDIA OF PHIL. (Mar. 8, 2021), https://plato.stanford.edu/entries/cognition-animal (noting how animal cognition research has resulted in claims about "animal capacities" including capabilities like sociality, addition and subtraction, mirror self-recognition, and empathy); Nonhuman Rts. Project, Inc. v. Breheny, 38 N.Y.3d 555, 571 (2022) (using the terminology "capacity for" to discuss the capability for "autonomy, intelligence, and emotion"). Capacities in all animals, including humans, can run the gamut from technical capabilities like the ability to make and use tools, to cognitive capabilities like social learning and episodic memory. The authors herein invoke "capacities" as a capacious term that can refer to various capabilities.

45. *See generally* STEVEN PINKER, THE LANGUAGE INSTINCT: HOW THE MIND CREATES LANGUAGE (Harper Perennial Modern Classics ed., 2007).

has proved insufficient to protect them from the harms that humans directly (e.g., captivity, pollution, habitat destruction, vessel strikes, bycatch, commercial whaling) and indirectly (e.g., climate change) impose.[46] That we know of the harm humans exact on cetaceans is undeniable. That we appreciate and understand the magnitude and experience of this harm is debatable. Understanding the content of whale communication may also be insufficient for change. Nevertheless, it could usher in a world in which humans undeniably understand cetaceans' experience *from the latter's perspective*. An understanding of cetaceans' communications could, *inter alia*, provide new insight into behavioral and migration patterns, the degree of suffering or harm experienced, the quality of familial relationships and obligations assumed, the impact of anthropogenic and non-anthropogenic activities, and the purpose of currently unexplained behaviors. Such insights could provide a groundwork for new laws and inform how existing laws regulate actions that impact cetaceans.

The forward-looking analysis found in Part III proceeds in three Subparts. First, it assesses how a novel understanding of cetacean communication could improve regulation of chronic underwater noise pollution under the Endangered Species Act (ESA) and the MMPA. The statutes and caselaw on incidental take and harassment suggest that a novel understanding of cetacean communication could support greater enforcement by both federal agencies and advocates. Second, it considers how this understanding may catalyze new rights for cetaceans, taking instruction from historical examples of convergences between the human and nonhuman animal legal subjects. Rooted in this precedent, this Article then uses existing human rights law to explore the potential for two new convergences: the right to be free from torture and the right to participate in cultural life. Third, this Article explores how such an understanding might spark a fundamental transformation of the station that cetaceans occupy under the law—from property to legal personhood. Taking account of prior cases in the fight for legal personhood, we consider how understanding the content of cetacean communications might address current legal roadblocks and inspire initiatives for personhood recognition.

Our discussion of the possibilities of animal communication studies is not exhaustive. It intentionally focuses on the opportunities they present for the protection of nonhuman animals and does not delve into the equally important question of the potential risks they may pose to their subjects.[47] Notwithstanding this analytical choice, this Article seeks to imagine and explore an immense, new

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46. *Infra* notes 154-157, 163-174, 299-303, 310-320 and accompanying text; Celine van Weelden et al., *Impacts of climate change on cetacean distribution, habitat and migration*, 1 CLIMATE CHANGE ECOLOGY 100009 (2021) (reviewing the literature on the impacts of climate change on cetaceans).

47. *See, e.g.,* Mark Ryan & Leonie N. Bossert, *Dr. Doolittle Uses AI: Ethical Challenges of Trying to Speak Whale*, 295 BIOLOGICAL CONSERVATION 1, 4-8 (2024) (discussing the potential emotional, physical, and cultural harm caused to whales from humans speaking to them in their language).

legal world. While it focuses on the nonhuman animals whose communications have received extensive scientific attention (sperm whales) and the initiative that has gone the farthest in understanding their complex structure (Project CETI), it is meant to illuminate the legal implications of the growing number of studies on nonhuman animals—from birds to elephants and countless others.[48] We invite you to imagine and explore this emerging legal landscape with us.

I. WHAT IF IT WAS PROVED THAT CETACEANS HAVE THE *CAPACITY* FOR LANGUAGE?

In this Part, we explore the potential implications of scientific proof that cetaceans possess the capacity for language. This would be a first-of-its-kind scientific discovery that would profoundly disrupt current linguistic theories, which have long regarded language as a uniquely human trait.[49] We begin with an overview of expert conceptions of "language" and the ways certain composite elements of language are thought to be exclusive to humans. This theoretical framework is then placed in the nonhuman animal context, with a focus on both advances in decoding cetacean communication and how various elements of language are indeed possessed by nonhuman animals.

Project CETI's progress toward understanding sperm whale communication offers promising evidence that confirming the linguistic abilities of cetaceans, and perhaps even deciphering their content, is within reach in the near future. Against this backdrop, we draw lessons from historical examples where scientific breakthroughs regarding the capacities of nonhuman great apes have shaped societal perceptions, galvanized advocacy efforts, and catalyzed legal reforms. We end Part II by analyzing whether the same may be true for cetaceans.

A. Science is Trending Toward Proving Cetaceans' Capacity for Language

Despite evidence of language-like abilities in animal communication, mainstream linguistics continues to treat language as a defining and unique trait of human beings.[50] Substantial new developments, however, suggest that human language should be studied in relation to other intelligence and communication

48. Lois Parshley, *Artificial Intelligence Could Finally Let Us Talk with Animals*, SCI. AM. (Oct. 1, 2023), https://www.scientificamerican.com/article/artificial-intelligence-could-finally-let-us-talk-with-animals (describing the various institutions, organizations, and individuals involved in efforts to decode animal communication).

49. *See generally* STEVEN PINKER, THE LANGUAGE INSTINCT: HOW THE MIND CREATES LANGUAGE, *supra* note 45.

50. *See generally* Jessica F. Cantlon & Steven T. Piantadosi, *Uniquely Human Intelligence Arose from Expanded Information Capacity*, 3 NATURE REVS. PSYCH. 275 (2024) (describing how expansion of cognition can lead to the emergence of human intelligence).

systems.[51] Advances in robotics and recording devices have enabled new empirical evidence to be gathered from animal communication,[52] and AI is poised to disrupt the field further.[53] What it means to have language and how language defines humanity are highly complex questions that may require us to, perhaps for the first time, investigate three mutually informative intelligences: humans, nonhuman animals, and machines.[54]

What language is, what is uniquely human about language, and how language evolved have been subjects of much debate.[55] Two opposing positions have formed. Some scientists assume that human language requires several language-specific mechanisms unique to humans.[56] In this view, there is little to no continuity between nonhuman animal communication and language, so human language and nonhuman animal communication operate with radically different mechanisms and properties.[57] Other scientists see language as a result of the general expansion of human cognitive capacity.[58] With increasing human brain size and corresponding increases in processing power, language could have evolved by combining several principles that previously existed in other nonhuman animals.[59] Under this view, the capacity for language exists along a continuum, with properties of human language analyzed as parallels to nonhuman animal communication systems.[60] The idea that language development does not require uniquely human properties becomes increasingly important as legal boundaries expand to include nonhuman species.

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51. *See generally* Donna M. Goldstein & Kira Hall, *Darwin's Hug: Ideologies of Gesture in the Science of Human Exceptionalism* 11 HAU: J. ETHNOGRAPHIC THEORY 693 (2021) (reevaluating scholarly interpretations of the hug as a gesture in great apes and humans to question human exceptionalism in this area of research).

52. Sophie Bushwick, *How Scientists Are Using AI to Talk to Animals*, SCI. AM. (Feb. 7, 2023), https://www.scientificamerican.com/article/how-scientists-are-using-ai-to-talk-to-animals.

53. Andreas et al., *supra* note 21.

54. *See generally* MEGHAN O'GIEBLYN, GOD, HUMAN, ANIMAL, MACHINE: TECHNOLOGY, METAPHOR, AND THE SEARCH FOR MEANING (2021) (exploring how advances in artificial intelligence put into question what is unique about human beings).

55. *See* Mélissa Berthet, et al., *Animal Linguistics: A Primer*, 98 BIOLOGICAL REVS. 81, 82 (2023); *see generally* Morten H. Christiansen & Simon Kirby, *Language Evolution: The Hardest Problem in Science?*, *in* LANGUAGE EVOLUTION (Morten H. Christiansen & Simon Kirby eds., 2003).

56. Steven Pinker & Ray Jackendoff, The Faculty of Language: What's Special About It?, 95 COGNITION 201, 201-04 (2005).

57. Noam Chomsky, *Three Factors in Language Design*, 36 LINGUISTIC INQUIRY 1, 1-2 (2005)

58. *See generally* Shigeru Miyagawa et al., *The Integration Hypothesis of Human Language Evolution and the Nature of Contemporary Languages*, 5 FRONTIERS PSYCH. 1 (2014); Cantlon & Piantadosi, *supra* note 50.

59. *See generally* Miyagawa, *supra* note 58.

60. W. TECUMSEH FITCH, THE EVOLUTION OF LANGUAGE 18 (2010) ("Indeed, once we break language into subcomponents, and cast our comparative net widely, we discover that most aspects of language are present in one species or another.").

To understand whether language extends beyond humans, we next analyze design features of human language and consider which properties are present in other species and which are uniquely human.[61] Several prominent design features of human language have been observed in nonhuman animal communications,[62] including the use of symbols,[63] semantic form-meaning pairs (i.e., the association between signals and actions they invoke),[64] complex vocalizations,[65] basic structure (i.e., signals being composed of distinct building blocks),[66] and compositionality (i.e., the ability to combine meanings or two or more signals predictably).[67] Only several uniquely human features remain, such as (1) recursion, or the ability to embed an element into another element of the same type, and (2) metalinguistic ability, which enables reasoning and analysis of language itself.[68] Recent evidence suggests, however, that some nonhuman animals are capable of recursive processing.[69]

Sperm whales are remarkably similar to humans in their social structures and the way they acquire their communication system—the so-called codas.[70]

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61. *See generally* Charles F. Hockett, *The Origin of Speech*, 203 SCI. AM. 88 (1960); Charles F. Hockett & Stuart A. Altmann, *A Note on Design Features*, *in* ANIMAL COMMUNICATION: TECHNIQUES OF STUDY AND RESULTS OF RESEARCH (Thomas Sebeok ed., 1968).

62. *See generally* Edward Kako, *Elements of Syntax in the Systems of Three Language-Trained Animals,* 27 ANIMAL LEARNING BEHAV 1 (1999).

63. E. Sue Savage-Rumbaugh et al., *Language Comprehension in Ape and Child*, 58 MONOGRAPHS SOC'Y FOR RSCH. CHILD DEV., 6-11, 106 (1993).

64. Robert M. Seyfarth et al., *Monkey Responses to Three Different Alarm Calls: Evidence of Predator Classification and Semantic Communication*, 210 SCI. 801, 802-03 (1980); Zanna Clay & Klaus Zuberbühler, *Bonobos Extract Meaning from Call Sequences*, 6 PLOS ONE 1, 3 (2011).

65. Carel ten Cate & Kazuo Okanoya, *Revisiting the Syntactic Abilities of Non-Human Animals: Natural Vocalizations and Artificial Grammar Learning*, 367 PHIL. TRANSACTIONS: BIOLOGICAL. SCIS. 1984, 1986-87 (2012); D. K. Patterson & I. M. Pepperberg, *A Comparative Study of Human and Parrot Phonation: Acoustic and Articulatory Correlates of Vowels*, 96 J. ACOUSTICAL SOC'Y AMERICA 634, 644-45 (1994).

66. Gillian Sebestyen Forrester, *A Multidimensional Approach to Investigations of Behaviour: Revealing Structure in Animal Communication Signals*, 76 ANIMAL BEHAV. 1749, 1756-57 (2007).

67. Philippe Schlenker et al., *What Do Monkey Calls Mean?*, 20 TRENDS COGNITIVE SCIS. 894, 897 (2016).

68. Marc D. Hauser et al., *The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?*, 298 SCIENCE 1569 (2002) (hypothesizing that recursion is the only uniquely human component of the faculty of language); Frederick L. Coolidge et al., *Recursion: What Is It, Who Has It, and How Did It Evolve?*, 2 WIREs COGNITIVE SCI. 547, 547, 550 (2011) (noting that recursion is unique to human language and generally defining linguistic recursion as "embedding a phrase within another phrase"); INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL & BEHAVIORAL SCIENCES 1174 (Neil J. Smelser & Paul B. Baltes eds., 2001) ("Metalinguistic awareness . . . may be defined as an individual's ability to focus attention on language as an object in and of itself, to reflect upon language, and to evaluate it."); Courtney B. Cazden, *Play with Language and Metalinguistic Awareness: One Dimension of Language Experience,* 6 INT'L J. EARLY CHILDHOOD 12, 12-13 (1974). For recursive abilities of large language models, *see generally* Beguš et al., *Large Linguistic Models: Investigating LLMs' Metalinguistic Abilities*, IEEE TRANSACTIONS ON ARTIFICIAL INTELLIGENCE (2025).

69. *See, e.g.*, Diana A. Liao et al., *Recursive Sequence Generation in Crows*, 8 SCI. ADVANCES 1, 5-7 (2022).

70. *See infra* notes 85-87 and accompanying text.

Culture and cultural transmission play an important role in language acquisition for human and nonhuman animals alike. For instance, humans do not develop language proficiency unless they are extensively exposed to language from an early age.[71] Intergenerational language transmission shapes the very design of language. While the longevity of the sperm whale has not been extensively studied due to the challenge of tracking them through the ocean across decades,[72] studies of other whale species have found extensive lifespans. The bowhead whale, for example, can live to approximately 211 years of age, making them among the longest-lived mammals.[73] This long lifespan allows for extensive multi-generational transmission of their communication and culture. Whitehead and colleagues have shown that sperm whales have their own culture,[74] in many ways akin to human cultures, which contributes to the development of communication.

Female sperm whales form complex matrilineal societies with cultural practices, such as expressing clan identity through their vocal communication.[75] Mothers give cooperative births, babysit each other's newborns, and nurse their offspring for up to thirteen years.[76] During that time, the young undergo a period of babbling before fully developing their vocal abilities, parallel to human infants acquiring spoken language.[77] Sperm whale coda vocalizations occur primarily before foraging and during socialization,[78] but also during events such as the birth of a new whale.[79] Unlike many other complex nonhuman animal vocalizations, sperm whales do not primarily communicate as a function of

71. *See generally* James R. Hurford, *The Evolution of the Critical Period for Language Acquisition,*40 COGNITION 159 (1991).

72. Samuel Ellis et al., *Bayesian Inference of Toothed Whale Lifespans*, 145(1) BIO. J. LINNEAN SOC'Y 1, 1 (2025) ("Toothed whales (Odontocetes) are difficult to follow longitudinally through their life owing to both their wide-ranging habits in marine habitats and, in at least some species, their extreme longevity.").

73. *See generally* Michael Keane et al., *Insights into the Evolution of Longevity from the Bowhead Whale Genome*, 10 CELL REPS. 112 (2015) (using genomic estimations of genes related to longevity).

74. Philip Hoare & Hal Whitehead, *The Cultural Life of Whales*, THE GUARDIAN (Jan. 29, 2011), https://www.theguardian.com/science/2011/jan/30/whales-philip-hoare-hal-whitehead.

75. *See generally* Shane Gero et al., *Individual, Unit and Vocal Clan Level Identity Cues in Sperm Whale Codas*, 3 ROYAL SOC'Y OPEN SCI. 1, (2016); Taylor A. Hersh et al., *Evidence from Sperm Whale Clans of Symbolic Marking in Non-Human Cultures*, 119 PNAS 1 (2022).

76. Allie Yang, *This Video Captures a Rarely Seen Sperm Whale Birth. It's Beautiful*., NAT'L GEOGRAPHIC (Aug. 31, 2023), https://www.nationalgeographic.com/animals/article/sperm-whale-birth-dominica (birth); Shane Gero et al., *Calves as Social Hubs: Dynamics of the Social Network Within Sperm Whale Units*, 280 PROC.: BIOLOGICAL SCIS. 1, 7-8 (2013) (babysitting); HAL WHITEHEAD, SPERM WHALES: SOCIAL EVOLUTION IN THE OCEAN 11-12 (2003) (duration of mother-calf relationship and suckling).

77. Gero et al., *supra* note 76, at 10.

78. Tyler M. Schulz et al., *Overlapping and Matching of Codas in Vocal Interactions Between Sperm Whales: Insights into Communication Function*, 76 ANIMAL BEHAV. 1977, 1984 (2008).

79. Yang, *supra* note 76.

mating.[80] Thus, their communication system has the potential to carry complex referential meaning, similar to human language.

Human language provides a helpful point of comparison for discussing our present understanding of sperm whale communication. Human language is characterized by discrete elements that build higher-level representations in a structured way. For example, the English word "pit" consists of three discrete units (phonemes): [p], [i], and [t]. Put together, they form a word with a clearly defined meaning. If we change one element, the meaning changes: "pat."[81] While still in its early stages, the CETI team has identified evidence suggesting that the sperm whale communication system also consists of discrete elements that are highly combinatorial[82] and exchanged in highly controlled dialogues.[83] Compared to other nonhuman animal communication systems, sperm whale codas appear more discrete and structured.[84]

Sperm whales produce clicks with their "phonic lips"[85] in recognizable patterns called codas. Codas are groups of about two to forty clicks and can often be identified by the number and timing of the clicks.[86] For example, one coda type consists of five clicks with the first two clicks spaced apart and the last three clicks closer together in time, represented as the 1+1+3 types.[87] In a recent breakthrough, scientists discovered that these traditionally described elements are more expressive than previously thought: Codas are combinatorial, and thus,

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80. Linda Weilgart & Hal Whitehead, *Coda Communication by Sperm Whales (Physeter Macrocephalus) Off the Galápagos Islands*, 71 CANADIAN J. ZOOLOGY 744, 751 (1993).

81. Charles F. Hockett, *The Origin of Speech*, 203(3) SCI. AM. 88, 90-92, 96 (1960).

82. Pratyusha Sharma et al., *Contextual and Combinatorial Structure in Sperm Whale Vocalisations*, 15 NATURE COMMC'NS 1, 5-7 (2024); Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 16.

83. *See generally* Schulz et al., *supra* note 78.

84. Sharma et al., *supra* note 82, at 5-7; Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 4; Gašper Beguš et al., *The Phonology of Sperm Whale Coda Vowels*, BIORXIV 1 (2025), (demonstrating that "sperm whale vocalizations are highly complex and likely constitute one of the most sophisticated communication systems in the animal kingdom" in addition to representing "one of the closest parallels to human phonology of any known animal communication system").

85. Phonic lips are a connective tissue structure located inside the nose of toothed whales. To communicate under the pressure of water, whales open a valve on a small muscular pouch located inside the mouth, causing high pressure air to pass through the phonic lips. This air, in turn, causes the lips to slap back and produce a distinctive click sound. Hannah Devlin, *Whales Use 'Phonic Lips' in Nose to Make Loudest Sounds of Any Animal, Say Scientists*, THE GUARDIAN (Mar. 2, 2023), https://www.theguardian.com/environment/2023/mar/02/whales-use-phonic-lips-in-nose-to-make-loudest-sounds-of-any-animal-say-scientists; Stefan Huggenberger et al., *The Nose of the Sperm Whale: Overviews of Functional Design, Structural Homologies and Evolution*, 96 J. MARINE BIOLOGICAL ASS'N UNITED KINGDOM 783, 783 (2016).

86. Weilgart & Whitehead, *supra* note 80, at 744; Andreas et al., *supra* note 21, at 5.

87. Shane Gero et al., *Socially Segregated, Sympatric Sperm Whale Clans in the Atlantic Ocean*, 3 ROYAL SOC'Y OPEN SCI. 1, 3 (2016); *see also* Weilgart & Whitehead, *supra* note 80, at 745-46 (describing other coda types).

even closer to human language.[88] Based on the combinatorial principle, researchers have proposed a "sperm whale phonetic alphabet."[89]

On the surface, sperm whale codas and their traditionally analyzed features look nothing like human spoken language. However, AI-assisted research[90] has revealed a striking parallel between human speech and sperm whale codas: Codas are highly analogous to human vowels.[91] The crucial step in this discovery was to change the perspective of timing: Human vowels have high frequencies (rapid vibration), while whales vocalize in low frequencies (meaning vibrations of their phonic lips are far apart).[92] When recordings of clicks are sped up, parallels to human vowels become apparent. As humans, we distinguish vowels in speech by changing the shape of our speech organs, resulting in various resonant frequencies. Sperm whales perform a similar process: Two vowel patterns have been observed (the so-called a-coda vowel and the i-coda vowel) along with several diphthongal patterns (where the resonant frequencies have a rising or falling shape).[93] These coda vowels both resemble human vowels acoustically and also behave similarly to human vowels in several aspects.[94] This discovery illustrates that stepping out of our human biases is crucial for finding patterns analogous to human language in nonhuman animals.

Not only are these coda vowels acoustically similar to human vowels, but whales and humans also have similar mechanisms to produce sounds. Whales produce sound using phonic lips and then modulate the frequency using an air sac inside their nose complex.[95] Humans produce sound using vocal folds and modulate the frequency using a vocal tract.[96] These whale coda vowels freely combine with traditional coda types, similarly to how human languages combine tones with different vowels.[97] This means that the expressivity and complexity

88. Sharma et al., *supra* note 82, at 1-2.

89. *Id*. at 2.

90. Beguš et al., *Approaching an Unknown Communication System*, *supra* note 29, at 9; *see also* Gašper Beguš, *Generative Adversarial Phonology: Modeling Unsupervised Phonetic and Phonological Learning With Neural Networks*, 3 FRONTIERS A.I. 1, 18-19 (2020) (describing the AI interpretability technique that facilitated the discovery of vowels in sperm whales).

91. Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 2-3.

92. *Id.*

93. *Id.* at 6-10.

94. Beguš et al., *The Phonology of Sperm Whale Coda Vowels*, *supra* note 84, at 2.

95. Ted W. Cranford, *The Sperm Whale's Nose: Sexual Selection on a Grand Scale?*, 15 MARINE MAMMAL SCI. 1133, 1147-48 (1999), Huggenberger et al., *supra* note 85, at 795; Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 2.

96. *How Do Marine Mammals Produce Sounds?*, DISCOVERY OF SOUNDS IN THE SEA, https://dosits.org/animals/sound-production/how-do-marine-mammals-produce-sounds (last visited June 8, 2024).

97. Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 2-3.

of codas rank among the highest of any vocal communication system in the animal kingdom.[98]

Scientists have identified sperm whales' ability to exchange discrete, combinatorial vocal elements that are akin to human speech, but discerning whether whales attach meaning to their vocalizations remains a challenge. One important difference between human speech and sperm whale vocalizations is that human speech definitively carries referential meaning[99]—the words "pit" and "pat" convey different semantic content—while the same has not yet been established in sperm whale codas. While the semantic content of codas has not yet been established, researchers have convincingly shown that codas carry social meaning.[100] Humans use speech to express both meaning and social identity. When we articulate the three phonemes that constitute the word "pit," we not only convey its semantic content but also unveil various facets of our social identities, including gender, socioeconomic status, geographical origin, and more. Sperm whales utilize different identity coda types to mark their belonging to a clan.[101] Moreover, their dialects[102] increase in distinctness in areas of the ocean where different groups frequently come in contact.[103] This fine-grained social and cultural behavior again has analogs to human language behavior: Humans use phonetic markers to signal social identity or attitude towards social identities.[104]

Our present understanding of sperm whale communication gives cause for optimism that proving cetaceans' linguistic capacities, and potentially understanding their content, is within reach. Indeed, the first translative model for sperm whale communication is now allowing humans to interact with and experience the complexity of sperm whales communication in an in-silico setting.[105] Nevertheless, three important disclaimers must be noted when studying nonhuman animal language ability. First, a failure to prove language does not demonstrate its nonexistence. Second, because cetaceans and humans inhabit significantly different environments and possess varying worldviews,

98. Beguš et al., *The Phonology of Sperm Whale Coda Vowels*, *supra* note 84, at 10; Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 1.

99. Christine Sievers & Thibaud Gruber, *Reference in Human and Non-Human Primate Communication: What Does It Take to Refer*? 19 ANIMAL COGNITION 759, 759-60 (2016).

100. L.E. Rendell & H. Whitehead, *Vocal Clans in Sperm Whales (Physeter Macrocephalus),* 270 PROC.: BIO. SCIS. 225, 228-29 (2003).

101. Taylor A. Hersh et al., *Cetaceans Are the Next Frontier for Vocal Rhythm Research*, 121 PNAS 1, 4 (2024).

102. Rendell & Whitehead, *supra* note 100, at 225-26; Gero et al., *supra* note 76, at 2; Hersh et al., *supra* note 75, at 5-6.

103. Hersh et al., *supra* note 75.

104. *See generally* MARGARET JANE PITTS & CINDY GALLOIS, SOCIAL MARKERS IN LANGUAGE AND SPEECH (2019).

105. Orr paradise et al., *Towards a Translative Model of Sperm Whale Vocalization*, NEURIPS (forthcoming 2025) (on file with author).

estimating language is particularly difficult. Finally, a failure to prove language does not bear on cetaceans' intelligence or ability to engage in complex thoughts.

First, an apparent lack of language in nonhuman animals may reflect human perception limitations rather than actual communicative capabilities of the nonhuman animals.[106] Historically, researchers have recorded nonhuman animal linguistic abilities and intelligence only after nonhuman animals were able to transmit their intelligence via a human language. Two cases of linguistically trained nonhuman animals illustrate this point. Bonobos and chimpanzees were considered to have a simple communication system in the wild until people started teaching them human languages; consider Kanzi, a male bonobo, who demonstrated language skills comparable to a two-year-old human child.[107] Research now demonstrates that the communication systems of bonobos and chimpanzees in the wild are much more complex than previously thought.[108] Similarly, Alex, an African Gray parrot, learned to imitate human language to near perfection and to use those imitations to elicit human responses.[109] While experiments training nonhuman animals in human language illustrate some species' impressive ability to communicate using a highly complex, foreign language, humans, have not yet achieved the same in nonhuman animal parlance. Should Project CETI or other efforts be unable to establish nonhuman animal language capacity, such failure may merely reflect human limitations, rather than an actual absence of capacity for language.

Second, estimating cetacean intelligence and language abilities is particularly difficult because their world and habitats are in many ways different from those of humans. While humans share habitats with elephants, primates, and, at least to some degree, birds, cetaceans inhabit an aquatic world that creates substantial differences in terms of buoyancy and the shape and functionality of their bodies. Further, cetaceans do not have the many fine motor skills that enable non-vocal communication, such as primates' complex hand gestures, elephants' ear and trunk movement, or many terrestrial mammals' sensitive olfactic

106. *See generally* W. Tecumseh Fitch, *Animal Cognition and the Evolution of Human Language: Why We Cannot Focus Solely on Communication*, 375 PHIL. TRANSACTIONS B 1 (2019).

107. Savage-Rumbaugh, *supra* note 63, at 18.

108. Catherine Hobaiter & Richard W. Byrne, *The Meanings of Chimpanzee Gestures*, 24(14) CURRENT BIO. 1596 (2014) (presenting the first systematic study of meaning in chimpanzee gestural communication and a partial lexicon of gestures); Catherine Crockford & Christophe Boesch, *Call Combinations in Wild Chimpanzees*, 142(4) BEHAVIOUR 397 (2005) (demonstrating the complexity and importance of call combinations for chimpanzee communication and related implications for the evolution of human language); Melissa Berthet et al., *Extensive Compositionality in the Vocal Systems of Bonobos*, 388 SCIENCE 104 (2025) (demonstrating that bonobo vocalizations display nontrivial compositionality, a feature thought to be unique to humans).

109. *See generally* Irene M. Pepperberg, *Functional Vocalizations by an African Grey Parrot (Psittacus erithacus)*, 55 ZEITSCHRIFT FÜR TIERPSYCHOLOGIE 139 (1981).

communications.[110] Instead, below seven hundred meters, where the ocean is perpetually dark, whales use echolocation as a primary sense.[111] That being said, the ocean's sensory limitations may simplify the study of cetacean language capacity because it is likely that the majority of information is transmitted via sound.

Finally, it is important to note that cetaceans may have complex thoughts and intelligence, even if we cannot prove they have language in human terms. The relationship between language and thought is one of science's most intriguing questions.[112] Some scholars believe language and thought are intertwined,[113] while others believe that they are separate.[114] Our inner worlds revolve around things that are meaningful to us. Human language enables us to transform our complex thoughts into sounds or signs and convey meaning to other humans. The inner worlds of nonhuman animals are likely analogous: Their thoughts likely revolve around concepts that are meaningful to their species.[115] If and how their communication systems are able to transmit those thoughts is an open question. Understanding such a system could provide unprecedented insight into nonhuman animal cognition, but doing so will require us to step out of our human perceptual world.

Even the most complex communication systems evolved through less complex prior stages.[116] The ability to express inner thoughts to others is often closely related to intelligence. A condition for this communicative ability is that

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110. *See* Lisa Noelle Cooper et al., *Neuromuscular Anatomy and Evolution of the Cetacean Forelimb*, 290(9) ANATOMICAL RECORD 1121, 1126-28 (2007) (describing the structures and musculatures that cetaceans do not have in their forelimbs which limit agility and digital movements, therefore limiting non-verbal communication that relies on such fine motor skills); Annalisa Berta et al., *Review of the Cetacean Nose: Form, Function, and Evolution*, 297(11) ANATOMICAL RECORD 2205, 2205-15 (2014) (describing the unique anatomical and functional modifications of the cetacean nasal region, including the reduction in olfaction).

111. Karen Pryor, *Concluding Comments on Vision, Tactician And Chemoreception*, *in* SENSORY ABILITIES OF CETACEANS 561 (Jeanette A. Thomas & Ronald A. Kastelein eds., 1990); Kurt M. Fristrup & G. Richard Harbison, *How Do Sperm Whales Catch Squids?*, 18 MARINE MAMMAL SCI. 42, 43-44 (2002); *see also* Michael R. McGowen et al., *The Vestigial Olfactory Receptor Subgenome of Odontocete Whales: Phylogenetic Congruence Between Gene-Tree Reconciliation and Supermatrix Methods*, 57 SYSTEMATIC BIOLOGY 574, 574 (2008) (discussing how adult odontocetes lack olfactory structures).

112. *See generally* E. F. Konrad Koerner*, The Sapir-Whorf Hypothesis: A Preliminary History and a Bibliographical Essay,* 2 J. LINGUISTIC ANTHROPOLOGY 173 (1992) (describing the Sapir-Whorf hypothesis).

113. *See generally* Lila Gleitman & Anna Papafragou, *Language and Thought*, *in* THE CAMBRIDGE HANDBOOK OF THINKING AND REASONING (Keith J. Holyoak & Robert G. Morrison eds., 2005).

114. *See generally* Evelina Fedorenko & Rosemary Varley, *Language and Thought Are Not the Same Thing: Evidence from Neuroimaging and Neurological Patients*, 1369 ANNALS N.Y. ACAD. SCIS. 132 (2016); Evelina Fedorenko et al., *Language Is Primarily a Tool for Communication Rather than Thought*, 630 NATURE 575 (2024).

115. *See generally* DONALD R. GRIFFIN, ANIMAL MINDS: BEYOND COGNITION TO CONSCIOUSNESS (2nd ed., 2001).

116 . THE EMERGENCE OF PROTOLANGUAGE: HOLOPHRASIS VS COMPOSITIONALITY VII-XI (MICHAEL A. ARBIB & DEREK BICKERTON EDS., 2010).

the channel (e.g., human speech or sperm whale codas) is expressive enough to transmit complex messages. Human language evolved sometime after the evolutionary split from the last common ancestor six million years ago.[117]

Given that chimpanzees and bonobos have relatively simple vocalizations, some scholars hypothesize that an increase in complexity of our vocalizations—enabled by the descending of our larynx—was the necessary condition for human language evolution.[118] Project CETI's early results show that the sperm whale's transmission channel, coda vocalizations, is more complex than previously assumed. Sperm whales have something in the range of one hundred to five hundred distinct units of vocalization.[119] In a human language, this number would be determined by the number of sounds or words, whereas in whale communications, it is determined by distinctive coda timing and the number of clicks,[120] and the total number can increase up to fourfold or more by incorporating coda vowels and diphthongs.[121] Such a system has the capacity to express complex semantic content. Thus, as will be discussed in Part III.C, actions that disrupt whales' capacity to vocalize and hear vocalization likely interferes with the species' continued evolution. This is especially relevant because sperm whales have already evolved a sophisticated channel capable of transmitting complex communication.

Scientific discoveries seem to be trending toward proving a complex communication system in cetaceans with many parallels to human language. We now know that sperm whales communicate with a highly structured, discrete, combinatorial, and culturally learned vocal system that carries at least some social meaning. Modern technological capabilities and current findings draw us nearer to proving cetacean linguistic capabilities and comprehending their content. Such a groundbreaking scientific discovery would challenge the traditional demarcation between humans and nonhuman animals, and may further narrow the list of features considered uniquely human (i.e., recursion and metalinguistic ability).[122]

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117. *Id.*

118. Philip H. Lieberman et al., *Vocal Tract Limitations on the Vowel Repertoires of Rhesus Monkey and Other Nonhuman Primates*, 164 SCIENCE 1185, 1185 (1969); Philip Lieberman, *Vocal Tract Anatomy and the Neural Bases of Talking*,
40 J. PHONETICS 608, 609 (2012).

119. Sharma et al., *supra* note 82, at supplementary information 15; Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 2.

120. Sharma et al., *supra* note 82, at 2.

121. Beguš et al., *Vowels and Diphthongs*, *supra* note 29, at 17-18 (identifying two distinct vowels and at least two diphthongal patterns, thereby increasing the number of classes up to four times); *see also* Beguš et al., *The Phonology of Sperm Whale Coda Vowels*, *supra* note 98 (analyzing the distribution of vowels across traditional coda types).

122. *Supra* notes 55-63 and accompanying text; Leitao et al., *Evidence of Social Learning Across Symbolic Cultural Barriers in Sperm Whales* (eLife, 2024) (social learning).

While one cannot predict the consequences of such findings, it is safe to assume the implications will extend far beyond the realm of cetacean biology, with profound ramifications for disciplines including linguistics, nonhuman animal biology, ecology, ethology, law, and cognition. Part II.B explores the legal implications of proving cetaceans have the *capacity* for language. Part III in turn examines the legal implications of understanding the *content* of cetaceans' communications.

B. Proving Cetaceans have the Capacity for Language may have Significant Implications in Law

On multiple occasions, scientific findings on nonhuman animal capacities have influenced societal attitudes and shaped laws and policies governing their treatment.[123] Nonhuman great apes provide an instructive example. Scientific research has demonstrated that they possess self-awareness, make and use tools, have complex emotional intelligence, engage in social learning, communicate complex information and intentions, plan ahead, understand numbers, and develop culture, among many other capacities.[124]

This knowledge has led to increased recognition of the intelligence and sentience of great apes, in turn changing societal perceptions, fueling advocacy, and supporting legal changes originating from legislatures, administrative agencies, courts, and citizen initiatives alike. One notable example is the Great Ape Project, established in 1993 by philosophers Peter Singer and Paola Cavalieri.[125] The project endeavored to confer upon nonhuman great apes certain fundamental rights.[126] The project marshaled support from eminent primatologists and biologists like Robin Dunbar, Jared Diamond, and Jane Goodall, leveraging scientific insights into nonhuman primate capacities and their perceptible parallels with human attributes.[127] The project advocated for a United Nations Declaration on the Rights of Great Apes, stimulating significant societal discourse and inspiring legislative initiatives such as rights-granting resolutions by the Spanish Parliament and legal personhood in the Balearic Islands.[128]

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123. *See, e.g.*, *supra* note 10 and accompanying text; *infra* notes 124-132, 375-381. For a discussion of the authors' intended use of capacities see *supra* note 44.

124. *See, e.g.,* Lydia M. Hopper & Sarah F. Brosnan, *Primate Cognition*, NATURE EDUC. KNOWLEDGE PROJECT (2012), https://www.nature.com/scitable/knowledge/library/primate-cognition-59751723.

125. *See generally* THE GREAT APE PROJECT (Paola Cavalieri & Peter Singer eds., 1993); *see also* Paola Cavalieri, *The Meaning of the Great Ape Project*, 1 POL. & ANIMALS 16, 18 (2015).

126. THE GREAT APE PROJECT, *supra* note 124, at 4-7; Cavalieri, *supra* note 124, at 17-18.

127. THE GREAT APE PROJECT, *supra* note 124, at 10-18, 88-101, 109-12; Cavalieri, *supra* note 124, at 18.

128. Ann Druyan, *Planet of the Primates*, WASH. POST (Jan. 30, 1994), https://www.washingtonpost.com/archive/entertainment/books/1994/01/30/planet-of-the-

Evidence of human-like characteristics in nonhuman great apes has also influenced the regulation of nonhuman great ape research. A comprehensive literature review of the reasons advanced for restricting invasive research into nonhuman great apes demonstrates that "similarity to humans" and "cognitive and consciousness-related capacities" were the most commonly invoked by researchers advocating for restrictions.[129]These views have been translated into law. For example, the European Union and New Zealand have effectively banned nonhuman great ape research,[130] and in 2015, the U.S. National Institutes of Health (NIH) joined those governments by ending their support for all chimpanzee research.[131] While NIH's decision is not legislation, this federal, administrative policy change "virtually ended such research worldwide" given the NIH's international funding role.[132] The influence of scientific findings on cognitive capacities, including chimpanzees' likeness to humans, can be seen in

primates/9d6d9b87-3b44-492e-9d41-8409efab3ba6 (arguing that "the truth of our kinship with the great apes can no longer be denied" in light of the book's findings and that society must either "come up with better arguments to refute them or join the authors of this book in their call to establish legal consequences for our kinship [] our much-abused closest relatives"); Cavalieri, *supra* note 125, at 21-28 (describing the "fervent debate" prompted by the book); Emine Saner, *Will Chimps Soon Have Human Rights*?, THE GUARDIAN (Dec. 4, 2013), https://www.theguardian.com/world/shortcuts/2013/dec/03/chimpanzees-human-rights-us-lawyer (describing Spanish resolution and recognition in Balearic Islands).

129. Bernardo Aguilera et al., *Should Biomedical Research with Great Apes Be Restricted? A Systematic Review of Reasons*, 22 BMC MED. ETHICS 1, 6 (2021) (noting "moral standing" as the most frequently invoked category of reasons and "similarity to humans" and "cognitive conscious-related capacities" as the top two subdomains of that category).

130. Directive 2010/63/EU, of the European Parliament and of the Council of 22 September 2010 on the Protection of Animals Used for Scientific Purposes, 2010 O.J. (L 276) 18, (banning the use of great apes in research experiments across member states). In the European Union, an exception is provided for "the purposes of research aimed at the preservation of those species and where action in relation to a life-threatening, debilitating condition endangering human beings is warranted, and no other species or alternative method would suffice in order to achieve the aims of the procedure." *Id*. The exception is subject to the Commission's approval and great apes have not been used according to the data provided by the Commission for 2015-2022. Id.; Eu Statistics Database On The Use Of Animals For Scientific Purposes Under Directive 2010/63/EU, EUROPEAN COMMISSION, https://webgate.ec.europa.eu/envdataportal/content/alures/section1_number-of-animals.html (last visited Sept. 11, 2025) (providing data between 2015-2022 of animals in EU research and noting zero great apes among the list of nonhuman primates); Animal Welfare Act 1999, § 85 (N.Z.) (banning the use of nonhuman hominids in research, testing, or teaching). New Zealand provides an exception for research that is in the best interest of the nonhuman hominid (great ape) or the species. Id., at § 85(5); *see also International Bans*, PROJECT RELEASE & RESTITUTION, https://releasechimps.org/laws/international-bans (last visited June 8, 2024) (describing the countries that have limited the use of great apes in research).

131. *NIH Plan to Retire All NIH-Owned and -Supported Chimpanzees*, NAT'L INST. OF HEALTH https://orip.nih.gov/division-comparative-medicine/management-programs/chimpanzee-management-program/nih-plan-retire-all-nih-owned-and-supported-chimpanzees (last visited Sept. 17, 2025) ("In November 2015, NIH announced that it will no longer support any biomedical research on chimpanzees.").

132. Aguilera et al., *supra* note 129, at 15; Francis S. Collins, *NIH Will No Longer Support Biomedical Research on Chimpanzees*, https://www.nih.gov/about-nih/who-we-are/nih-director/statements/nih-will-no-longer-support-biomedical-research-chimpanzees. While "great apes" includes more than chimpanzees, this species has been the most used in invasive research. Thus, the decision to phase out chimpanzee research effectively phases out research on all great apes. Aguilera et al., *supra* note 129, at 3.

the discourse of the relevant European and American decision makers as well as the legal instruments themselves.[133]

Furthermore, the capacities of nonhuman great apes have also been a driving force behind litigation on their rights and legal standing. In the United States, the Nonhuman Rights Project has filed numerous *habeas corpus* petitions for nonhuman primates and elephants premised on their sentience and human-like cognitive capacities.[134] For example, a *habeas* petition filed on behalf of chimpanzees, Tommy and Kiko, included numerous capacity-based arguments[135] and was supported by expert affidavits on nonhuman primate behavior and cognition.[136] Advocates placed significant emphasis on the similarities between their capacities, and the biological processes underpinning them, and those possessed by humans.[137]

Although Tommy and Kiko's petitions did not prevail, their case sparked a broader movement advocating for legal personhood for nonhuman animals. The court denied their petitions because chimpanzees do not meet the conventional definition of "person," lack the capacity to bear legal duties, and are not members of the human species.[138] Nevertheless, the Nonhuman Rights Project's use of scientific evidence to argue for expanded rights and personhood has sparked similar cases in the United States and internationally, with some

133. *See, e.g.*, Directive 2010/63/EU, *supra* note 130, at 6 (noting new scientific knowledge of animals' capacities and the need to raise minimum standards of protection to match latest scientific developments); *id*. at 18 ("The use of great apes, *as the closest species to human beings with the most advanced social and behavioural skills*, should be permitted only for the purposes of research aimed at the preservation of those species.") (emphasis added); Darryl Fears, *NIH Ends Era of U.S. Medical Research on Chimpanzees*, WASH. POST (Nov. 18, 2015), https://www.washingtonpost.com/news/speaking-of-science/wp/2015/11/18/nih-ends-the-era-of-us-medical-research-on-chimpanzees (describing U.S. National Institutes of Health Director Francis Collins's comments on winding down chimpanzee testing and his characterization of chimps as "our closest relatives," with DNA that is 98 percent the same); Jocelyn Kaiser, *NIH to End All Support for Chimpanzee Research*, SCIENCE (Nov. 18, 2015), https://www.science.org/content/article/nih-end-all-support-chimpanzee-research (quoting U.S. NIH Director Francis Collins on the end of chimpanzee testing as "the natural next step in what has been a process . . . of deep thinking about the appropriateness of research on our closest relatives"); Paula Brosnahan, *New Zealand's Animal Welfare Act: What is Its Value Regarding Non-human Hominids?*, 6 ANIMAL L. REV. 185, 187-189 (2000) (describing the role that the Great Ape Project's submission played in the New Zealand Animal Welfare Act).

134. *Challenging the Rightlessness of Nonhuman Animals*, NONHUMAN RTS. PROJECT, https://www.nonhumanrights.org/litigation (last visited Feb. 24, 2025).

135. Verified Petition at 21(k), People ex rel. Nonhuman Rts. Project, Inc. v. Lavery, 124 A.D.3d 148 (2014) (No. 518336).

136. *See generally*, Affidavit of Christophe Boesch, People ex rel. Nonhuman Rts. Project, Inc. v. Lavery, 124 A.D.3d 148 (2014) (No. 518336) [hereinafter *Tommy*]; Affidavit of James R. Anderson, *Tommy*; Affidavit of Jennifer M.B. Fugate, *Tommy*; Affidavit of Mary Lee Jensvold, *Tommy*; Affidavit of James King, *Tommy*; Affidavit of Tetsuro Matsuzawa, *Tommy*.

137. Verified Petition, *supra* note 135 at 22-25, 26, 31, 33, 37, 39, 42, 43, 45.

138. Nonhuman Rts. Project, Inc., on Behalf of Tommy v. Lavery, 31 N.Y.3d 1054, 1057 (2018) (summarizing lower court decisions).

achieving success. For instance, courts in Ecuador,[139] Brazil,[140] and Pakistan[141] have granted certain nonhuman animals individual rights through litigation. Similarly, an Argentinian court granted legal personhood to Cecilia the chimpanzee based on a scientific understanding of nonhuman great apes' capacities.[142] Personhood litigation and legal advocacy are explored in greater detail in Part III.D.2.

Scientific findings on capacities have also influenced citizen initiatives. In 2016, the Swiss organization Sentience Politics began a citizens' ballot initiative seeking to amend the constitution of Basel-Stadt, a Swiss state, to include individual rights to life and bodily and mental integrity for all nonhuman primates.[143] This initiative relied heavily on scientific evidence to shape its strategy and public outreach efforts. In conjunction with the 2016 initiative, Sentience Politics issued a policy paper highlighting the genetic kinship between humans and nonhuman primates, as well as their advanced capacities and sentience.[144] Scientific evidence also guided strategic decisions, such as the focus on all nonhuman primates rather than just nonhuman great apes, based on evidence indicating that all nonhuman primates possess cognitive and emotional capacities warranting these fundamental rights.[145]

These Swiss efforts were stalled in 2018 when the Grand Council of Basel-Stadt declared the initiative invalid, ruling that the civil code left "no room for legal personhood for animals."[146] However, after a series of appeals, the Swiss Federal Supreme Court ruled that the civil and private law understanding

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139. *See generally* "Estrellita Monkey" case, Caso No. 253-20-JH/22 (Corte Constitucional del Ecuador [Constitutional Court of Ecuador], Jan. 27, 2021) (Ecuador) (finding that Estrellita, a chorongo monkey, and other wild animals, are subjects of rights based on the Ecuadorian Constitution's rights of nature provision).

140. *See generally* S.T.J.J., Recurso Especial No. 1.797.175-SP, Relator: Minister Og Fernandes, 21.03.2019 (Braz.) (finding that nonhuman animals have the right to dignity, rooted in the Constitutional right to an ecologically balanced environment).

141. *See generally* Islamabad Wildlife Management Board v. Metropolitan Corporation Islamabad, W.P. No.1155/2019 (Islamabad High Court, Apr. 25, 2020) (Pak.) (finding that nonhuman animals have the right to live in an environment meeting the animal's behavioral, social, and psychological needs, to not be subject to unnecessary pain and suffering, to not be tortured or unnecessarily killed, and to be respected, rooted in criminal laws on cruelty, natural rights, and the human obligations resulting from the constitutional right to life).

142. *See generally* Tercer Juzgado de Garantías, 3/11/2016, Presentación Efectuada Por A.F.A.D.A Respecto Del Chimpancé "Cecilia"- Sujeto No Humano, Expte. Nro. P-72.254/15 (Arg.).

143. Charlotte E. Blattner & Raffael Fasel, *The Swiss Primate Case: How Courts Have Paved the Way for the First Direct Democratic Vote on Animal Rights*, 11 TRANSNAT'L ENVT'L L. 201, 202 (2021) (citing *Grundrechte für Primaten*, KANTON BASEL-STADT (June 22, 2016), https://www.kantonsblatt-archiv.ch/articles/18163); *id*. at 206 (citing *Cantonal Initiative "Basic Rights for Primates,"* SENTIENCE POL., https://sentience.ch/en/project/initiative-basic-rights-for-primates/ (last visited Apr. 12, 2025)).

144. RAFFAEL FASEL ET AL., FUNDAMENTAL RIGHTS FOR PRIMATES 2-3 (2016), https://ea-foundation.org/files/Fundamental-Rights-for-Primates.pdf.

145. Blattner & Fasel, *supra* note 143, at 213.

146. *Id.* at 207 (citing Grand Council of Basel-Stadt, Decision, 10 Jan. 2018, Kantonsblatt no. 4, at p. 59).

of legal personhood does not constrain Swiss cantons (i.e., states) from extending fundamental rights to nonhuman animals.[147] This decision "paved the way for the first ever direct democratic vote on whether some non-human animals should be granted basic rights."[148] Although voters ultimately rejected the initiative,[149] it underscores how scientific insights into capabilities can mobilize citizens and create legal pathways for rights recognition. Predicated on the Swiss Federal Supreme Court's decision, the legal door remains open in Switzerland for future ballot initiatives.

In sum, scientific findings on nonhuman great apes' capacities have played a role in varied areas of lawmaking: legislation, litigation, administrative policies, and citizen ballot initiatives. These findings have also prompted varying degrees of legal change, from enhanced research protections to securing individual rights and legal personhood. Similar changes may emerge for cetaceans as we add yet another capacity to the list of commonalities that sperm whales share with humans.

Indeed, better understanding of cetaceans' capacities has already brought about legal change.[150] These changes have been prompted both by society's gradual understanding of the various capacities of cetaceans and a novel understanding of a singular capacity, namely whale songs. Society's cumulative understanding of cetaceans' complex capacities and needs has, for example, fueled changes in welfare statutes governing captivity and treatment. For instance, Canada and Costa Rica, among other countries, prohibited the captivity of cetaceans for commercial purposes, recognizing their need for social interaction, and large, natural environments, as well as the suffering that confinement imposes on whales.[151] In contrast, the groundbreaking elucidation

147. Blattner & Fasel, *supra* note 143, at 210-12.

148. *Id.* at 214 (citing Bundesgericht [BGer] [Federal Supreme Court] Sept. 16, 2020, 1C_105/2019 3.7.3 (Switz.)).

149. For more information *see Voters Decline to Give Limited Rights to Non-Human Primates*, SWISS INFO (Feb. 13, 2022), https://www.swissinfo.ch/eng/politics/voters-decline-to-give-limited-rights-to-non-human-primates/47343656; *Main Arguments for the Primate Initiative*, GRUNDRECHTE FÜR PRIMATEN, https://www.primaten-initiative.ch/en/arguments (last visited June 9, 2024).

150. *See, e.g.*, Lori Marino, *Cetaceans and Primates: Convergence in Intelligence and Self-Awareness*, 14 J. COSMOLOGY 1063, 1065-70 (2011).

151. Ending the Captivity of Whales and Dolphins Act, S.C. 2019, c 11; *Canada Passes "Free Willy" Bill to Ban Captivity of All Whales, Dolphins*, MONGABAY (June 11, 2019), https://news.mongabay.com/2019/06/canada-passes-free-willy-bill-to-ban-captivity-of-all-whales-dolphins (noting the Green Party's comments on the passage of the bill that its senators sponsored, including discussions of their intelligence and social behaviors and how confinement imposes cruelty); REG'L ACTIVITY CTR. FOR THE PROTOCOL ON SPECIALLY PROTECTED AREAS AND WILDLIFE IN THE GREATER CARIBBEAN REGION, MARINE MAMMALS - GUIDELINES AND CRITERIA ASSOCIATED WITH CAPTIVITY 6 (2006), https://www.car-spaw-rac.org/IMG/pdf/OVERVIEW_CAPTIVITY_MARINE_MAMMALS_WCR.pdf; *see also Decree Prohibits Capture of Whales and Dolphins*, TICO TIMES (Aug. 26, 2005), https://ticotimes.net/2005/08/26/decree-prohibits-capture-of-whales-and-dolphins (noting that the legislation was based on research regarding the negative effects of captivity on cetaceans); *Here's All the*

of whale songs in the 1970s that contributed to the "Save the Whales" movement exemplifies the impact of singular scientific findings.[152] In this way, language capacity may be the discovery that drives society toward greater respect and protection of cetaceans.

Beyond replicating legal changes seen with great apes,[153] proving a capacity for language might reveal new factual or moral harms suffered by cetaceans. In the factual realm, language capacity might bolster the view that separating whales who speak the same dialect is a harm that cannot be ameliorated with the company of a cetacean that speaks a different dialect. In relation to moral harms, language capacity might elevate cetaceans' moral status and therefore render certain practices (e.g., captivity) to be considered harmful, even if they would not be proscribed for other nonhuman animals.

As we explore the profound legal implications of proving that cetaceans possess the capacity for their own language, we must also consider the next frontier: understanding the content of that language. Decoding cetacean communication would not only deepen our understanding of cetaceans, but could also pave the way for groundbreaking legal reforms. If we understood what cetaceans were saying, would we change the enforcement of existing laws purported to protect them? Would we grant cetaceans new individual rights or legal personhood? In Part III, we consider how such a revelation might reshape the law.

II. WHAT IF THE *CONTENT* OF CETACEANS' COMMUNICATIONS WAS UNDERSTOOD?

A deep gap exists between the extensive evidence of harm to cetaceans and the protection that domestic and international law affords them. For example, we know that vessel strikes kill an estimated 20,000 whales each year and injure many more, yet the magnitude of maritime trade and the physical size of cargo ships continues to increase.[154] We know that bycatch, the "single most serious,

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Places Around the World That Ban Orca Captivity, YAHOO NEWS (Apr. 10, 2014), https://www.yahoo.com/news/orcas-not-allowed-keeping-killer-whales-forbidden-194754918.html (discussing jurisdictions where cetaceans cannot be held in captivity for performance or entertainment purposes).

152. Stuart Firestein, *The Man Who Seduced the World with Whale Songs*, NAUTILUS (Sept. 8, 2021), https://nautil.us/the-man-who-seduced-the-world-with-whale-songs-238292; Sam Roberts, *Roger Payne, Biologist Who Heard Whales Singing, Dies at 88*, N.Y. TIMES (June 14, 2023), https://www.nytimes.com/2023/06/14/science/roger-payne-dead.html.

153. *Supra* notes 127-132and accompanying text.

154. *Save the Whales Campaign*, FRIEND OF THE SEA, https://friendofthesea.org/marine-conservation-projects-and-awareness/save-the-whales-2 (last visited May 11, 2024) (describing yearly fatal collisions); *Loss Trends - Larger Vessels Bring Bigger Losses*, ALLIANZ, https://commercial.allianz.com/news-and-insights/expert-risk-articles/larger-vessels-bigger-losses.html (last visited May 11, 2024) ("[C]ontainer ships have increased in capacity by almost 1,500% . . . ."); *Review Of Maritime Transport 2023*, U.N. TRADE & DEV., https://unctad.org/publication/review-

direct threat to cetaceans," kills at least 300,000 each year, yet remains underreported and underregulated globally.[155] We know that captivity has devastating consequences for cetaceans' physical and mental well-being, yet more than 3,600 cetaceans remain held in captivity.[156] We know that anthropogenic ocean noise has deleterious impacts on cetacean health, migration, reproduction, food sources, and communication, among other behaviors, yet commercial vessel noise and seismic surveying proliferate globally.[157] It is clear that knowledge of general suffering has proven insufficient, and we acknowledge that understanding yet another cetacean capacity, like the capacity for language, may similarly prove insufficient to convince society to protect them. However, the lesson of nonhuman great apes discussed in Part II.B provides hope that cetaceans may too benefit from a societal and legal recalibration predicated on greater knowledge about their capacities. In this Part, we argue that successful efforts to decode cetaceans' communications could make a decisive contribution to closing the gap between the existing harm and legal protection.

To concretize our analysis, we begin with existing legislation and discuss how a novel understanding of cetacean communication could improve regulation of chronic underwater noise pollution under the Endangered Species Act and the Marine Mammal Protection Act.[158] We then consider new doctrines and legal standards that may arise, including individual rights and legal personhood for cetaceans. Through the lens of the human right to be free from torture and the right to participate in cultural life, we imagine how the law might expand what it considers worthy of protection in the face of new knowledge. For example, by understanding cetacean language during moments of anguish, we could better understand the torturous nature of various impacts and come to view them as unacceptable wrongs that should be forbidden by law through a new right. Finally, we pivot to cetaceans' fundamental legal status: property. Building on

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maritime-transport-2023 (last visited May 11, 2024) ("Maritime trade is expected to grow 2.4% in 2023 and more than 2% between 2024 and 2028.").

155. *Bycatch*, INT'L WHALING COMM'N, https://iwc.int/management-and-conservation/bycatch (last visited May 11, 2024) (noting number of deaths and limited monitoring globally); Brianna Elliott et al., *Cetacean Bycatch Management in Regional Fisheries Management Organizations: Current Progress, Gaps, and Looking Ahead*, 9 FRONTIERS MARINE SCI. 1 (2023) (finding that regional fisheries management organizations have passed few binding conservation and management measures focused on cetacean bycatch).

156. James Ashworth, *Calls for the UK to Legally Ban Keeping Whales and Dolphins in Captivity*, NAT. HIST. MUSEUM (Sept. 26, 2023), https://www.nhm.ac.uk/discover/news/2023/september/calls-for-uk-ban-keeping-whales-dolphins-captivity.html.

157. *Infra* note 168 and accompanying text; Christophe Haubursin, *Why the Ocean Is Getting Louder*, VOX (July 18, 2017), https://www.vox.com/videos/2017/7/18/15988494/ocean-noise-pollution (noting ship noise increased since the 1960s); A.S. Kavanagh et al., *Seismic Surveys Reduce Cetacean Sightings Across a Large Marine Ecosystem*, 9 SCI. REPS. 1, 1 (2019) (noting the proliferation of seismic surveys and large propagation distances of air gun noise).

158. Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544; Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h.

existing personhood case law and advocacy efforts, we conclude by considering how communication content might address current legal impediments and inspire new initiatives for legal personhood.

A. *Understanding Cetacean Communications May Help Enforce Existing Laws that Regulate Underwater Noise Pollution*

One need not look beyond the bounds of existing law to imagine what impact understanding cetacean communication might have. Indeed, a deeper understanding of cetacean communication could offer valuable insights into the detrimental effects of chronic noise pollution, thereby empowering existing laws to better address this ongoing threat. This Subpart begins by briefly describing the threat that underwater noise poses to cetaceans and the primary laws in the United States that regulate this form of pollution. While this Subpart centers on the United States for analytical purposes, it is important to acknowledge the evolving global landscape—characterized by binding regulations, voluntary accords, and soft law directives—that is seeking to address the harm underwater noise creates.[159] From the European Commission's March 2024 Communication delineating mandatory maximum acceptable levels for impulsive and continuous underwater noise,[160] to the International Maritime Organization's soft-law "Guidelines for Minimizing Underwater Noise from Commercial Ships,"[161] notable efforts are being made. Nevertheless, these global and U.S. initiatives fall short of safeguarding cetaceans from underwater noise pollution, particularly from commercial shipping vessels.[162] Given the outsized role the ESA and MMPA play in protecting cetaceans and the largely unregulated nature of commercial shipping noise, this Subpart examines how understanding the content of cetacean communications could help practitioners leverage existing laws for greater protection.

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159. *See infra* notes 163-168 and accompanying text.

160. 2024 O.J. (C2024/2078) 5.

161. *See generally* INT'L MAR. ORG., REVISED GUIDELINES FOR THE REDUCTION OF UNDERWATER RADIATED NOISE FROM SHIPPING TO ADDRESS ADVERSE IMPACTS ON MARINE LIFE (2023) https://wwwcdn.imo.org/localresources/en/Documents/MEPC.1-Circ.906%20-%20Revised%20Guidelines%20For%20The%20Reduction%20Of%20Underwater%20Radiated%20NoiseFrom%20Shipping%20To%20Address...%20(Secretariat).pdf; *see also Agreement Signed to Protect Cetaceans from Growing Risks of Ship Strikes and Underwater Noise Pollution in Northern Patagonia, Coastal Chile*, WWF, https://wwfwhales.org/news-stories/agreement-signed-to-protect-cetaceans-from-growing-risks-of-ship-strikes-and-underwater-noise-pollution-in-northern-patagonia-coastal-chile (last visited May 25, 2024).

162. J. Tournadre, *Anthropogenic Pressure on the Open Ocean: The Growth of Ship Traffic Revealed by Altimeter Data Analysis*, 41 GEOPHYSICAL RSCH. LETTERS 7929, 7929 (2014) (finding that from 1992-2012 global maritime traffic increased fourfold, leading to increased noise and risk of whale-vessel collisions).

1. The Threat of Underwater Noise Pollution and the Existing Regulatory Scheme

While popular culture often portrays ocean soundscapes as tranquil, occasionally punctuated by the melancholic melodies of migrating whales, scientific data paints a different picture. Ocean life once resembled musicians in a concert hall, contributing to a finely tuned ambient soundtrack honed over millennia of evolution. But since the beginning of the Industrial Revolution, this symphony has changed dramatically. Commercial and recreational vessel traffic, underwater construction, oil and gas drilling, sonar, and seismic surveying now disrupt this underwater soundscape.[163] This loud cacophony is carried over wide spatial and temporal scales, facilitated by the ease with which sound travels underwater,[164] therefore creating significant issues for marine animals that depend on sound for survival.

Humans and their inventions produce two types of anthropogenic noise: chronic and acute.[165] Chronic noise includes long-term, low-frequency sounds like those made by ship traffic, while acute noise encompasses short, high-intensity sounds like those caused by seismic surveys or military sonar.[166] Both forms of noise pollution are continuing to increase[167] and have given rise to a variety of deleterious impacts for cetaceans, including disruptions to their foraging patterns; area avoidance and deviation from migratory paths; interference with intraspecies communications; stress responses; permanent or temporary hearing loss; compromised predation behaviors, efficiency, and success; physical damage to tissues and organs; atypical "mass stranding" events; and even death.[168]

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163. *Ocean Noise*, NOAA FISHERIES, https://www.fisheries.noaa.gov/national/science-data/ocean-noise (last updated Feb. 18, 2025).

164. *Id*.

165. *Underwater Noise*, INT'L WHALING COMM'N, https://iwc.int/management-and-conservation/environment/anthropogenic-sound (last visited Feb. 24, 2025).

166. *Id*.

167. Carlos M. Duarte et al., *The Soundscape of the Anthropocene Ocean*, 371 SCIENCE 1, 5 (2021) (showing that shipping has led to a thirty two-fold increase in low-frequency noise along major shipping routes in the past fifty years); Convention on Biological Diversity Subsidiary Body on Sci., Tech. and Tech. Advice, *Scientific Synthesis on the Impacts of Underwater Noise on Marine and Coastal Biodiversity and Habitats*, U.N. Doc. UNEP/CBD/SBSTTA/16/INF/12, at 2 (Mar. 12, 2012), https://www.cbd.int/doc/meetings/mar/mcbem-2014-01/information/mcbem-2014-01-sbstta-16-inf-12-en.pdf [hereinafter *U.N. CBD Scientific Synthesis on Underwater Noise*].

168. *U.N. CBD Scientific Synthesis on Underwater Noise*, *supra* note 166, at 2-3; SIMON HARDING & NEIL COUSINS, REVIEW OF THE IMPACTS OF ANTHROPOGENIC UNDERWATER NOISE ON MARINE BIODIVERSITY AND APPROACHES TO MANAGE AND MITIGATE THEM 50-51 (2022), https://www.cbd.int/doc/publications/cbd-ts-99-en.pdf; T.A. Romano et al., *Anthropogenic Sound and Marine Mammal Health: Measures of the Nervous and Immune Systems Before and After Intense Sound Exposure*, 61 CAN. J. FISHERIES AND AQUATIC SCI. 1124, 1125 (2004); *see also* Ghulam Nabi et al., *The Possible Effects of Anthropogenic Acoustic Pollution on Marine Mammals' Reproduction: An Emerging Threat to Animal Extinction*, 25 ENVT'L SCI. & POLLUTION RSCH. 19338, 19338 (2018); Rosalind M.

Noise pollution impacts all ocean life, but particularly threatens cetaceans, who depend on sound for navigation, communication, foraging, maintaining group structures and relationships, mating, and predator avoidance.[169] Cetaceans' very "consciousness and sense of self is based on sound."[170] Put simply, "a deaf whale is a dead whale."[171] Marine scientist Christopher Clark put the effects of chronic and acute noise pollution for cetaceans in both vivid and relatable terms:

> At first, their calling rate may go up a bit—as you and I might do when we shout in a loud space in order to be heard . . . But then, shortly thereafter, when the noise level goes beyond a certain threshold, the counter-calling, the chitchat between right whales, for example, just stops—*they just give up* . . . We have demonstrated that in Cape Cod Bay in the run-up to Boston harbor that right whales *lose 50 to 70 percent* of their opportunities to communicate due to routine ship traffic. It means that as shipping traffic increases, the ocean area over which a whale can communicate and listen has shriveled to a small fraction of what it was less than a century ago. There is this constant stopping and starting of their communication. *What you are doing is you are tearing that social fabric over and over again* . . . We noticed them trying to hide behind rocks to escape in a sound shadow when seismic surveys were being conducted along the California coast. Some of the gray whales actually came right into the surf—we could see their bodies in the breaking waves—to try to get away from this.[172]

Recent research shows that this dominant sense is drowned out not only by volume, but also by auditory frequency. For example, a 2024 study found that humpback and other baleen whale songs use a narrow frequency range that directly overlaps with the frequency shipping vessels produce.[173] Professor Coen P. H. Elemans explained that cetacean larynx evolution renders them

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Rolland et al., *Evidence that Ship Noise Increases Stress in Right Whales*, 279 PROC. ROYAL SOC'Y 2363, 2365-66 (2012) (finding that ship traffic decreased in the Bay of Fundy after September 11, 2001 and led to a six dB decrease in underwater noise, which resulted in decreased stress-related fecal hormone metabolites in North Atlantic right whales); Duarte et al., *supra* note 166, at 5-7.

169. *U.N. CBD Scientific Synthesis on Underwater Noise, supra* note 167 at 3-4.

170. Richard Schiffman, *How Ocean Noise Pollution Wreaks Havoc on Marine Life*, YALE ENV'T 360 (Mar. 31, 2016), https://e360.yale.edu/features/how_ocean_noise_pollution_wreaks_havoc_on_marine_life.

171. Hoare & Whitehead, *supra* note 74.

172. Schiffman, *supra* note 170 (emphasis added).

173. Coen P. H. Elemans et al., *Evolutionary Novelties Underlie Sound Production in Baleen Whales*, 627 NATURE 123, 128 (2024).

incapable of overcoming the vessel noise: "They cannot simply choose to, for example, sing higher to avoid the noise we make in the ocean."[174]

While underwater noise pollution remains a major disruptor of cetacean well-being, it is not entirely unregulated. In the United States, the legal framework includes local, state, and federal laws and regulations for managing noise impacts, but the federal government is the primary regulator and enforcer.[175] Generally speaking, seven federal laws guide the management of noise impacts on marine mammals: the ESA, MMPA, National Environmental Policy Act, National Marine Sanctuaries Act, Outer Continental Shelf Lands Act, Magnuson-Stevens Conservation and Management Act, and Coastal Zone Management Act.[176] While none of these federal laws focus singularly on noise pollution, they work together to protect environments and regulate activities affecting nonhuman animals, including cetaceans.[177]

Federal legislation's efficacy in safeguarding nonhuman animals against the adverse effects of noise pollution is a subject of ongoing inquiry and debate.[178] While a comprehensive evaluation of each exceeds the scope of this Article, relevant provisions of the ESA and MMPA are examined below to assess how a novel understanding of cetacean communication might improve regulation of chronic noise pollution. Although both statutes address certain impacts of underwater noise pollution on marine ecosystems and species, they have rarely

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174. Helen Briggs & Victoria Gill, *Whale Song Mystery Solved by Scientists*, BBC (Feb. 21, 2024), https://www.bbc.com/news/science-environment-68358414.

175. *See, e.g.*, Alex Brown, *Noise Pollution Hurts Wildlife, but States Have Trouble Turning Down the Volume*, STATELINE (Oct. 22, 2019), https://stateline.org/2019/10/22/noise-pollution-hurts-wildlife-but-states-have-trouble-turning-down-the-volume (noting that few states are engaged with noise as an environmental issue, either because they have failed to be proactive or because of state water limits).

176. *See generally* Andrew J. Wright & Hilary B. Moors-Murphy, *Regulating Impacts of Noise on Marine Mammals in North America*: *An Overview of the Legal Frameworks in Canada and the United States*, 25 J. INT'L WILDLIFE L. & POL'Y 241 (2022); Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h; Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544; National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370h; Outer Continental Shelf Lands Act of 1953, 43 U.S.C. §§ 1331-1356; Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451-1465.

177. *See generally* Wright & Moors-Murphy, *supra* note 175; *see also* JASON GEDAMKE ET AL., OCEAN NOISE STRATEGY ROADMAP 13 (2016), https://oceannoise.noaa.gov/sites/default/files/2021-02/ONS_Roadmap_Final_Complete.pdf.

178. *See, e.g.*, Rachel T. Buxton et al., *Noise Pollution is Pervasive in U.S. Protected Areas*, 356 SCIENCE 531, 532-33 (2017) (finding that anthropogenic noise doubled background sound levels in 63 percent of U.S. protected area units and caused a tenfold increase in 21 percent of those units, surpassing levels known to disrupt wildlife behavior, fitness, and community composition); Benjamin A. Harris, *Turn Down the Volume: Improved Federal Regulation of Shipping Noise Is Necessary to Protect Marine Mammals*, 35 UCLA J. ENVT'L L. & POL'Y 206, 225-46 (2017) (arguing that the ESA, MMPA, and NEPA, despite being capable of regulating noise impacts from shipping activities, have not yet been utilized accordingly); Giulia Rogers, *A Chronic Problem: Pritzker and the NOAA Roadmap's Deficiencies*, 47 ENVT'L L. 1027, 1042-54 (2017) (examining the limited capacity of the MMPA to regulate ocean noise pollution and the deficiencies of NOAA's Roadmap); Joel R. Reynolds, *Submarines, Sonar, and the Death of Whales: Enforcing the Delicate Balance of Environmental Compliance and National Security in Military Training*, 32 WM. & MARY ENVT'L L. & POL'Y REV. 759, 770 (2008) (arguing that enforcement of the MMPA's bar on underwater noise pollution must be improved).

been utilized to address chronic noise disturbances, such as commercial and recreational vessel noise.

2. The Endangered Species Act and the Marine Mammal Protection Act

The ESA and MMPA play critical roles in the conservation and protection of cetaceans. The "take" permitting processes contained within these statutes serve as the U.S. federal government's primary tool for managing the effects of underwater noise on cetaceans.[179] The ESA primarily protects endangered or threatened species, and critical habitats with physical or biological features essential to their conservation.[180] A number of cetaceans are listed as endangered under the ESA, including the beluga whale, blue whale, bowhead whale, fin whale, gray whale, sperm whale, and right whale, among many other marine mammals.[181] In contrast, the MMPA protects *all* marine mammals as a baseline, with further protections for species and populations that are listed as depleted—those either listed under the ESA or whose numbers fall below sustainable levels.[182]

The ESA and MMPA prohibit the "take" of listed species and all marine mammals, respectively, but with exceptions.[183] Both statutes define a "take" similarly and list it as including harassment, hunting, capturing, killing, or any attempt to engage in such conduct.[184] While the statutory text of the ESA includes additional terms in its definition of "take"—such as to "harm," "pursue," "shoot," "wound," "trap," and "collect"—both statutes have regulations that define "take" further.[185]

Under the ESA's implementing regulations, "harm"—one component within a "take"—is further defined as "an act which actually kills or injures wildlife," including habitat modification or degradation that significantly impairs behavioral patterns.[186] The ESA's implementing regulations define "harass" as

179. GEDAMKE ET AL., *supra* note 177, at 13 (2016) (noting that "much of the management of noise effects on marine mammals, fish, invertebrates, and sea turtles has occurred through primarily project-specific consultations and permitting pursuant to the MMPA, the ESA, the [Magnuson-Stevens Conservation and Management Act], and the [Marine Sanctuaries Act]"). While the Magnuson-Stevens Fishery Conservation and Management Act and the National Marine Sanctuaries Act also play a role in in management of noise effects writ large, they play comparatively more limited roles in direct efforts with cetaceans given their focus on fisheries and specific geographic locations respectively.

180. *See generally* Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544.

181. *Status of Marine Mammal Species and Populations*, MARINE MAMMAL COMM'N, https://www.mmc.gov/priority-topics/species-of-concern/status-of-marine-mammal-species-and-populations (last visited Nov. 13, 2024).

182. *Id*.

183. Marine Mammal Protection Act § 1371(a); 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h.

184. 16 U.S.C. § 1362(13); 16 U.S.C. § 1532.

185. 16 U.S.C. § 1532.

186. 50 C.F.R § 17.3. While the ESA and its implementing regulations have not yet changed, the Trump administration is using both executive and legislative means to weaken it. The Fish and Wildlife

"an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering."[187] While takes are presumptively prohibited, federal agencies may authorize specific permits so long as the projected take "is not likely to jeopardize the continued existence of any listed species."[188] Courts define actions that jeopardize species' continued existence as those that would "reasonably [] be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[189]

Under the MMPA, regulations further define "take" to include any negligent or intentional act that "results in disturbing or molesting a marine mammal."[190] Take may also be "incidental" when it is unintentional, but not unexpected, and incidental take similarly requires authorization.[191]

"Harassment" is statutorily defined as "any act of pursuit, torment, or annoyance" that could "injure a marine mammal or marine mammal stock in the wild" (Level A Harassment) or could "disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering" (Level B Harassment).[192]

For most marine species, and all cetaceans, the ESA and MMPA are administered by the National Marine Fisheries Service (NMFS), a federal agency within the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce.[193] The NMFS recognizes that marine mammals can

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Service and National Oceanic and Atmospheric Administration have proposed a new rule to rescind the ESA's definition of harm. Rescinding the Definition of "Harm" Under the Endangered Species Act, 90 Fed. Reg. 16102 (Apr. 17, 2025) (to be codified at 50 C.F.R. pt. 17, 222). While the proposed change is not a new definition of "harm," rescinding the regulatory definition of "harm" would narrow the scope of the ESA's prohibition on "take" to only actions that directly kill or injure an individual animal, thereby removing protections against habitat degradation that could harm a species. *Id.* If finalized, "take" would no longer include acts that modify or degrade a species' habitat, unless those actions directly cause the killing or injuring of an individual animal. *See also NOAA and Interior Propose Rule to Limit Scope of ESA*, SABIN CTR. FOR CLIMATE CHANGE L., https://climate.law.columbia.edu/content/noaa-and-interior-propose-rule-limit-scope-esa (last visited Sept. 12, 2025). Meanwhile, in Congress "a record-breaking 115 pieces of legislation were proposed that would have undermined the ESA or weakened protections for imperiled wildlife." *The 119th Congress: Playing Politics with Extinction*, DEFENDERS OF WILDLIFE, https://defenders.org/119th-congress-playing-politics-extinction (last visited Sept. 11, 2025).

187. *Id*.

188. Cook Inletkeeper v. Raimondo, 533 F. Supp. 3d 739, 761 (D. Alaska 2021).

189. *Id*. at 762.

190. 50 C.F.R. 216.3.

191. Marine Mammal Protection Act § 1371(a)(5)(A)(i), 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h.

192. 16 U.S.C. § 1362(18)(A), (C), (D).

193. *See* Jolie Harrison & Amy Scholik Schlomer, *NMFS Regulatory Approach to Underwater Noise* 7, NOAA FISHERIES (Jul. 22, 2020), https://dosits.org/wp-content/uploads/2020/07/NMFS_Regulatory-

be harassed "when exposed to elevated sound levels that may lead to mortality, temporary or permanent hearing impairment [], non-auditory physical or physiological effects, and behavioral disturbance."[194] The NMFS has developed technical guidance, including acoustic thresholds, for assessing the effects of underwater anthropogenic sound on the hearing of marine mammals.[195] These thresholds determine which decibel levels will cause behavioral disturbance or temporary hearing loss (MMPA Level B harassment) or permanent hearing loss or lung or gastrointestinal tract injury (MMPA Level A harassment).[196] While the NMFS does not use the MMPA "harassment" level terminology for the ESA, it does apply the same decibel thresholds for temporary and permanent hearing loss under both regulatory frameworks.[197] Notably, however, the NMFS's technical guidance is not binding; NMFS personnel retain discretion in applying the guidance to activities that may affect marine mammals, and it cannot be enforced against regulated parties.[198] Moreover, the guidance takes effect only when a person or entity applies for an Incidental Harassment Authorization (IHA) or Letter of Authorization (LOA).[199]

The MMPA's incidental take scheme relies entirely on citizens to begin the regulatory process. Citizens must determine for themselves whether their planned activities might result in takes of marine mammals, and must request authorization when appropriate.[200] So, while a large tanker traveling at twenty miles per hour can generate a low-frequency sound of around 190 dB across long distances,[201] no practical consequences result from the fact that such sounds

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DOSITS_Webinar2020.pdf; *see also About Us*, NOAA FISHERIES, https://www.fisheries.noaa.gov/about-us#overview (last visited Nov. 13, 2024). The NMFS is known as, and uses in its branding, the name "NOAA Fisheries" but the acronym NMFS continues to be used in legal contexts.

194. NATIONAL MARINE FISHERIES SERVICE, NATIONAL MARINE FISHERIES SERVICE: SUMMARY OF MARINE MAMMAL PROTECTION ACT ACOUSTIC THRESHOLDS 1 (2023), [hereinafter NMFS SUMMARY OF MMPA ACOUSTIC THRESHOLDS].

195. *See generally* NATIONAL MARINE FISHERIES SERVICE, 2018 REVISION TO: TECHNICAL GUIDANCE FOR ASSESSING THE EFFECTS OF ANTHROPOGENIC SOUND ON MARINE MAMMAL HEARING (VERSION 2.0) (2018) [hereinafter NMFS 2018 TECHNICAL GUIDANCE].

196. *See* NMFS SUMMARY OF MMPA ACOUSTIC THRESHOLDS, at 2-4.

197. *Compare* NMFS SUMMARY OF MMPA ACOUSTIC THRESHOLDS at 2-4 *with* NATIONAL MARINE FISHERIES SERVICE, NATIONAL MARINE FISHERIES SERVICE: SUMMARY OF ENDANGERED SPECIES ACT ACOUSTIC THRESHOLDS (MARINE MAMMALS, FISHES, AND, SEA TURTLES) 2-5 (2023).

198. *See* NMFS 2018 TECHNICAL GUIDANCE, at 1; *see also* Marissa Grenon Gutierrez, *Drowned Out, Part 1: Vessel Noise and the Marine Mammal Protection Act*, ABA (Jan. 31, 2022), https://www.americanbar.org/groups/environment_energy_resources/publications/mr/20220131-drowned-out-part-1.

199. *See infra* notes 200-202 and accompanying text (noting how the regulatory scheme begins when citizens apply for authorization, thus the NMFS guidance does not apply until such application).

200. Marine Mammal Protection Act § 1371(a)(5)(A)(i), (D)(i), 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h (noting the processes begin "upon request therefor by citizens of the United States").

201. MICHAEL JASNY ET AL., NAT. RES. DEF. COUNCIL, SOUNDING THE DEPTHS II: THE RISING TOLL OF SONAR, SHIPPING AND INDUSTRIAL OCEAN NOISE ON MARINE LIFE 4 (2005); Gutierrez, *supra*

exceed the NMFS guidance threshold for Level B harassment under the MMPA[202] if the vessel did not apply for an IHA to begin with.

Although it does not cause acute physical harm, chronic noise can have significant repercussions for marine mammals. Behavioral impacts include avoiding important habitats or breeding grounds; ceasing vocalization, thus affecting communication and social cohesion; increasing stress levels, which can have physiological and psychological effects; and altering feeding capabilities, among others.[203] Shipping vessels, one of the most pervasive sources of ocean noise, create acoustic masking[204] that compromises marine mammals' ability to detect, recognize, or understand sounds of interest (e.g., feeding, navigation, mating, communication, predation, etc.).[205] Very few areas of the ocean remain unimpacted by shipping noise, which is predicted to double each decade.[206] Vessels' low-frequency sounds disrupt the daily activities of marine life and contribute to a grueling anthropogenic cacophony that marine biologist Sylvia Earle has called "a death of a thousand cuts."[207]

Despite the demonstrated and profound impacts of chronic noise on marine mammals and ecosystems, neither the ESA nor the MMPA currently regulate chronic commercial shipping noise.[208] A review of the available data

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note 198 (noting sound levels from ship cavitation typically range in intensity from about 140 to 195 decibels).

202. *See* NMFS SUMMARY OF MMPA ACOUSTIC THRESHOLDS at 3 (noting level B harassment acoustic thresholds of 120 dB and 160 dB for continuous and non-explosive impulsive or intermittent categories respectively).

203. Christine Erbe et al., *The Effects of Ship Noise on Marine Mammals–A Review*, FRONTIERS IN MARINE SCI. 1, 6 (Oct. 11, 2019) (noting studies that observed ceased singing, decreased duration in dives, cessation of foraging activates, fecal samples with increased stress levels, decreased communication ranges, and interrupted socializing and playing behavior); JASNY ET AL., *supra* note 201, at 11-12 (discussing abandoning breeding and foraging grounds, ceasing vocalizing, altering diving patterns and time underwater before coming up for air, and inducing aggressive behaviors).

204. *See* Regan Nelson, *Why All the Concern About Underwater Ship Noise?*, NRDC (Feb. 3, 2023), https://www.nrdc.org/bio/regan-nelson/why-all-concern-about-underwater-ship-noise.

205. *See id*.; *see also* Christine Erbe et al., *Communication Masking in Marine Mammals: A Review and Research Strategy*, 103 MARINE POLLUTION BULL. 15, 17 (2016) ("[A]uditory masking is perhaps the most pervasive.").

206. Jukka-Pekka Jalkanen et al., *Underwater Noise Emissions from Ships During 2014–2020*, 311 ENVT'L POLLUTION 1, 5-6, (2022) (predicting emissions will double every 11.5 years).

207. Elena M. McCarthy, *International Regulation of Transboundary Pollutants: The Emerging Challenge of Ocean Noise*, 6 OCEAN & COASTAL L. J. 257, 257 (2001) (quoting Sylvia Earle).

208. Harris, *supra* note 178, at 225, 236 ("[NMFS] has not yet issued an MMPA permit for shipping activities, nor has it permitted such activities under the ESA."); *see also* Gutierrez, *supra* note 198 ("To date, it appears that the [NMFS] has not found vessel noise to arise to a 'take' by harassment of marine mammals under the MMPA."); Email from Ben Laws, Deputy Chief, Permits and Conservation Div., Off. Prot. Res., NOAA Fisheries (Apr. 23, 2024) (confirming NMFS has not received an application for take authorization related to commercial and recreational vessel traffic during Laws' tenure since 2010) (on file with author); Email from Jolie Harrison, Chief, Permits and Conservation Div., Off. Prot. Res., NOAA Fisheries (Apr. 29, 2024) (confirming NMFS generally has not received requests to authorize incidental take of marine mammals caused by exposure to vessel noise under the MMPA during Harrison's twenty-year tenure)) (on file with author).

provided by NMFS (dating back to 2013 and 2008 for MMPA and ESA, respectively) suggests that no applications for incidental take authorizations or permits have been submitted or approved for shipping vessel noise.[209] Indeed, NOAA's own Ocean Noise Strategy Roadmap, an agency-wide strategy for addressing ocean noise from 2016-2026, states that "[c]urrent U.S. regulation of noise under the [ESA and MMPA] does not include impacts associated with chronic noise from shipping."[210] Ultimately, the ESA and MMPA are most concerned with the volume that causes acute damage, and thus hamstrings regulators and fails to tackle the chronic and cumulative noises that are undermining marine mammals' ability to thrive.[211]

In addition to NMFS regulation, the MMPA and ESA are also shaped by courts. Environmental groups have long used litigation to ensure proper enforcement of environmental statutes, and the MMPA and ESA are no exception. Since the 1990s, the MMPA and ESA have both been used to challenge take authorizations involving acute sources of anthropogenic ocean noise, such as explosives,[212] sonar testing,[213] seismic surveying,[214] and offshore energy construction.[215] However, a focus on chronic shipping vessel noise has been wanting. To date, only one case has used the MMPA and ESA to challenge an authorized take involving chronic vessel noise: *Cook Inletkeeper v. Raimondo*.[216]

In *Cook Inletkeeper v. Raimondo*, the Alaska district court found that NMFS had not sufficiently accounted for the impact of ongoing tugboat noise on beluga whales when authorizing Hilcorp Alaska LLC (Hilcorp) to take various

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209. *Incidental Take Authorizations Points Map*, NOAA FISHERIES, https://www.fisheries.noaa.gov/resource/map/incidental-take-authorizations-points-map (Mar. 12, 2024); *see also Permits for the Incidental Taking of Endangered and Threatened Species*, NOAA FISHERIES, https://www.fisheries.noaa.gov/permit/permits-incidental-taking-endangered-and-threatened-species (last visited Apr. 18, 2023).

210. GEDAMKE ET AL., *supra* note 177, at 77 (2016); *see also Marine Mammals: Underwater Noise*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://www.noaa.gov/marine-mammals-underwater-noise (Oct, 4, 2022).

211. Schiffman, *supra* note 170.

212. *See, e.g.*, Nat. Res. Def. Council, Inc. v. U.S. Dep't of Navy, 857 F. Supp. 734 (C.D. Cal. 1994) (challenging explosive ship-shock trials on MMPA grounds), *vacated*, No. CV 94-2337-SVW(CTX), 1994 WL 715704 (C.D. Cal. May 6, 1994).

213. *See, e.g.*, Nat. Res. Def. Council, Inc. v. Pritzker, 828 F.3d 1125 (9th Cir. 2016) (challenging low frequency active sonar on MMPA grounds); Nat. Res. Def. Council, Inc. v. Gutierrez, No. C-07-04771 EDL, 2008 WL 360852 (N.D. Cal. Feb. 6, 2008) (challenging low frequency active sonar on MMPA and ESA grounds).

214. *See, e.g.*, Native Vill. of Chickaloon v. Nat'l Marine Fisheries Serv., 947 F. Supp. 2d 1031, 1064 (D. Alaska 2013) (challenging seismic surveys on MMPA and ESA grounds).

215. Nantucket Residents Against Turbines v. U.S. Bureau of Ocean Energy Mgmt., 675 F. Supp. 3d 28 (D. Mass. 2023) (challenging noise arising from construction of offshore wind energy project on ESA grounds), *aff'd*, No. 23-1501, 2024 WL 1756024 (1st Cir. Apr. 24, 2024).

216. Cook Inletkeeper v. Raimondo, 533 F. Supp. 3d 739 (D. Alaska 2021).

marine mammal species.[217] Hilcorp had requested authorization of incidental take in the Arctic Cook Inlet due to noise exposure generated by its oil and gas activities, including seismic exploration, drilling, well development, and tugboat transportation of a drill rig.[218] These activities would impact a variety of marine animals, including one of the nation's eight species "most at-risk of extinction": beluga whales.[219] The beluga whale population plummeted to an estimated 279 in June 2018.[220] Despite existing military and industrial noise in the Cook Inlet, NMFS did not include any estimated take related to the tugboat vessel noise when authorizing the incidental take of various species due to Hilcorp's operations, including thirty-five Cook Inlet beluga whales per year.[221]

In a 2021 decision, Judge Gleason held that NMFS' determination regarding the tugboat noise was "arbitrary and capricious" because the agency failed to provide a reasoned explanation or adequate support in the record for its decision.[222] The court found it "clear" from the record that the tug boats would likely subject the beluga whales "to sound in excess of the 120 dB Level B harassment threshold and therefore cause take within the meaning of the MMPA."[223] The agency's actions also represented a failure to adequately consider the noise effects on the whales and their critical habitat pursuant to the ESA.[224] It was telling for the court that NMFS had, itself, identified vessel noise as a significant threat to whales, and that Hilcorp's application, using NMFS' model, estimated its tugboat operations would take fifteen belugas.[225] Although not bound by its previous recommendations, NMFS was bound not to disregard noise impact evidence without identifying contrary evidence or sufficient mitigation measures to justify its conclusion.[226]

In the decision, which granted summary judgment in part to the plaintiffs, the court underscored the complex interplay between environmental protections and industrial activities, and highlighted the consequences of ignoring vessel noise impacts.[227] While NMFS's failure to consider noise impacts from tugboats towing drill rigs was a serious error, the court decided complete vacatur of the agency's decisions was unwarranted given the potential disruptive consequences

217. *Id*. at 759.
218. *Id*. at 747.
219. *Id*. at 746.
220. *Id*.
221. *Id.* at 747-48.
222. *Id*. at 759.
223. *Id*. at 755.
224. *Id*. at 763.
225. *Id*. at 753-56, 764.
226. *Id*. at 763-64.
227. Cook Inletkeeper v. Raimondo, 541 F. Supp. 3d 987, 993-96 (D. Alaska 2021).

such as increased risk of oil spills.[228] The court therefore vacated NMFS' decisions allowing the use of tugboats towing drill rigs in connection with all exploratory activities and all production activities apart from the 2021 production drilling at the Tyonek Platform.[229] All other Hilcorp activities governed by the incidental take decisions were remanded without vacatur and Hilcorp was ordered to implement mitigation measures.[230] In the subsequent 2022 and 2024 incidental take authorizations issued for Hilcorp, NMFS included harassment take of twelve marine mammal species, including the beluga whale, incidental to Hilcorp's tugboat use in support of their oil and gas activities.[231] The court's decision and subsequent agency actions demonstrate that vessel noise can constitute a take and appears to have influenced NMFS's authorizations of other applicants.[232] *Cook Inletkeeper*, however, is just one case focused on a particularly noisy type of vessel[233] and, relevant for this Article, did not involve the much more pervasive threat that is commercial shipping.

Valid explanations exist to explain the paucity of regulation and litigation regarding chronic vessel noise. As described above, the NMFS does not have *sua sponte* powers under the MMPA to require applications.[234] Moreover, it may be fair to view the regulatory framework available to NMFS as far too limiting to regulate cumulative and chronic vessel noise because of the statutory focus on "specified activities."[235] Regarding litigation, the absence of a citizen suit provision in the MMPA renders advocates dependent upon agency action.[236] While there is a citizen suit provision in the ESA, precedent suggests litigation is presently unlikely to be successful in forcing a shipping company to apply for incidental take authorizations.[237] Even when advocates challenge regulatory

228. *Id.* at 993-94.

229. *Id.* at 995.

230. *Id.* at 996.

231. Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Tugs Towing Drill Rig in Cook Inlet, Alaska, 87 Fed. Reg. 62364, 62395 (Oct. 14, 2022); Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Army Corps of Engineers Baker Bay Pile Dike Repair Project, 89 Fed. Reg. 79557, 79557 (Sept. 30, 2024).

232. *See* Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Furie Operating Alaska, LLC Natural Gas Activities in Cook Inlet, Alaska, 89 Fed. Reg. 77836, 77836-37, 77845 (Sept. 24, 2024) (authorizing a level B harassment take due to acoustic sources, including tug vessels, incidental to Furie Operating Alaska, LLC's natural gas activities in the Cook Inlet).

233. Email from Ben Laws, *supra* note 208 (describing tugboats towing rigs in the Cook Inlet as louder than commercial and recreational vessel traffic).

234. *See supra* notes 199-201 and accompanying text.

235. Marine Mammal Protection Act § 1371(a)(5)(A)(i), 16 U.S.C. §§ 1361-1383b, 1401-1406, 1411-1421h; Rogers, *supra* note 178, at 1029.

236. *See* 16 U.S.C. § 1377(a) (noting only the Secretary shall enforce the statute).

237. Harris, *supra* note 178, at 237-38 (citing Forest Conservation Council v. Rosboro Lumber Co., 50 F.3d 781, 783 (9th Cir. 1995) (arguing that the Ninth Circuit's finding in *Forest Conservation Council*

failures under the MMPA or ESA through available legal pathways, courts may still find that not regulating vessel noise aligns with the "best reading of the statute."[238]

Nevertheless, the MMPA and ESA might still be leveraged to protect cetaceans from chronic vessel noise given the text of the statutes. Shipping vessel noise falls squarely within the statutory language of the MMPA's Level B harassment due to its potential to disturb marine mammals' behavioral patterns.[239] It also falls within the statutory language of the ESA's "take" and "harass" definitions, because it can significantly impact behaviors necessary for the survival and recovery of listed species and their critical habitats.[240] Thus, the absence of regulation and litigation does not mean that the statutes cannot support better enforcement and colorable claims, particularly in light of new scientific evidence.

A novel ability to understand the content of communications among cetaceans could be the requisite scientific evidence for improving enforcement. Cetacean communication evidence that demonstrates chronic shipping vessel noise disrupts behavioral patterns like migrating, nursing, breeding, feeding, sheltering, and communicating would equip advocates with proof in line with the plain language of the MMPA and ESA.[241] Challenging agency actions with such evidence could bring about revised technical guidance and more protective acoustic thresholds. These revisions would not only provide the NMFS a stronger basis to regulate shipping noise in or near critical habitats, but they would also signal to the shipping industry at large that those types of activities will likely result in a take of marine mammals. This evidence could also demonstrate the

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that "applying for an incidental take statement is not mandatory" suggests the court would not be at liberty to order that action as a remedy).

238. Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244, 2251 (2024); Harris, *supra* note 178 at 237-38 (discussing how lawsuits challenging a failure to act to prevent the taking of endangered or threatened species would need to be brought under the Administrative Procedure Act and the limitations of such a route). It remains to be seen how much weight agency interpretations will continue to receive in light of *Loper Bright Enterprises v. Raimondo*. The NMFS has been known to "routinely rel[y] on *Chevron* to promulgate far-reaching regulations under both the Endangered Species Act and Marine Mammal Protection Act[,]" so *Loper Bright* may open the door to new challenges involving these statutes. John Cruden, *Implications of Recent Supreme Court Decisions on Administrative, Environmental, and Natural Resources Law*, BEVERIDGE & DIAMOND (Jul. 3, 2024) https://www.bdlaw.com/publications/implications-of-recent-supreme-court-decisions-on-administrative-environmental-and-natural-resources-law. Nevertheless, the actions and interpretations of NMFS may still receive deference under the *Skidmore* precedent and "inform the judgment of the judiciary[.]" *Loper Bright*, 144 S. Ct. at 2258, 2262.

239. 16 U.S.C. § 1362(18)(A), (C), (D).

240. Harris, *supra* note 178 at 225, 236.

241. *See, e.g.*, Cook Inletkeeper v. Raimondo, 533 F. Supp. 3d 739, 757-58 (D. Alaska 2021) (noting that under the MMPA, Level B harassment includes any action causing disruption to marine mammals' behavioral patterns even if temporary and that all of the animals in a population can be harassed if there is the potential for disruption to affect the most sensitive individual in the group).

insufficiency of existing or prospective mitigation measures, which have been used to justify non-enforcement of vessel noise.[242]

The *Cook Inletkeeper* decision exemplifies how communication evidence could be used to challenge agency action. In deciding that a take was unlikely to occur, NMFS relied on the assumption that marine mammals in the transited area were "likely habituated to the existing baseline of commercial ship traffic."[243] While commercial shipping renders any "existing baseline" a moving target, understanding cetacean communication could reveal whether cetaceans are truly habituated to the current cacophony. For example, humans could discover distress messages, what frequencies are most meaningful, whether communication is less frequent or otherwise impeded, and how baseline noise already interferes with essential behaviors and processes. These insights could aid enforcement by helping NMFS evaluate cumulative impacts and respect existing thresholds in an application.

An understanding into cetacean messages might also invigorate the use of the ESA citizen suit provision in seeking injunctions. These communications could provide advocates the requisite scientific evidence to substantiate a showing of irreparable harm and obtain injunctions against shipping traffic that impacts listed species.[244] In the context of North Atlantic right whales, Benjamin Harris noted that current scientific evidence indicates increased stress levels in the presence of shipping traffic, but has yet to comprehensively document the effects of this increased stress on the behavior and physiology of the species.[245] Consequently, current scientific knowledge may not effectively support such injunctions, leaving ample opportunity for further scientific input. Insight into cetacean communication could help substantiate critical litigation hurdles, including proving irreparable harm and the likelihood of future injury.

Overall, understanding cetacean communication can provide insight and evidence of the true impacts of chronic vessel noise as experienced by cetaceans. This would lend the ESA and MMPA greater force, and equip advocates to challenge the regulatory system's shortcomings in courts of law and public opinion.

B. Understanding Cetacean Communication May Catalyze New Legal Convergences Between Human and Nonhuman Animals

In the realm of nonhuman animal welfare and conservation, a myriad of laws and regulations safeguard the treatment and critical populations of

242. *See, e.g.*, *id*.
243. *Id*. at 755-56.
244. Harris, *supra* note 178, at 237-41.
245. *Id*. at 243.

nonhuman animals.[246] Scholars and advocates alike have articulated compelling arguments for enhanced legal protections, at times even emphasizing the sentience and cognitive capacities of certain species as grounds for greater consideration, care, and conservation efforts.[247] While these efforts hold significant promise for improving the welfare of nonhuman animals, the ensuing Subparts focus on less explored[248] territories of legal inquiry: individual rights and legal personhood. Our chosen focus does not reflect a disbelief in the potential changes that could arise from nonhuman animal welfare and conservation initiatives informed by discoveries about the content of cetacean communication. Indeed, such findings could reasonably increase support for existing advocacy initiatives like amending welfare laws to ban cetacean captivity and breeding,[249] passing new policies to reduce noise pollution and shipping vessel speeds[250] (especially for critically endangered groups like the

246. *See, e.g.*, *Laws, Agreements, and Treaties*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/library/categories/laws (last visited Feb. 24, 2025); *Laws that Protect Animals*, ANIMAL LEGAL DEF. FUND, https://aldf.org/article/laws-that-protect-animals (last visited Feb. 24, 2025) (welfare).

247. *See generally, e.g.*, Raffael N. Fasel & Sean C. Butler, *The Legal Theory of Animal Rights, in* ANIMAL RIGHTS LAW (2023) (surveying arguments of scholars and advocates for various enhanced legal protections); *see also infra* notes 250-253 and accompanying text (noting advocacy initiatives for the passage of new laws and policies that promote welfare and conservation); Natalie Jacewicz, *Crafting a New Conservationism*, 113 CALIF. L. REV. 1389 (2025) (proposing a range of agency approaches to incorporate individual animals' inherent worth into wildlife management). The power of capacity and sentience arguments can be seen in the draft SWIMS Act, where the bill sponsors have relied on such arguments in their advocacy materials and the text of the bill. *The SWIMS Act*, ANIMAL WELFARE INST., https://awionline.org/sites/default/files/uploads/documents/SWIMS_Act_ONE-PAGER.pdf (last visited May 13, 2024) (informational handout disseminated by legislation sponsors referencing sentience and capacities); *Wyden Introduces Legislation to End Future Capture and Breeding of Whales for Public Display*, RON WYDEN, U.S. SENATOR FOR OR. (Jan. 31, 2024), https://www.wyden.senate.gov/news/press-releases/wyden-introduces-legislation-to-end-future-capture-and-breeding-of-whales-for-public-display (Senate press release referencing sentience and capacities); SWIMS Act, H.R.7145, S.3694, 118th Cong. (2024) (draft bill including findings on cetacean intelligence and suffering in captivity).

248. The authors intentionally describe this area of inquiry as "less explored" rather than "unexplored" because of the evolving nature of these scientific advancements. As new findings are released, timely scholarly commentary follows. *See generally, e.g.*, Andrew W. Torrance & Bill Tomlinson, *If We Could Talk to the Animals, How Should We Discuss Their Legal Rights?*, 92 FORDHAM L. REV. 1973 (2024) (investigating the possibility of extending legal rights to animals based on their communication abilities and putting forth new legal constructs like a Magna Carta Cetacea to codify the rights of cetaceans and a "United Species" body within the United Nations to represent nonhuman entities). Given the delay between the writing and publication of this Article, many more commentaries and articles will likely have been published on this topic in the interim. Readers should assume that any lack of engagement with arguments posed elsewhere is merely a practical limitation rather than a deliberate choice to exclude such sources.

249. *See, e.g.*, H.R.7145, S.3694 (draft bill).

250. *See, e.g.*, *Wave of New Funding for Blue Speeds Campaign that Protects Whales and Environment*, INT'L FUND FOR ANIMAL WELFARE, https://www.ifaw.org/press-releases/new-funding-blue-speeds (May 9, 2023) (describing campaign to reduce shipping speeds to decrease underwater noise and whale collisions); *Saving Marine Life Could Be As Easy As Turning Down the Volume*, INT'L FUND FOR ANIMAL WELFARE, https://www.ifaw.org/projects/ocean-noise-reduction-global (last visited May 13, 2024) (developing national policies to reduce ocean noise); *Arctic Watch: Navigating Safe Shipping in the*

North Atlantic right whale or the Cook Inlet beluga whale),[251] and enacting international moratoriums on deep seabed mining activities,[252] among others.

In the following Subparts, we first examine the prospect of affording new legal rights to cetaceans through the lens of two human rights: the right to be free from torture and other cruel treatment, and the right to participate in cultural life. Subsequently, we consider how an understanding of communication content may help reconceptualize cetaceans as legal persons with inherent rights and interests.

1. New Individual Rights

Before exploring the potential individual rights that could emerge from understanding the cetacean language, we first examine how foundational human rights principles have influenced the legal treatment of nonhuman animals and the evolving intersection between human and nonhuman animal rights. A growing movement in nonhuman animal law theory and practice draws on the language and legitimacy of human rights and the traditions and legal frameworks of Indigenous peoples to advocate for the recognition of nonhuman animals' rights. [253] This discussion paves the way for considering two potential rights for cetaceans: the right to be free from torture (Subpart a) and the right to participate in cultural life (Subpart b). These Subparts integrate current understandings of cetacean suffering and cultural life with human rights jurisprudence, and position the understanding of cetacean language as a valuable contribution to the development of new legal protections.

Arctic, WWF, https://wwfwhales.org/news-stories/arctic-watch-navigating-safe-shipping-in-the-arctic (last visited May 14, 2024) (describing a sea traffic management scheme to reduce vessel speeds).

251. *See, e.g.*, *Defenders and Allies Call on Biden Administration for Overdue Right Whale Protections*, DEFS. OF WILDLIFE (Feb. 13, 2024), https://defenders.org/newsroom/defenders-and-allies-call-biden-administration-overdue-right-whale-protections; *Cook Inlet Beluga Whale*, MARINE MAMMAL COMMISSION, https://www.mmc.gov/priority-topics/species-of-concern/cook-inlet-beluga-whale (last visited Nov. 18, 2024).

252. *See, e.g.*, *No Deep Seabed Mining*, WWF, https://wwf.panda.org/discover/our_focus/oceans_practice/no_deep_seabed_mining (last visited May 14, 2024); *Voices Calling for a Moratorium*, DEEP SEA CONSERVATION COAL., https://deep-sea-conservation.org/solutions/no-deep-sea-mining/momentum-for-a-moratorium/governments-and-parliamentarians (last visited May 14, 2024) (noting governments and officials that have called for a moratorium, precautionary pause, or ban on deep-sea mining); *Marine Expert Statement Calling for a Pause to Deep-Sea Mining*, DEEP-SEA MINING SCI. STATEMENT, https://seabedminingsciencestatement.org (last visited May 24, 2024). Deep seabed mining has been shown to be a clear danger for at least twenty-two species of cetaceans due to the noise generated by mining operations. *Whales at Risk from Deep Sea Mining*, GREENPEACE (Mar. 28, 2023), https://maps.greenpeace.org/projects/whales-at-risk-from-deep-sea-mining. Scientists and advocates urge that more must be understood regarding the potential impacts on cetaceans before proceeding with mining given the numerous stressors facing cetaceans today. *Marine Expert Statement Calling for a Pause to Deep-Sea Mining*, supra note 251; *see generally* Kirsten F. Thompson et al., *Urgent Assessment Needed to Evaluate Potential Impacts on Cetaceans from Deep Seabed Mining*, 10 FRONTIERS MARINE SCI. 1 (2023).

253. *See infra* notes 258-262 and accompanying text.

The Universal Declaration of Human Rights (UDHR) not only established fundamental human rights, but also laid the foundation for the evolving protections for nonhuman animals. In the aftermath of World War II, the United Nations General Assembly adopted the UDHR as a common standard of achievement for all peoples and enshrined thirty fundamental human rights and freedoms.[254] These rights have formed part of and catalyzed various treaties that comprise international human rights law today. The UDHR remains the most translated document in the world, and its influence has guided protections for nonhuman animals.[255] The famous four freedoms in the UDHR—speech, belief, freedom from fear, and freedom from want—inspired the five freedoms for farm animals.[256] The 1965 Brambell Report proclaimed these freedoms as freedom from hunger and thirst; discomfort; injury, pain, or disease; fear and distress; and to express normal behavior.[257] Today, the five freedoms are recognized as the gold standard in nonhuman animal welfare and have proliferated in laws globally.[258]

The UDHR's influence is but one example of the role of human rights in the movement for nonhuman animal rights. One can see rights-based language used in both nonhuman animal law theory and practice and this has, in turn, narratively framed the advocacy for new legal entitlements (i.e., rights) and produced protections in unexpected areas of law (e.g., tort, family). Nonhuman animal law theory positions nonhuman animal rights as a logical extension of human rights, given their interconnectedness and overlaps in doctrines, while nonhuman animal rights practice seeks to achieve legal recognition of fundamental rights through legislative or judicial means.[259] Together these activities lay the conceptual and practical groundwork for the emergence of new rights. As Tom Sparks aptly puts it: "The language, experience, and historical legitimacy-claim of human rights can be powerful tools in the campaign for animal (and wider environmental) rights . . . ."[260] "Animal lawyers need not reinvent the wheel—rather, they can seize and adapt the available normative and regulatory toolbox, by applying, for example, established principles of (human) rights formulation, adjudication, conflict resolution, or implementation to the

254. G.A. Res. 217 (III) A, Universal Declaration of Human Rights (Dec. 10, 1948).

255. Anne Peters, *Rights of Human and Nonhuman Animals: Complementing the Universal Declaration of Human Rights*, 112 AM. J. INT'L L. 355, 359 (2018).

256. Universal Declaration of Human Rights, *supra* note 254; *see also* Peters, *supra* note 254, at 359.

257. Peters, *supra* note 255, at 359.

258. *Five Freedoms: The Gold Standard of Animal Welfare*, AM. HUMANE SOC'Y (Oct. 17, 2016), https://www.americanhumane.org/blog/five-freedoms-the-gold-standard-of-animal-welfare/#top.

259. *See* Saskia Stucki, *Animal Rights: A New (Non)Human Rights Revolution?*, *in* ONE RIGHTS: HUMAN AND ANIMAL RIGHTS IN THE ANTHROPOCENE 1-2 (2023) (citing thirteen scholars).

260. Tom Sparks, *Protection of Animals through Human Rights: The Case-Law of the European Court of Human Rights*, *in* STUDIES IN GLOBAL ANIMAL LAW 168 (Anne Peters ed., 2020).

animal context. [Doing so has] contributed to the main building blocks of (first wave) animal rights theory."[261]

The trajectory of nonhuman animal rights indeed bears much resemblance to that of human rights. Broadly speaking, the birth process of a new human right can be categorized into three stages, moving "from its intellectual inception (the idea phase), to its gradual reception and consolidation in legal and political arenas (the emergence phase), to its eventual legal recognition and codification (the recognition phase)."[262] Viewed through this framework, nonhuman animal rights are currently located somewhere between the first and second stages.[263]

Closer scrutiny of the intersections that nonhuman animal law practice has produced between humans and nonhuman animals reveals a complex legal landscape. Across substantive areas of law, the status of nonhuman animals is akin to a mosaic comprising elements of traditional property treatment, quasi-property status, and convergences with human legal protections. This mosaic, especially evident in the quotidian areas of law, challenges the notion of a clear-cut divide between humans and nonhuman animals. Specific examples, explained below, regarding the treatment of companion animals in U.S. tort, trusts and estates, criminal, and family law illustrate the mosaic that practitioners and this "rights turn"[264] have produced.

In tort law, certain jurisdictions consider loss of companionship, traditionally associated with humans,[265] in cases involving harm to nonhuman animals. Departing from solely assessing fair market value of the nonhuman animal property, some courts now recognize emotional and sentimental worth.[266]

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261. Tom Sparks, Visa A. J. Kurki & Saskia Stucki, *Animal Rights: Interconnections with Human Rights and the Environment*, 11 J. HUM. RTS. & ENV'T 149, 151 (2020); *see, e.g.*, Tristan Derham & Freya Mathews, *Elephants as Refugees*, 2 PEOPLE NAT. 103, 104 (2019) (using the Refugee Convention criteria to argue that African elephants meet the criteria without recourse to the claim that they are persons).

262. Stucki, *supra* note 259, at 4.

263. *Id*. (citing Phillip Alston, *Human Rights and Basic Needs: A Critical Assessment*, 12 REVUE DES DROITS DE L'HOMME 19, 38 (1979))

264. *See, e.g.*, RAFFAEL N. FASEL & SEAN C. BUTLER, ANIMAL RIGHTS LAW 76-100, 119-168 (2023) (describing the legal theory of animal rights and how it has appeared in litigation and legislation); Jane Kotzmann & Nick Pendergrast, *Animal Rights: Time to Start Unpacking What Rights and for Whom*, 46 MITCHELL HAMLINE L. REV. 157, 177 (2019) (comparing animal welfare and animal rights as legal vehicles of protection and describing how "animal rights language has been invoked in the legal context").

265. *Loss of Consortium*, CORNELL L. SCH. LEGAL INFO. INST., https://www.law.cornell.edu/wex/loss_of_consortium (last visited May 14, 2024) (describing loss of consortium as the loss of the intangible benefits (including emotional) of a statute-specified relationship such as a marital spouse or child).

266. Lauren M. Sirois, *Recovering for the Loss of a Beloved Pet: Rethinking the Legal Classification of Companion Animals and The Requirements for Loss of Companionship Tort Damages,* 163 U. PA. L. REV. 1199, 1203 (2015) (discussing prior fair market value approach to companion animals). Courts in New York and Illinois have rejected the fair market value test and included the sentimental value or loss of companionship as part of the "actual" or "intrinsic" value of the nonhuman animal. *Id*. at 1215-17 (discussing *Brousseau v. Rosenthal*, 443 N.Y.S.2d 285 (N.Y. Civ. Ct. 1980); *Mercurio v. Weber*, No.

This shift reflects a nascent convergence between human and nonhuman legal spheres. Similarly, in family law, statutes akin to the "best interest of the child" standard are being employed to determine custody arrangements for nonhuman animals during divorce proceedings, despite their classification as property.[267]

Additional pieces of this mosaic originate in trusts and estates law, criminal law, and nonhuman animal cruelty law. States increasingly allow inclusion of nonhuman animals in wills and trusts, mirroring practices concerning human heirs.[268] Moreover, nonhuman companion animals can now be included in domestic violence protective orders in the majority of U.S. states, extending legal protections beyond property status.[269] Finally, state initiatives like the Courtroom Animal Advocate Program reflect a growing recognition that nonhuman animal victims' interests should be independently represented, paralleling the *guardian ad litem* system designed to protect the rights of human minors in family law proceedings.[270]

Although the mosaic approach has proven insufficient to transition companion nonhuman animal rights from the emergence phase to the recognition phase, it illustrates the growing convergence between the human and nonhuman animal legal domains—albeit for a small group of species (e.g., cats, dogs). Crucially, the mosaic approach is not the sole harbinger of potential convergences. In notable, albeit limited, instances, clearer intersections have emerged through the extension of rights previously reserved for humans alone to nonhuman entities.

Existing nonhuman individual rights have arisen from diverse sources. Some stem from statutory enactments, such as in Indigenous or Indigenous-

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1113/03, 2003 WL 21497325 (Nassau Cnty. Dist. Ct. June 20, 2003); and *Jankoski v. Preiser Animal Hosp.*, 510 N.E.2d 1084, 1086 (Ill. App. Ct. 1987)). Florida and Hawaii have awarded mental suffering as an element of damages. *Id*. at 1220-21 (discussing *La Porte v. Assoc. Indep., Inc.*, 163 So. 2d 267, 267-68 (Fla. 1964) and *Campbell v. Animal Quarantine Station*, 632 P.2d 1066, 1067 (Haw. 1981); 510 ILL. COMP. STAT. ANN. 70/16.3 (West 2014) ("Humane Care for Animals Act")). *See also* TENN. CODE ANN. § 44-17-403(a)(1) (2014) ("T-Bo Act").

267. Kelly Olszuk, *Detailed Discussion: Who Let The Dogs Out?: Companion Animals in Human Divorces*, ANIMAL LEGAL & HIST. CTR. (2020), https://www.animallaw.info/article/detailed-discussion-divorce-and-pets (discussing California, Alaska, Illinois, and New Hampshire statutes); *see also* S. 4248, 2021-2022 Reg. Sess. (N.Y. 2021), https://www.nysenate.gov/legislation/bills/2021/S4248 (including best interest of the companion animal provisions for divorce proceedings).

268. ANGELA FERNANDEZ, ANIMALS AS PROPERTY, QUASI-PROPERTY OR QUASI-PERSON 46 (2021) (citing PAMELA D. FRASCH ET AL., ANIMAL LAW IN A NUTSHELL 241-52 (2nd ed. 2016)).

269. As of December 2022, thirty-eight of fifty states permit courts to include animals in protection orders. ANIMAL LEGAL DEF. FUND, ANIMAL PROTECTION: U.S. STATE ANIMAL PROTECTION LAWS RANKING REPORT 10 (2022).

270. *Id*. at 5 (discussing how Maine and Illinois courts can appoint third-party advocates in animal cruelty cases); *guardian ad litem*, CORNELL L. SCH. LEGAL INFO. INST., https://www.law.cornell.edu/wex/guardian_ad_litem (last visited May 14, 2024) (discussing *guardian ad litem* system).

influenced laws that explicitly confer rights to nature and bodies of water.[271] Others arise from judicial interpretations of anthropocentric constitutional provisions, construing a human entitlement to "a clean and healthy" or "balanced" environment as a source of rights for nonhuman animals.[272] In rarer cases, rights directly emanate from eco-centric constitutional clauses, like the Ecuadorian Constitution that explicitly recognizes "Pacha Mama" (Kichwa for Mother Nature) as a subject of rights.[273] In fact, this specific Ecuadorian constitutional provision has been invoked in court rulings such as *Los Cedros* and *Estrellita*, clarifying the rights of specific forests and wildlife.[274] A growing number of jurisdictions recognize that human and nonhuman beings are entangled in a "more-than-human world."[275] This perspective views legal rights for human and nonhuman animals not as categorically separate, but as components of a more holistic conception of law and "more-than-human rights," as César Rodríguez-Garavito has proposed.[276]

The foundational role that Indigenous Peoples have played in the development of legal rights for nonhuman animals and other living beings bears underscoring, albeit briefly. Indigenous history and traditional knowledge have long portrayed nonhuman animals akin to humans: as thinking, talking, sentient beings.[277] In some Indigenous perspectives, "the original condition common to humans and animals is not animality, as in Western thought, but humanity

271. *See, e.g.*, NAVAJO NATION CODE ANN. tit. 1, § 205 (2010) (noting "[a]ll creation, from Mother Earth and Father Sky to the animals, those who live in water, those who fly and plant life" as legal subjects with their own laws and rights); ORANGE CTY., FLA., CODE ORDINANCES pt. I, art. VII, § 704.1.A(1) (2020) (granting Orange County waters legal personhood with a right to exist, flow, to be protected against pollution and to maintain a healthy ecosystem); Ley de Derechos de la Madre Tierra [Law of the Rights of Mother Earth], Ley 071, art. 7 (Bol. 2010) (recognizing Mother Earth as a legal person with the rights to life, diversity of life, water, clean air, equilibrium, restoration, and pollution-free living).

272. *See, e.g.*, CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] art. 225 (Braz.) (guaranteeing the right to an ecologically balanced environment); S.T.J.J., Recurso Especial No. 1.797.175 – SP, Relator: Minister Og Fernandes, 21.03.2019, (Braz.), at 4-5, 7 (finding that the rights of nonhuman sensitive beings, like parrots, have constitutional legitimacy as the Article 225 right to an ecologically balanced environment protects fauna and flora).

273. CONSTITUCIÓN DEL ECUADOR, arts. 71-74.

274. "Los Cedros" case, Caso No. 1149-19-JP/20, at 77-78 (Corte Constitucional del Ecuador [Constitutional Court of Ecuador], 10 Nov. 2021) (Ecuador) (concluding constitutional rights of nature belong to individual places and prohibiting mining in the Los Cedros forest); "Estrellita Monkey" case, Caso No. 253-20-JH/22, at 55 (Corte Constitucional del Ecuador [Constitutional Court of Ecuador], Jan. 27 2021) (Ecuador) (concluding the constitutional rights of nature are held by all wild nonhuman animals).

275. *See generally* DAVID ABRAM, THE SPELL OF THE SENSUOUS: PERCEPTION AND LANGUAGE IN A MORE-THAN-HUMAN WORLD (1997).

276. César Rodriguez-Garavito, *More-Than-Human Rights: Law, Science, and Storytelling Beyond Anthropocentrism, in* MORE-THAN-HUMAN RIGHTS: AN ECOLOGY OF LAW, THOUGHT AND NARRATIVE FOR EARTHLY FLOURISHING 21 (César Rodriguez-Garavito ed., 2024).

277. *See, e.g.*, Melissa Marie Legge & Margaret Robinson, *Animals in Indigenous Spiritualities: Implications for Critical Social Work*, 6 J. INDIGENOUS SOC. DEV. 1, 3 (2017).

itself."[278] Thus, kinship includes all beings, even those that other cultures may not consider alive, like rivers and mountains.[279] This helps explain why countries with significant Indigenous perspectives in the population, such as Ecuador, recognize rights of nature, and why many Indigenous worldviews understand personhood as "an experience common to all forms of life."[280] In Ecuador, Indigenous mobilization and the elevation of traditional knowledge in the years leading up to its Constitution's ratification directly led to its incorporation of the rights of nature and Indigenous conceptions such as mother nature ("Pacha Mama") and a sustainable "good life" ("sumak kawsay").[281] This Article cannot do justice to the rich and nuanced influence of Indigenous knowledge and movements on the development of rights for nonhuman living beings, but scholars elsewhere aptly have.[282]

Against this backdrop, the ensuing Parts explore possible convergences and new rights that Project CETI and other initiatives in decoding animal communication's potential success may catalyze. Specifically, we argue that such scientific advances would offer robust and potentially decisive evidence in support of rights claims against nonhuman animal torture and for the protection of nonhuman cultural life.

a. Freedom from Torture and Other Cruel, Inhuman or Degrading Treatment

Across legal systems, torture is universally repudiated. The widely-ratified Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT) and the International Covenant on Civil and Political Rights (ICCPR) both contain proscriptions against torture.[283] Other international and regional treaties, as well as in the vast majority of domestic

278. Viveiros de Castro, *The Cosmological Pronouns and the American Indian Perspectivism*, 2 MANA 115, 119 (1996).

279. *See, e.g.*, Legge & Robinson, *supra* note 277, at 3.

280. *Id.*; FERNANDEZ, *supra* note 268, at 36 ("Personhood for nonhuman animals makes the most sense in Indigenous legal systems where there is no question that nonhuman animals are persons, as are rivers, trees, rocks, anyone or anything that is 'living' in the sense of being an enspirited entity with whom one is interconnected, including those who have died.").

281. *See, e.g.*, César Rodríguez-Garavito & Carlos Andrés Baquero-Díaz, *Reframing Indigenous Rights: The Right to Consultation and the Rights of Nature and Future Generations in the Sarayaku Legal Mobilization*, *in* LEGAL MOBILIZATION FOR HUMAN RIGHTS 78-83 (de Búrca ed. 2022).

282. *See, e.g.*, Markus Fraundorfer, *The Rediscovery of Indigenous Thought in the Modern Legal System: The Case of the Great Apes*, 9 GLOB. POL'Y 17, 20 (2018); https://global.oup.com/academic/product/legal-mobilization-for-human-rights-9780192866578?cc=us&lang=en&; FERNANDEZ, *supra* note 268, at 36-41; EDUARDO VIVEIROS DE CASTRO, COSMOLOGICAL PERSPECTIVISM IN AMAZONIA AND ELSEWHERE 54, 93, 97 (1998); Rodríguez-Garavito & Baquero-Díaz, supra note 280, at 79.

283. Dec. 10, 1984, U.N.T.S. 999 (174 state parties); Dec. 16, 1966, U.N.T.S. 1456 (174 state parties).

legal systems, also prohibit torture.[284] Today, the prohibition on torture is widely accepted as customary international law and a *jus cogens* norm, creating an obligation *erga omnes* (owed to and by all States) to act against torturers.[285] Understanding cetacean communication during moments of suffering could expand this freedom to protect them from torture in ways that are more capacious than existing anti-cruelty laws. This Part considers torture jurisprudence concerning sensory deprivation, overstimulation, and family-based suffering (e.g., separation from and threats to relatives), to draw connections to the lived experiences of cetaceans. These comparisons allow us to see the suffering already imposed on cetaceans as forms of torture or cruel treatment, and may catalyze a new individual right proscribing such harm. This analysis also stands as an example in support of the larger proposition that translating nonhuman animal communication may bring about greater protections for nonhuman animals.

Generally speaking, the right to freedom from torture protects all human beings from severe physical or psychological distress by, or with the approval or acquiescence of, government agents acting for a specific purpose (e.g., punishment or information gathering).[286] This right has been applied against a variety of measures, ranging from electric shock to rape and near drowning.[287] The right to be free from torture is often paired with the right to be free from cruel, inhuman, or degrading treatment ("other cruel treatment"). Distinct from torture, the right to be free from other cruel treatment protects against lower levels of proscribed suffering without requiring specific intent.[288] Examples of other cruel treatment include sleep and food deprivation, blindfolding, exposure to continuous loud noise or bright lights, and forced standing.[289] Proscribed acts are not limited to physical pain or injury: Mental suffering, such as threats against family, humiliation, and prolonged solitary confinement, can also rise to the level of other cruel treatment.[290]

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284. *See generally* NIGEL RODLEY & MATT POLLARD, *The Legal Prohibition of Torture and Other Ill-Treatment*, *in* THE TREATMENT OF PRISONERS UNDER INTERNATIONAL LAW (3rd ed, 2011) (describing the various legal frameworks that proscribe torture and other forms of cruel treatment and its peremptory norm status).

285. *See id*. at 65-66, 76; THE UNITED NATIONS COMMITTEE AGAINST TORTURE ET AL., 26 JUNE JOINT STATEMENT 2 (2018).

286. *Torture*, INTERNATIONAL JUSTICE RESOURCE CENTER, https://ijrcenter.org/thematic-research-guides/torture/ (last visited May. 14, 2024).

287. *The Legal Prohibition Against Torture*, HUM. RTS. WATCH, https://www.hrw.org/news/2003/03/11/legal-prohibition-against-torture (last updated June 1, 2004).

288. *Torture*, *supra* note 286.

289. *Id.*

290. OFFICE OF THE HIGH COMMISSIONER FOR HUMAN RIGHTS, UNITED NATIONS, ISTANBUL PROTOCOL: MANUAL ON THE EFFECTIVE INVESTIGATION AND DOCUMENTATION OF TORTURE AND OTHER CRUEL, INHUMAN OR DEGRADING TREATMENT OR PUNISHMENT 87-88 (2022) [hereinafter ISTANBUL PROTOCOL] (listing psychological torture methods); UNITED NATIONS VOLUNTARY FUND FOR

Invoking this human right to protect nonhuman animals may seem strange given the ubiquity of nonhuman animal anti-cruelty laws. In the United States for example, the Preventing Animal Cruelty and Torture Act classifies performing egregious forms of cruelty, like crushing, burning, drowning, suffocating, or impaling a nonhuman animal, as a federal crime.[291] At the state level, which governs most animal treatment, all fifty states proscribe some form nonhuman animal torture.[292] However, the exceptions given for wildlife, agriculture, veterinary practices, and research in the majority of federal and state anti-cruelty laws narrow these protections mostly to companion animals.[293] Moreover, these laws primarily address overt physical injuries and fail to capture the panoply of covert physical and psychological harms that produce similar degrees of harm.[294] Looking through the prism of human rights law demonstrates how analogous suffering already exists in the everyday lives of cetaceans. Two examples from torture jurisprudence aid our exploration in understanding how cetacean communication could catalyze a related new right. Judicial and quasi-judicial bodies have found torture or other cruel treatment in situations where persons are subjected to sensory deprivation (e.g., sound, light, sense of time, and physical and social contacts) or overstimulation (e.g., loud music, bright lights, and prolonged interrogations).[295] Indeed, the widely recognized Istanbul Protocol includes sensory deprivation and overload among an illustrative list of torture methods.[296] The seminal case *Ireland v. United Kingdom*, decided by the European Commission of Human Rights and confirmed

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VICTIMS OF TORTURE, INTERPRETATION OF TORTURE IN LIGHT OF THE PRACTICE AND JURISPRUDENCE OF INTERNATIONAL BODIES 22-23 (2011) (describing psychological torture).

291. *Laws that Protect Animals*, *supra* note 246.

292. *Id*. ("Each of the 50 states now has a felony animal cruelty law on the books."); *see also* Joyce Tischler, *A Brief History of Animal Law, Part II (1985 - 2011)*, 5 STAN. J. ANIMAL L. & POL'Y 27, 57-58 (2012) (discussing state anti-cruelty statutes); Mary Randolph, *Animal Cruelty and Neglect*, NOLO, https://www.nolo.com/legal-encyclopedia/free-books/dog-book/chapter13-3.html (last visited May 14, 2024).

293. *See Laws that Protect Animals*, *supra* note 246 (noting typical exceptions for federal and state laws and how the latter is primarily concerned with companion animals); *State Animal Anti-Cruelty Laws*, MICH. STATE UNIV. ANIMAL LEGAL & HIST. CTR., https://www.animallaw.info/content/state-animal-anti-cruelty-laws (last visited May 14, 2024) (noting typical exceptions).

294. *See, e.g., Laws that Protect Animals*, *supra* note 246(discussing various laws that do not include provisions related to other forms of covert physical or mental harms).

295. *See, e.g*., Godínez-Cruz v. Honduras, Merits, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 5, ¶ 164 (Jan. 20, 1989) (finding prolonged isolation and deprivation of communication to be cruel treatment); Öcalan v. Turkey (No.2), Eur. Ct. H.R. 107 (18 Mar. 2014) (finding sensory and social isolation to be cruel treatment); Law Office of Ghazi Suleiman v. Sudan, Communication 222/98 - 229/99, African Commission on Human and Peoples' Rights [Afr. Comm'n H.P.R.], ¶ 44, (May 29, 2003) (finding incommunicado detention to be inhuman treatment both for the detainees and their families); Rep. of the Comm. against Torture, 52nd Sess., Sept. 10, 1997, U.N. Doc. A/52/44 38 (finding Israel's use of hooding, loud music, sleep deprivation, and using cold air to chill constitute torture).

296. ISTANBUL PROTOCOL, *supra* note 290, at 121 (describing the Protocol as a "global standard"); *see also id*. ¶ 372 (describing torture methods).

by the European Court of Human Rights, demonstrates how sensory tactics like exposure to continuous, loud, hissing noises amounts to torture.[297] In a unanimous decision, the Commission underscored that preventing the use of the senses, "especially the eyes and the ears," had direct and profound effects on a person's physical and mental integrity.[298]

Sensory deprivation and overstimulation are highly relevant to the lived experience of cetaceans today. As considered at length in Subpart III.C, chronic and acute underwater noise pollution can have devastating impacts. Underwater noise can deprive cetaceans of ambulatory senses, either by causing deafness or by masking sounds critical for their survival (food, social communication, predators, etc.).[299] Noise can also affect the ability of offspring to acquire their own communication system.[300] In its gravest form, the sensory overload of noise can cause death by physical injury or atypical mass strandings.[301]

Understanding cetacean communication during suffering could reveal volume thresholds for deafness or auditory masking, as well as the duration of impacts. This information would help assess the effects on cetaceans' physical and mental integrity,[302] and potentially classify those effects as a torturous or other cruel act involving sensory overload or deprivation.

Judicial and quasi-judicial bodies have also been willing to find torture or other cruel treatment in cases involving the suffering of, separation from, or threats to, relatives. Examples include the anguish and sorrow caused by the enforced disappearance,[303] and the related unknown whereabouts, of family members;[304] threats of death or harm to family members;[305] restricted

297. Ireland v. United Kingdom, App. No. 5310/71 ¶ 13 (10 September 2018), https://hudoc.echr.coe.int/eng?i=001-181585 (quoting the Commission's establishment of the facts).

298. *Id*. (quoting the Commission's opinion).

299. *Supra* notes 167 203, and 204 and accompanying text.

300. *Id.*

301. *Supra* notes 167 and accompanying text.

302. Ireland v. United Kingdom, App. No. 5310/71, ¶ 13.

303. According to the International Convention for the Protection of All Persons from Enforced Disappearance, enforced disappearance "is considered to be the arrest, detention, abduction or any other form of deprivation of liberty by agents of the State or by persons or groups of persons acting with the authorization, support or acquiescence of the State, followed by a refusal to acknowledge the deprivation of liberty or by concealment of the fate or whereabouts of the disappeared person, which place such a person outside the protection of the law." 2716 Dec. 20, 2006 U.N.T.S. 3., art. 2.

304. ISTANBUL PROTOCOL, *supra* note 290, at 11; Almeida de Quinteros v. Uruguay, Human Rights Council Communication No. 107/1981, 21 July 1983, § 14 (finding the "anguish and stress caused to the mother by the disappearance of her daughter and by the continuing uncertainty concerning her fate and whereabouts" amounted to torture or other cruel treatment); Schedko v. Belarus, Human Rights Council Communication No. 886/1999, 3 April 2003, §10.2 (finding the failure to notify a parent of their son's execution and subsequent location amounted to inhumane treatment); *see also* note 213 (citing to similar cases).

305. ISTANBUL PROTOCOL, *supra* note 290, at 88.

communication and interaction with family while in detention;[306] and the torture, ill-treatment, or murder of immediate next of kin.[307] Suffering of, separation from, and threats to relatives already occur in the cetacean context. Cetaceans witness harm to, and the death of relatives caused by unintentional (although not unexpected) actions like vessel strikes and acute noise sources. Such was the recent case of the endangered North Atlantic right whale mother Juno.[308] Juno was seen swimming with her young offspring who had suffered several deep propeller wounds.[309] Her offspring suffered from those injuries, in plain view of Juno, for at least a month, in what NOAA has characterized as a "slow, agonizing death."[310] Juno's case, unfortunately, is far from uncommon, as vessel strikes are a leading cause of death for large whale species.[311] There is also substantial evidence suggesting that cetaceans care for and attend to dead or dying individuals.[312] Carrying dead juveniles has been documented as a common behavioral response, especially in toothed whales.[313] The discovery that dolphins have signature whistles, for example, allowed researchers to observe that a mother dolphin called signature whistles, likely in distress, while

306. Espinoza de Polay v. Peru, Human Rights Council Communication No. 577/1994, 6 Nov. 1997, § 8.6 (finding total isolation and restrictions on family correspondence constitutes degrading treatment); Laureano Atachcahua v. Peru, Human Rights Council Communication No. 540/1993, 25 Mar. 1996, § 8.5 (finding abduction and prevention of family contact constituted cruel treatment); Godínez-Cruz v. Honduras, Merits, Judgment, Inter-Am.Ct. H.R. (ser. C) No. 5, ¶ 164 (Jan. 20, 1989) (finding deprivation of communication constituted cruel treatment); Civil Liberties Organisation v. Nigeria, African Commission on Human and Peoples' Rights [Afr. Comm'n H.P.R.], ¶ 27 (15 November 1999) (finding prevention of family contact may constitute inhuman treatment).

307. *See, e.g.*, Gómez-Paquiyauri Brothers v. Peru, Merits, Reparations, and Costs, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 110, ¶ 118 (July 8, 2004) (finding that the "suffering and . . . powerlessness" of the immediate next of kin of the murder victims amounted to cruel treatment); Sánchez v. Honduras, Preliminary Objections, Merits, Reparations, and Costs, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 99, ¶ 62 (June 7, 2003) (finding that the murder and signs of extreme violence on the corpse when it was found, among other actions, caused suffering of the next of kin amounting to cruel treatment); Prosecutor v. Kvočka, Case No. IT-98-30/1-T, International Criminal Tribunal for the former Yugoslavia, ¶ 149 (2 November 2001) (finding the mental suffering resulting from watching a relative be severely mistreatment would amount to torture); Marouf v. Algeria, United Nations International Covenant on Civil and Political Rights Human Rights Committee, Communication No. 1899/2009, ¶¶ 7.6 - 7.7 (21 March 2014) (finding witnessing family members tortured, among other actions, to be cruel treatment).

308. Francine Kershaw, *Vessel Strike Severely Wounds Right Whale Calf*, NAT RES. DEF. COUNCIL (Jan 10, 2024), https://www.nrdc.org/bio/francine-kershaw/vessel-strike-fatally-wounds-right-whale-calf.

309. *Id.*

310. Li Cohen, *First North Atlantic Right Whale Baby Born this Season Suffered "Slow, Agonizing Death" After Vessel Strike, NOAA Says*, CBS NEWS (Mar. 5, 2024), https://www.cbsnews.com/news/north-atlantic-right-whale-baby-slow-agonizing-death-vessel-strike-noaa; *see* Kershaw, *supra* note 308.

311. Anna C. Nisi et al., *Ship Collision Risk Threatens Whales Across the World's Oceans*, 386(6724) SCIENCE 870, 870 (2024).

312. Melissa A. L. V. Reggente et al., *Social Relationships and Death-Related Behaviour in Aquatic Mammals: A Systematic Review* 373 PHIL. TRANS. R. SOC. B. 1, 3 (2018).

313. *See, e.g.*, Giovanni Bearzi, et al., *Whale and Dolphin Behavioural Responses to Dead Conspecifics*, 128 ZOOLOGY 1, 2 (2018).

interacting with the carcass of her dead juvenile.[314] Cetaceans also witness harm to and death of their next of kin because of intentional actions. For example, the annual Faroe Island hunts involve herding pods of cetaceans into shallow areas where they are then killed in front of each other.[315]

The separation and abduction of cetacean calves for life-long human research and entertainment captivity is another analogous example to enforced disappearances in human society.[316] Chronic and acute anthropogenic noise pollution also prevents members of family pods from communicating temporarily or permanently, akin to human incommunicado detention and denial of social contacts.[317] Research already demonstrates that the loss of an individual from a unit or pod can affect the unit's social network.[318]

Understanding cetacean communication could provide even greater insight, including how next of kin suffer when viewing harmed or killed family members, how they continue to search for and talk about forcibly disappeared relatives, and the degree of harm incurred while unable to communicate. Decoding cetacean communications during these moments of anguish might both help us understand the torturous nature of these impacts and come to view them as unacceptable wrongs that should be forbidden by law.

The exploration of torture jurisprudence and its intersection with existing cetacean harm is not intended to make the case that these impacts are violations of existing human rights. To state the obvious, nonhuman animals are not within the jurisdiction of these conventions and there are other textual limitations to

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314. Giulia Pedrazzi, Giancarlo Giacomini & Daniela Silvia Pace, *First Report of Epimeletic and Acoustic Behavior in Mediterranean Common Bottlenose Dolphins (Tursiops truncatus) Carrying Dead Calves*, 11 BIOLOGY 1, 2 (2022).

315. *See, e.g.*, Joshua Nevett, *Faroe Islands: Anger over Killing of 1,400 Dolphins in One Day*, BBC NEWS (Sept. 14, 2021), https://www.bbc.com/news/world-europe-58555694 (describing the practice); *New Report Debunks Claims of Whale and Dolphin Hunters in Faroe Islands*, ANIMAL WELFARE INST. (Sept. 25, 2023), https://awionline.org/press-releases/new-report-debunks-claims-whale-and-dolphin-hunters-faroe-islands ("These drive hunts are extremely stressful and painful; the animals are eyewitnesses to their fellow species being killed until they themselves meet the same fate.").

316. *See, e.g.*, *Decades of Suffering: Corky's Life in Captivity*, PETA, https://headlines.peta.org/abducted-family-corkys-story-will-break-heart/ (last visited May 26, 2024) (discussing how Corky and others were separated and abducted); *Fate of Orcas in Captivity*, WHALES & DOLPHIN CONSERVATION, https://us.whales.org/our-goals/end-captivity/orca-captivity (last visited May 26, 2024) (noting that nineteen orcas have been taken from the wild since 2002).

317. *Ocean Noise*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. GREATER FARALLONES NAT'L MARINE SANCTUARY, https://farallones.noaa.gov/eco/whales/ocean-noise.html (last visited May 29, 2024) (noting anthropogenic noise can cause temporary or permanent hearing loss and obstruct communication needed to care for young); Taylor L. Machette, *When Whales Stop Calling*, SCI. AM. (Oct. 4, 2020), https://www.scientificamerican.com/article/when-whales-stop-calling/ (describing how bowhead whales ceased to call due to seismic surveys and how the phenomenon has also be documented in blue whales); Robyn White, *Humpback Whales Are Struggling to Communicate Due to Noisy Humans*, NEWSWEEK (Feb. 21, 2024), https://www.newsweek.com/humpback-whales-struggling-communicate-noisy-humans-1872068 (discussing research that shows vessel noise hinders communication).

318. *See generally* Rob Williams & David Lusseau, *A Killer Whale Social Network is Vulnerable to Targeted Removals*, 2 BIOL. LETT. 497 (2006).

applying the law to these harms even if the subject of these rights were expanded (e.g., *mens rea*, purpose of action). This human rights lens, however, allows us to see the suffering already imposed on cetaceans as forms of torture or cruel treatment, even if they do not qualify under the text of current-day welfare laws. Against the backdrop of prior convergences between the human and nonhuman subjects of rights discussed in the preceding Subpart, it is plausible to conclude that understanding cetacean communication could bring about new convergences like a more capacious nonhuman animal right to be free from torture or other cruel treatment.

b. Right to Take Part in Cultural Life

Western social sciences and legal frameworks have assumed culture to be the singular providence of humans.[319] The Encyclopedia Britannica, for example, defines culture as including "language, ideas, beliefs, customs, codes, institutions, tools, techniques, works of art, rituals, and ceremonies, among other elements" but renders its existence dependent "upon an ability possessed by humans alone."[320] International human rights law expresses the distinctiveness of culture in the human worldview through the foundational 1948 UNDHR's inclusion of the right to participate in cultural life.[321] This right has since been enshrined in numerous international treaties, many of which enjoy wide state ratification.[322] A novel understanding of cetacean communication, particularly during behaviors that reflect cultural practices, could spur legal protection of their cultural knowledge, rituals, and sacred spaces. Scientific studies have revealed that cetaceans possess rich cultural traditions encompassing practices

319. Andrew Whiten, *The Burgeoning Reach of Animal Culture*, 372 SCIENCE 46, 46 (2021); *See also* Craig Welch, *The Hidden World of Whale Culture*, NAT'L GEOGRAPHIC (Apr. 15, 2021), https://www.nationalgeographic.com/magazine/article/the-hidden-world-of-whale-culture-feature ("Anthropologists long had considered culture—the ability to socially accumulate and transfer knowledge—strictly a human affair."). Non-Western societies, including Indigenous peoples, have often viewed culture and nonhuman animals in deeply interconnected terms; nonhuman animals are not merely seen as resources or commodities to be exploited, but as integral, sentient beings with their own cultures, traditions, and knowledge. Indigenous cultures tend to view nonhuman animals as participants in a larger web of life that encompasses both human and nonhuman entities that are in a profound and reciprocal relationship with one another. *See, e.g.*, Markus Fraundorfer, *The Rediscovery of Indigenous Thought in the Modern Legal System: The Case of the Great Apes*, 9 GLOBAL POLICY 17, 18-19 (2018).

320. Leslie A. White, *Culture*, BRITANNICA, https://www.britannica.com/topic/culture (last visited May 26, 2024).

321. Universal Declaration of Human Rights, *supra* note 254.

322. *See, e.g.,* International Covenant on Economic, Social and Cultural Rights, G.A. Res. 2200A (XXI), 999 U.N.T.S. 3, Art. 15, (Dec. 16, 1966); International Covenant on Civil and Political Rights, G.A. Res. 2200A (XXI), 999 U.N.T.S. 171, Art. 27; Convention on the Elimination of All Forms of Discrimination Against Women, G.A. Res. 34/180, 1249 U.N.T.S. 13, Art. 13(c) (Dec. 18, 1979); Convention on the Rights of the Child G.A. Res. 44/25, 1577 U.N.T.S. 3, Arts. 30-31 (Nov. 20, 1989); International Labour Organization, Indigenous and Tribal Peoples Convention, No. 169, Arts. 4, 13, 23, 30 (June 27, 1989).

related to diet, migratory routes, foraging techniques, vocal repertoires, dialects, allogrooming,[323] and social customs. Comparing the legal basis of the right to culture to our growing understanding of cetacean culture allows us to see how human activities pose profound impediments to cetacean culture, and may in turn catalyze a new individual right to cultural life. The analysis in this Subpart also supports the larger proposition that translating nonhuman animal communication may bring about greater protections for them.

The United Nations' General Comment No. 21 clarifies how to interpret the right to take part in cultural life under Article 15 of the International Covenant on Economic, Social and Cultural Rights.[324] Comment No. 21 defines "cultural life" as an "interactive," "dynamic and evolving process whereby individuals and communities [] give expression to the culture of humanity."[325] Cultural life therein includes ways of life; oral and written literature; music and song; non-verbal communication; sports and games; methods of production or technology; natural and man-made environments; food, clothing, and shelter; and traditions through which people "express their humanity and the meaning they give to their existence."[326]

Despite the preeminence of humans in standard definitions and laws as the sole creators of culture, seven decades of evidence demonstrates that "culture is widespread among animal species, both vertebrates and invertebrates, marine and terrestrial."[327] Scientists generally agree that culture exists when behaviors are socially learned, persistent, and shared widely in a specified population.[328] For humans and nonhumans alike, "behavior is what you do, culture is how you do it."[329] A survey of the literature on nonhuman animal culture reveals social learning and persistent practices in diet choices, prey types, nest sites, migratory pathways, mating, foraging techniques, tool use, vocal repertoires, courtship displays, predator recognition, circadian rhythms, grooming, social customs, and play patterns.[330] As groups of nonhuman animals transmit enduring, learned

323. Allogrooming is a social behavior in which members of the same species clean and maintain each other's appearance. *Allogroom*, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/allogroom (last visited Jan. 13, 2024).

324. Committee on Economic, Social and Cultural Rights, General Comment No. 21, Right of Everyone to Take Part in Cultural Life, U.N. Doc. E/C.12/GC/21, ¶¶ 6-7.

325. *Id.* ¶¶ 11-12.

326. *Id.* ¶ 13.

327. Whiten, *supra* note 319, at 46.

328. Welch, *supra* note 319; *see also* Barbara J. King, *Are Whales and Dolphins Cultural Beings?*, NPR (Aug. 5, 2015), https://www.npr.org/sections/13.7/2015/08/06/429862292/are-whales-and-dolphins-cultural-beings (noting one scientist's definition of culture).

329. Shane Gero, *The Lost Cultures of Whales*, N.Y. TIMES (Oct. 8, 2016), https://www.nytimes.com/2016/10/09/opinion/sunday/the-lost-cultures-of-whales.html.

330. Whiten, *supra* note 319, at 46.

behaviors, they develop sets of habits wholly distinct from others of their species, as is seen in human cultures.[331]

Cetacean societies are one such species that exhibits distinct cultures.[332] High-profile examples can be seen in sperm whale communities in the Galápagos, Caribbean, Atlantic, and Pacific; humpbacks across the South Pacific; belugas in the Arctic; and killer whales in the Pacific Northwest.[333] The latter provides an instructive example of how culture can even result in the evolution of new species.[334] The northern and southern resident killer whales in the Pacific Northwest are nearly indistinguishable: Their migratory ranges overlap, they occupy adjacent seas for several months of the year, consume the same fish (unlike other killer whale species), interact and mate extensively, and have almost identical genetics.[335] Yet, these whales exhibit vastly different cultures. Southern residents are aerialists, performing twisting leaps and belly flops, and engage in greeting ceremonies that involve "facing off in tight lines before exploding in underwater parties of rubs and calls."[336] Northern residents, however, breach far less, and instead rub against beach stones like bears against trees and headbutt one another like bighorn sheep.[337] Moreover, the groups maintain entirely separate dialects.[338] Unexplained by genetic variance, culture remains the most plausible explanation for these differences.

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331. *See, e.g.*, *Whales and Dolphins Have Rich "Human-Like" Cultures and Societies*, UNIV. OF MANCHESTER (Oct. 16, 2017), https://www.manchester.ac.uk/about/news/whales-and-dolphins-have-rich-human-like-cultures-and-societies.
(finding "overwhelming evidence that Cetaceans have sophisticated social and cooperative behaviour traits, similar to many found in human culture") (citing Kieran C. R. Fox, Michael Muthukrishna & Susanne Shultz, *The Social and Cultural Roots of Whale and Dolphin Brains*, 1 NATURE ECOLOGY & EVOLUTION 1699, 1792 (2017)).

332. *See, e.g.*, Welch, *supra* note 319 (noting the increasing view that whales have culture); Kerry Lotzof, *Life in the Pod: The Social Lives of Whales*, NATURAL HISTORY MUSEUM, https://www.nhm.ac.uk/discover/social-lives-of-whales.html (last visited May 26, 2024) (describing whale culture and its importance for survival); Fox et al., *supra* note 330, at 1699 (finding overwhelming evidence of sophisticated social and cooperative behavior traits across ninety different species of cetaceans similar to many found in human culture); Luke Rendell & Hal Whitehead, *Culture in Whales and Dolphins*. 24 BEHAV. BRAIN SCI. 309, 309-18 (2001); *but see* Welch, *supra* note 319 (noting some skepticism remains).

333. Welch, *supra* note 319.

334. *See, e.g.*, Phillip A. Morin et al., *Revised Taxonomy of Eastern North Pacific Killer Whales (Orcinus orca): Bigg's and Resident Ecotypes Deserve Species Status*. 11 R. SOC. OPEN SCI. 1, 5 (2024); Phillip A. Morin et al., *Complete Mitochondrial Genome Phylogeographic Analysis of Killer Whales (Orcinus orca) Indicates Multiple Species*. 20 GENOME RES. 908 (2010) (using mitochondrial DNA analysis of 139 individuals to show that killer whale ecotypes, with discrete prey preferences, morphology, and behaviors, represent distinct genetic lineages).

335. Scott Norris, *Creatures of Culture? Making the Case for Cultural Systems in Whales and Dolphins*, 52(1) BIOSCIENCE 9, 11 (2002); Welch, *supra* note 319.

336. Welch, *supra* note 319.

337. *Id*.

338. *Id*.; Norris, *supra* note 335.

Studies show that cetacean societies display numerous facets conventionally regarded as indicative of human cultural phenomena. Such practices include killer whales' social grouping predicated upon dietary preference, humpback whales' collaborative foraging techniques and globe-trotting songs, and sperm whales' varied dialects. What we eat and how we eat have long been emblematic of diverse human cultures.[339] Analogously, cetacean populations of the same species display conspicuous variances in dietary preferences and foraging methodologies.[340] Notably, killer whale communities segregate based on dietary preference, concomitant with distinctive vocalization patterns. While some groups hunt mainly fish, others prefer sea lions and seals.[341] Their hunting calls possess such marked specificity that gray seals can identify precisely which pods of killer whales pose a threat.[342] Cultural transmission of foraging behavior has also been shown to spread through humpback whale social networks.[343] A study on the "lobtail feeding" technique, currently used by over six hundred humpback whales, was traced back to just one or two innovative whales from twenty-seven years ago.[344] These examples elucidate the profound role culture plays in shaping feeding habits and techniques within cetacean communities.

Whale songs are another example of culture. This fascinating practice is not only socially learned, but also evolves over time, just like human taste in music.[345] Scientists have found "that song and calls can be used to negotiate nuanced relationships and what we understand to be complex, multicultural societies."[346] While sperm whales and killer whales have more stable dialects—which vary by clan rather than over time—humpback whales' musical abilities and preferences resemble modern pop culture, with viral songs periodically capturing broad swaths of society.[347] In any given year, the latest song of the season spreads rapidly across ocean basins as all of the males in a breeding population faithfully sing the same tune.[348] In practice this means that virtually identical songs can be heard by whales wintering in Hawai'i and Mexico, 4,500

339. *See, e.g.*, Gustavo Laborde, *Tell Me What You Eat, and I'll Tell You Who You Are*, UNESCO COURIER (June 26, 2023), https://courier.unesco.org/en/articles/tell-me-what-you-eat-and-ill-tell-you-who-you-are.

340. Lotzof, *supra* note 332; Whiten, *supra* note 307, at 47 (citing Jenny A. Allen et al., *Network-Based Diffusion Analysis Reveals Cultural Transmission of Lobtail Feeding in Humpback Whales*, 340 SCIENCE 485 (2013)).

341. Lotzof, *supra* note 332.

342. *Id*.

343. Whiten, *supra* note 319, at 47.

344. *Id.*

345. Lotzof, *supra* note 332.

346. *Id.*

347. *Id.*

348. *Id.*; Whiten, *supra* note 319, at 49; Norris, *supra* note 335, at 12.

kilometers apart.[349] Scientists have dubbed this rare and rapid transformational change a "cultural revolution," noting that only social learning or cultural transmission can explain such patterned and distinct songs spreading so quickly over time and space.[350]

Dialects among sperm whale clans demonstrate yet another parallel with human culture. Studies of sperm whales show their clan-based social structures are characterized by distinct dialects, grouping choices, and coordinated swimming and diving patterns.[351] Delimited by divergences in vocalizations or codas, recent investigations reveal clans comprising up to twenty thousand individuals.[352] The scale of this phenomenon draws striking resemblance to large-scale culturally delineated human societies, such as ethnic groups or nations.[353] Interestingly, codas become more distinct when clans meet, suggesting a tribal-like sense of identity that preserves distinctions even amidst spatial proximity within the same species.[354] Crucially, no discernible genetic disparities accounting for behavioral variances were identified among the clans, emphasizing the pivotal role of matrilineal cultural transmission.[355] While symbolic marking has conventionally epitomized human culture, these findings validate the proposition that identity codas function as markers of clan identity consistent with the concept of distinct cultures.[356] These examples only scratch the surface of cetacean culture documented in scientific literature.[357] Nevertheless, they demonstrate that cetaceans are cultural beings whose social patterns resemble what humans protect under the auspice of the human right to culture.

General Comment No. 21 outlines requisite conditions to fully realize the right to culture.[358] Among those factors, and pertinent to the lives of cetaceans, is the *availability* of cultural goods and services for all, including "shared open spaces essential to cultural interaction," "nature's gifts" like the places, flora, and

349. Norris, *supra* note 335, at 12.

350. Welch, *supra* note 319; King, *supra* note 317.

351. *See* Hal Whitehead, *Sperm Whale Clans and Human Societies*, 11 R. SOC. OPEN SCI. 1,1 (2024).

352. *Id.* at 2.

353. Philip Hoare, *Sperm Whales Live in Culturally Distinct Clans, Research Finds*, THE GUARDIAN (Jan. 9, 2024) https://www.theguardian.com/environment/2024/jan/10/sperm-whales-live-in-culturally-distinct-clans-research-finds; Hal Whitehead, *Sperm Whales Have Culture Too: Strong Evidence That Clans, Culture, and Dialects Are Not Unique to Humans*, RESILIENCE (Feb. 21, 2024), https://www.resilience.org/stories/2024-02-21/sperm-whales-have-culture-too-strong-evidence-that-clans-culture-and-dialects-are-not-unique-to-humans.

354. Hersh et al., *supra* note 101, at 4.

355. *See* Whitehead, *supra* note 350, at 3; *see generally* Luke Rendell et al., *Can Genetic Differences Explain Vocal Dialect Variation in Sperm Whales, Physeter macrocephalus?*, 42 BEHAV. GENETICS 332 (2012).

356. Hersh et al., *supra* note 101, at 4.

357. Whiten, *supra* note 319 (noting over seventy publications reporting similar findings).

358. *See generally* General Comment No. 21, *supra* note 324.

fauna that create biodiversity, and "intangible cultural goods, such as languages, customs, traditions, beliefs, knowledge and history."[359] Equally as important is the condition of *accessibility*, which comprises "effective and concrete opportunities for individuals and communities to enjoy culture fully" and "the access of communities to means of expressions and dissemination."[360]

Viewing human-caused burdens in the context of whale culture reveals how human activities not only create suffering, but also pose profound impediments to cetacean participation in cultural life.[361] Consider how auditory masking and acute noise events can incapacitate communicative faculties that may be crucial for the transmission of cultural knowledge.[362] It is presently impossible to know whether the messages lost to increasing ocean noise carry cultural significance.

Harms like noise pollution might be all the more grave when considering the comparative importance that social learning and culture must play for cetaceans given their sensory environment. One's "shelter" or home forms part of cultural life,[363] but cetaceans have no fixed structural home; "everything is changing except their social lives."[364] This constant movement necessitates a reliance on other cetaceans for social cohesion, making social life arguably even more important for cetaceans than for terrestrial animals, including humans.[365]

The richness of cetacean culture and the important role it plays in the species' survival is precisely why scientists speak in terms of cultural loss when discussing diminishing cetacean populations.[366] As Shane Gero, Project CETI's Biology Lead, noted of the shrinking sperm whale population in Dominica,

> Every culture, whale or otherwise, is its own solution to the problems of the environment in which it lives. With its extirpation, we lose the traditional knowledge of what it means to be a Caribbean whale and how to exploit the deep-sea riches around the islands efficiently. And that cannot be recovered,

359. *Id.* ¶ 16.
360. *Id.*
361. *Supra* note 167-172 and accompanying text.
362. As considered at length in Subpart III.C, chronic and acute underwater noise pollution can have devastating impacts on cetaceans by impairing their senses or masking sounds critical for their survival (food, social communication, predators, etc.). *Supra* notes 167, 203, and 204 and accompanying text. *See also* Saana Isojunno, *Sperm Whales Reduce Foraging Effort During Exposure to 1-2 kHz Sonar and Killer Whale Sounds*, 26 ECOL. APPL. 77 (2016) (demonstrating that exposure to sonar can affect functional behaviors like foraging and resting). Given the importance of sound and the ability to hear, it follows that such communicative faculties may be crucial for transmitting cultural knowledge. *See* Whitehead, *supra* note 350 (discussing how sperm whale dialects are likely learned from the mother and other females).
363. General Comment No. 21, *supra* note 324, ¶ 13.
364. Hoare & Whitehead, *supra* note 74.
365. *Id*.
366. *See* Gero, *supra* note 329.

> not even if the global population of sperm whales was robust enough to support remigration into the Caribbean.[367]

Therefore, reintroduced individuals would not replicate the cultural practices of the lost population, leaving the region and the species impoverished in terms of survival strategies.[368]

Culture plays a crucial role in maintaining the natural diversity and integrity of Earth's rich ecosystems, inspiring scientists to publicly call for incorporating culture into global and national wildlife management decisions.[369] These calls have been heeded by at least one international framework, the Convention on the Conservation of Migratory Species of Wild Animals, which now provides for cultural data to inform the conservation management of eastern tropical Pacific sperm whales and 'nut-cracking' western chimpanzees.[370] However, despite abundant examples of nonhuman animal culture and scientific recognition of its conservation value, culture remains largely absent from wildlife preservation plans. While recognizing cetacean culture and dialects marked a major scientific advance, understanding their communication content might finally compel legal protection of their culture.

As in Subpart (a), exploring the right to culture is not intended to make the case that existing human rights legal frameworks should be directly applied to cetaceans. The human rights lens, however, reveals how human activities significantly disrupt, and sometimes abuse, cetacean culture. Insight into the content of cetacean communication could allow us to discern new cultural distinctions among groups of the same species, understand language's importance in cetacean culture, discern what content is lost when cetaceans reduce communication, or even determine whether specific members of families are culture-bearers. Cetacean communication can be the mechanism through which we understand whether, as in humans, the "ways of life, language, [] music and song, non-verbal communication, [] rites and ceremonies, [] food, [and] customs and traditions" are how cetaceans give "meaning . . . to their existence and build their world view."[371] Changes emanating from these insights could range from greater protections for culture-based groups within the same species to perhaps an individual right to culture for nonhuman animals.

Exploring the right to be free from torture and the right to participate in cultural life are merely examples of how understanding cetacean language could

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367. *Id.*

368. *Id.*

369. Philippa Brakes et al., *Animal Cultures Matter for Conservation*. 363 SCIENCE 1032, 1033-34 (Mar. 8, 2019).

370. Philippa Brakes et al., *A Deepening Understanding of Animal Culture Suggests Lessons for Conservation,* 288 PROC. R. SOC. B 1, 2-3 (2021).

371. General Comment No. 21, *supra* note 324, ¶ 13.

contribute to new legal protections being developed. As nonhuman animal law increasingly embraces individual rights,[372] we can leverage our present understanding of cetacean suffering and culture to imagine how scientific advances might support new rights claims. Moreover, these two rights-based examples show the nuanced protections that a rights framework can deliver, from the reactive prevention of harm-inducing actions akin to torture, to the proactive protection of the conditions that foster cultural transmission. This legal continuum sets the stage for our discussion of legal personhood by expanding our conception of what could be.

2. Legal Personhood

The potential impact of decoding cetacean communication goes beyond recognizing new rights. Indeed, understanding nonhuman animal communication in general could dramatically bolster the case to recognize nonhuman animals as persons, as opposed to mere chattels, before the law. Given that property lacks intrinsic rights vis-à-vis human proprietors, treating nonhuman animals as property means their interests—no matter how significant—yield to even trivial human interests.[373] Understanding the content of nonhuman animal communication could provide decisive evidence for personhood claims. By discussing cetaceans' reciprocal and prosocial behaviors in concert with legal personhood case law, we consider how an understanding of their communication during these behaviors could help transform their legal status.

Personhood advocates draw a critical distinction between individual rights and the legal standing conferred by personhood; put simply, "it makes no sense to say that someone has a legal right to something if that person does not possess standing to assert that right."[374] Since the 1990s, countless scholars and organizations have taken up the personhood mantle, creating meaningful—albeit limited—precedents through case law and legislation.[375]

The case of Cecilia, the chimpanzee in Argentina, is an apt example of litigation predicated in part on capacities that has successfully resulted in legal

372. *See, e.g.*, Steven M. Wise, *Nonhuman Rights to Personhood*, 30 PACE ENVT'L L. REV. 1278 (2013) (arguing that nonhuman animals with demonstrated practical autonomy—such as great apes, dolphins, and elephants—should be recognized as legal persons entitled to fundamental rights like bodily liberty and integrity); Macarena Montes Franceschini, *Traditional Conceptions of the Legal Person and Nonhuman Animals*, 12 ANIMALS 2590 (2022) (examining four traditional concepts of the legal person and arguing that nonhuman animals can be considered persons according to each concept).

373. GARY FRANCIONE, ANIMALS, PROPERTY, AND THE LAW 4-5 (1995).

374. *Id*. at 65.

375. *See generally, e.g.*, Macarena Montes Franceschini, *Animal Personhood: The Quest for Recognition*, 17 MICH. STATE U. ANIMAL & NAT. RESOURCES L. REV. 93 (2021) (providing a historical overview of foreign case law on nonhuman animal legal personhood).

personhood.[376] In 2016, the Association of Lawyers and Public Officials for Animal Rights (known by its Spanish acronym AFADA) filed a *habeas corpus* petition against the Mendoza Zoo, seeking recognition of Cecilia's inherent rights as a nonhuman person.[377] AFADA relied extensively on the scientifically informed capacities of chimpanzees[378] to argue that Cecilia was a nonhuman person who was being confined arbitrarily without due process, and that the detention and related deplorable conditions violated her rights to freedom of movement and a decent life.[379] In a landmark decision, the court agreed with AFADA.[380] The court's decision emphasized the important role of scientific evidence about the intellectual, emotional, cultural, and social capacities of chimpanzees, their genetic and behavioral proximity to humans,[381] and the standard by which to determine protection:

> The only conclusion is that animals have legal personhood, that they have fundamental rights that should not be violated *because* they have metacognitive abilities and emotions . . . Animals must have fundamental rights and the applicable legislation in accordance with such fundamental rights to protect the particular situation they encounter, *following the evolutionary degree that science has determined they can reach*. This is not about granting them the same rights humans have, it is about accepting and understanding once and for all that they are living sentient beings, with legal personhood and that among other rights; they are assisted by the fundamental right to be born, to live, grow and die in the proper environment for their species. Animals and great apes are not objects to be exposed like a work of art created by humans.[382]

Cecilia's case followed a "personhood boom" from 2013 through 2015 that included cases for polar bears, orangutans, and dogs.[383] Although unsuccessful, these cases advanced important capacities-based arguments, pressured higher courts to engage with the merits (a change from the *in limine* dismissals of the past), and garnered significant public attention.[384] The same is true of the cases that have followed Cecilia's. Of the ten cases that have

376. *See generally* Tercer Juzgado de Garantías [Third Court of Guarantees], 3/11/2016, "Efectuada Por A.F.A.D.A Respecto Del Chimpancé 'Cecilia'- Sujeto No Humano," Expte. Nro. P-72.254/15 (Arg.).
377. *Id*. at 1.
378. *Id*. at 3-4.
379. *Id*. at 1-2.
380. *Id*. at 23-27.
381. *Id*. at 23-24.
382. *Id*. at 25-27 (emphasis added).
383. Franceschini, *supra* note 375, at 94.
384. *Id.*

proceeded, seven did not succeed, demonstrating that persuasive foreign precedent and capacities-based arguments alone cannot guarantee legal personhood.[385] The losses, however, further normalize these legal arguments and provide insight into what types of advocacy or evidence may work prospectively.

For example, the defeat in *Nonhuman Rights. Project, Inc. v. Breheny* (hereinafter "*Happy*") allows us to consider how cetacean communication may move the juridical needle on personhood. In 2022, the Nonhuman Rights Project sought a writ of *habeas corpus* on behalf of Happy, an elephant who has been housed alone at the Bronx Zoo for over four decades.[386] Arguing that Happy was an extraordinarily intelligent and autonomous being, the petitioners aimed to secure her transfer to an elephant sanctuary based on the right to be free from unlawful and indefinite confinement.[387] The court of first instance denied the writ, noting it was "regrettably" bound by precedent involving chimpanzees.[388] The New York Court of Appeals then agreed on the grounds that, *inter alia*, Happy did not constitute a legal person.[389] Finding that "capacity for autonomy, intelligence, and emotion" were not alone sufficient factors for *habeas* eligibility, the court held that the writ "protects the right to liberty of humans *because* they are humans with certain fundamental rights recognized by law."[390] The court further held that nonhuman animals could not be legal persons because they lack "the capacity to accept social responsibilities and legal duties" and therefore cannot be held "legally accountable or required to fulfill obligations imposed by law."[391]

The court's conclusion that nonhuman animals lack the capacity to accept social responsibilities is an interesting proposition given the state of scientific studies on nonhuman animal behavior. Scientists have documented cooperative, role-oriented behavior evincing social responsibilities in species ranging from lions to bees.[392] Moreover, as the dissent in *Happy* points out, nonhuman animals already fulfill responsibilities to humans such as working for law

385. *Id.* at 147.

386. Nonhuman Rts. Project, Inc. v. Breheny, 38 N.Y.3d 555, 565-66 (2022).

387. *Id*. at 567.

388. Nonhuman Rights Project, Inc. v. Breheny (In re Proc. under Article 70 of the CPLR for a Writ of Habeas Corpus & Order to Show Cause), No. 260441/2019, 2020 N.Y. Misc. LEXIS 19784, at *31 (Sup. Ct. Feb. 18, 2020).

389. *Nonhuman Rts. Project*, 38 N.Y.3d at 566.

390. *Id*. at 571 (emphasis in original).

391. *Id*. at 572 (emphasis in original).

392. *See generally, e.g.,* P.E. Stander, *Cooperative Hunting in Lions: The Role of the Individual*, 29 BEHAV. ECOLOGY & SOCIOBIOLOGY 445 (1992) (lions); Alejandro Cornejo et al., *Task Allocation in Ant Colonies*, 8784 LECTURE NOTES IN COMPUT. SCI. 46 (2014) (ants); S. A. Kolmes, M. L. Winston & L. A. Fergusson, *The Division of Labor among Worker Honey Bees (Hymenoptera: Apidae): The Effects of Multiple Patrilines*, 62 J. KAN. ENTOMOLOGICAL SOC'Y 80 (1989), https://www.jstor.org/stable/25085053 (bees).

enforcement and the military or refraining from trampling their caretakers.[393] Nonetheless, as demonstrated by *Happy*, courts remain unpersuaded. Judicial reluctance to recognize nonhuman animals as duty-bearers may be explained in part by the speculative and anthropomorphic[394] nature of labeling cooperative or transactional behavior as demonstrative of nonhuman animals volitionally assuming responsibilities.

The human inability to understand nonhuman communication prevents us from knowing whether nonhuman animals understand their social responsibilities as "duties" and correspondingly fulfill them as such. Indeed, as scholars have noted, "the communication barrier and lack of mutual understanding," makes it challenging to hold nonhuman animals morally responsible even when their actions suggest responsibility.[395] Consequently, a novel comprehension of cetacean communication, facilitating the acknowledgment of their capacity to assume duties or discharge social responsibilities, could pave the way for future recognition of nonhuman legal personhood or at least a heightened legal consideration of such arguments. If, as asserted by the majority in *Happy*, legal personhood is "often connected with the capacity . . . to assume legal duties and social responsibilities," then evidence of such capacity should weigh in favor of granting legal personhood.[396]

In fact, examples from different cetaceans suggest that they have the capacity, and do in practice, fulfill social responsibilities.[397] From supporting others' birthing process and reciprocal babysitting, to cooperative and highly coordinated hunting techniques, cetaceans are engaging in responsibility-laden behaviors.[398]

In July 2023, Project CETI captured groundbreaking footage of a sperm whale birth that included astonishing demonstrations of responsibility.[399] During this remarkable event, eleven whales from a well-documented social unit banded together as if to socialize.[400] Unexpectedly, the head of a newborn emerged amidst a chorus of codas.[401] Over the course of several hours, the group

393. *Nonhuman Rts. Project*, 38 N.Y.3d at 585 n.4 (Wilson, J., dissenting) (describing dogs, sea lions, dolphins, and elephants that fulfill responsibilities to humans); *see also* Asia Ferrin, *Nonhuman Animals are Morally Responsible*, 56 AM. PHIL. Q. 135, 143 (2019).

394. *Nonhuman Rts. Project*, 38 N.Y.3d at 585 n.4 (Wilson, J., dissenting) ("Thus, even the concept of 'bearing responsibilities' imposes a human-centric idea of what it means to be responsible for others or one's own actions . . . .").

395. Ferrin, *supra* note 393.

396. *Nonhuman Rts. Project*, 38 N.Y.3d at 572.

397. *Infra* notes 399-414 and accompanying text.

398. *Id.*

399. Yang, *supra* note 76.

400. *Id.*

401. *Id.*

cooperated to lift the newborn out of the water.[402] While the participating females (and one sub-adult male) belonged to the same unit, they formed two strict matrilines, likely connected through a distant relative. The encounter showcased not only impressive coordination and communication, but was also a significant demonstration of social roles, expectations, and responsibility.

Social behavior in sperm whales reveals reciprocal, prosocial obligations that extend across time. Female sperm whales routinely "babysit" others' offspring while they hunt and forage at depths too substantial for the young.[403] While this practice may be viewed as communal parenting, evidence demonstrates that females' levels of social interaction and task-sharing vary in relation to their number of offspring.[404] Consider a study that followed two mothers, Fingers and Mysterio, and their young.[405] Mysterio was the primary babysitter for Fingers's newborn when she did not have a baby of her own.[406] Unfortunately, Fingers' newborn passed, and approximately a year later Mysterio gave birth.[407] Despite no longer having a baby and the extensive delay between Mysterio's babysitting duties and her delivery, Fingers reciprocated by becoming the "primary babysitter" for Mysterio's newborn.[408] Tellingly, this reciprocal behavior ended when a third female bore offspring: The new mother and Mysterio took on reciprocal babysitting duties, and Fingers's role as a babysitter ended.[409] These interactions demonstrate reciprocity that spans time and repeated encounters. The female sperm whales' repeated history of reliable quid pro quo exchanges—the duty to provide childcare for the right to receive childcare, in either the present or future—suggests both social responsibilities and prosocial norms like generalized reciprocity.[410]

Several cetacean species also engage in what could be considered social responsibilities through highly coordinated hunting techniques.[411] Humpback whales' "bubble-netting" technique, for example, employs a "complex suite of

402. *Id.*

403. Gero et al.., *supra* note 76, at 7-8; *see also* Hal Whitehead, *Babysitting, Dive Synchrony, and Indications of Alloparental Care in Sperm Whales*, 38 BEHAV. ECOL. SOCIOBIOL. 237, 237 (1996).

404. Gero, et al., *supra* note 76, at 5-8.

405. *Id*. at 3.

406. *Id*. at 7.

407. *Id*.

408. *Id*.

409. *Id*.

410. *Id*. at 7-8.

411. *See, e.g.*, Robert L. Pitman & John W. Durban, *Cooperative Hunting Behavior, Prey Selectivity and Prey Handling by Pack Ice Killer Whales (Orcinus Orca), Type B, in Antarctic Peninsula Waters*, 28 MARINE MAMMAL SCI. 16, 17 (2011); Robin W. Baird & Hal Whitehead, *Social Organization of Mammal-Eating Killer Whales: Group Stability and Dispersal Patterns,* 78 CAN. J. ZOOLOGY 2096, 2103 (2000); David Wiley et al., *Underwater Components of Humpback Whale Bubble-Net Feeding Behaviour*, 148 BEHAVIOUR 575, 578 (2011).

behaviors" to create an intricate column of bubbles that contains or condenses prey.[412] Evidence demonstrates this highly synchronized technique, concomitant with vocalizations that likely function as a coordination or location signal for other foraging humpback whales,[413] is best explained by reciprocity or by-product mutualism.[414] Consider social contract theory, where rational parties pursue their own interests by adhering to prescribed behaviors that serve collective long-term interests.[415] By discharging reciprocal babysitting duties, Mysterio and Fingers already engaged in behavior that, were they human, evinced a capacity to contract or assume responsibilities. The same could be said of the sperm whales, including members of a distant family, that held up the newborn. Assuming a volitional basis underlies these reciprocal interactions, they remarkably resemble contractarianism.[416]

Moreover, these examples demonstrate that cetaceans communicate during these behaviors, suggesting their messages may convey role- and duty-related meanings—a possibility already being explored in dolphins.[417] The remaining task is *understanding* those communications to determine whether these cetaceans volitionally engage in and comprehend duty sharing as responsibilities.

We recognize that equivalent insight into elephant communication during socially responsible acts might not have changed the outcome of *Happy.* The court could still have found such evidence wanting in proving the capacity to bear legal duties or could have relied solely on speciesism arguments: Humans get to be legal persons because they are human and we humans say so in our human laws.[418] The legal and moral arguments for and against personhood have

412. Wiley et al., *supra* note 410, at 578; *see also* Spencer H. Bryngelson & Tim Colonius, *Simulation of Humpback Whale Bubble-Net Feeding Models,* 147 J. ACOUSTICAL SOC'Y AMERICA 1126, 1126 (2019); Susan E. Parks et al., *Evidence for Acoustic Communication among Bottom Foraging Humpback Whales*. 4 SCI. REPS. 1, 4-6 (2014).

413. Parks, *supra* note 411, at 5-6.

414. *See* Cynthia G. D'vincent et al., *Vocalization and Coordinated Feeding Behavior of the Humpback Whale in Southeastern Alaska*, 36 SCI. REPS. WHALES RSCH. INST. 41, 42 (2001); Wiley et al., *supra* note 411, at 575-602 (noting reciprocity or by-product mutualism explanation).

415. *Social Contract*, BRITANNICA, https://www.britannica.com/topic/social-contract (last updated July 13, 2025).

416. *See, e.g.*, Tom Huffman, *Animals, Mental Defectives, and the Social Contract,* 9 BETWEEN SPECIES 20, 24 (1993) (describing positions that limit contract capacity to humans); E. G. Leigh Jr., *The Evolution of Mutualism*, 23 J. EVOLUTIONARY BIOLOGY 2507, 2507 (2010) (discussing nonhuman mutualisms as "steps towards ecosystems which, like Adam Smith's ideal economy, serve their members' common good").

417. *See generally, e.g.*, Rebecca A. Hamilton, *Bottlenose Dolphin Communication During a Role-Specialized Group Foraging Task*, 200 BEHAV. PROCESSES 1 (2022) (finding that there are significantly more whistles during group foraging than solo foraging and "coordination" in bottlenose dolphins' "role-specialized behavior"); Holli C. Eskelinen et al., *Acoustic Behavior Associated with Cooperative Task Success in Bottlenose Dolphins (Tursiops truncatus)*, 19 ANIMAL COGNITION 789 (2016) (noting an increase in acoustic communication during cooperative tasks).

418. Nonhuman Rts. Project, Inc. v. Breheny, 38 N.Y.3d 555, 571 (2022).

garnered substantial research and review elsewhere,[419] any serious treatment of which is beyond the scope of this Article. Nevertheless, a novel understanding of cetacean communication may help reinvigorate legal personhood arguments in jurisdictions that rely on intra-species responsibilities and duties as a proxy to personhood, as well as in the court of public opinion.

Numerous examples exist of legislatures granting legal personhood to nonhuman animals and nature,[420] often initiated by Indigenous communities and sometimes based on scientific findings.[421] Moreover, specific calls for cetacean personhood remain current in society. Before the United Nations General Assembly in 2023, Indigenous Māori Pacific leaders called on the world to recognize the legal personhood of whales in international waters.[422] Māori leaders have also endorsed the growing movement to appoint whales as ocean ambassadors to the United Nations, which culminated in a petition that quickly garnered over twenty thousand signatures.[423] These calls have since borne fruit

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419. *See generally* Fasel & Butler, *supra* note 247 (surveying arguments and prominent proponents of legal personhood); STEVEN M. WISE, RATTLING THE CAGE: TOWARD LEGAL RIGHTS FOR ANIMALS (2000) (arguing that the cognitive, emotional, and social capacities of great apes entitle them to rights); Wise, *Nonhuman Rights to Personhood*, *supra* note 372 (arguing that nonhuman animals with demonstrated practical autonomy—such as great apes, dolphins, and elephants—should be recognized as legal persons entitled to fundamental rights like bodily liberty and integrity); Montes Franceschini, *supra* note 372 (examining four traditional concepts of the legal person and arguing that nonhuman animals can be considered persons according to each concept); Rachel Fobar, *A Person or a Thing? Inside the Fight for Animal Personhood*, NAT'L GEOGRAPHIC (Aug. 4, 2021), https://www.nationalgeographic.com/animals/article/inside-the-*ongoing*-fight-for-happys-freedom?loggedin=true&rnd=1714337080200 (describing the legal and normative arguments underpinning the Non-Human Rights Project's efforts to secure Happy the elephant legal personhood).

420. *See, e.g.*, NAVAJO NATION CODE ANN., *supra* note 271; Ley de Derechos de la Madre Tierra, *supra* note 269; ORANGE CTY., *supra* note 269; CONSTITUCIÓN DEL ECUADOR, arts. 71-72 (declaring nature a legal person); Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 (N. Z.) (declaring Whanganui river a legal person); Innu Council of Ekuanitshit, Resolution 919-082 L'identification de la Mutehekau Shipu/Rivière Magpie [Identification of the Mutehekau Shipu/Rivière Magpie], 18 Jan. 2021, (one of two twin resolutions declaring the Magpie river a legal person); Patrick Greenfield, *'Sweet City': the Costa Rica Suburb that Gave Citizenship to Bees, Plants and Trees*, THE GUARDIAN (Apr. 29, 2020), https://www.theguardian.com/environment/2020/apr/29/sweet-city-the-costa-rica-suburb-that-gave-citizenship-to-bees-plants-and-trees-aoe (declaring bees, trees, and native plants citizens); *Panama Passes National Sea Turtle Law Recognizing Their Rights*, EARTH L. CTR. (Mar. 15, 2023), https://www.earthlawcenter.org/elc-in-the-news/2023/3/panama-passes-national-sea-turtle-law-recognizing-their-rights (declaring turtles subjects of rights).

421. *See, e.g.*, NAVAJO NATION CODE ANN., *supra* note 271; Ley de Derechos de la Madre Tierra, *supra* note 271; ORANGE CTY., *supra* note 271; *supra* notes 125-133 and accompanying text.

422. Aroha Mane, *Māori Leaders Propose Protecting Whales in International Waters at U.N. General Assembly*, TE AO MAORI NEWS (Sept. 17, 2023), https://www.teaonews.co.nz/2023/09/18/maori-leaders-propose-protecting-whales-in-international-waters-at-united-nations-general-assembly; Aaron Smale, *Māori and Pacific Leaders Propose Legal Personhood for Whales at UN,* NEWSROOM (Sept. 18, 2023), https://newsroom.co.nz/2023/09/18/maori-and-pacific-leaders-propose-legal-personhood-for-whales-at-un.

423. Bonnie Monteleone, *Support Legal Personhood and Designate Whales as Ocean Ambassadors to the United Nations*, CHANGE.ORG (Sept. 24, 2023), https://www.change.org/p/support-legal-personhood-and-designate-whales-as-ocean-ambassador-to-the-united-nations; *He Whakaputanga Moana Treaty (Declaration for the Ocean)*, ECO JURISPRUDENCE MONITOR,

in law: Just this year, Indigenous leaders of New Zealand, Tahiti, and the Cook Islands signed the historic He Whakaputanga Moana treaty recognizing whales as legal persons.[424] The treaty's significance grows as it promises to galvanize domestic legislation.[425]

The arc of the moral universe is already bending towards justice for nonhuman animals. A deeper comprehension of their nature and communications could facilitate the transformative shifts needed to emancipate them from the confines of property under the law. Insights gleaned from both successes and setbacks in the quest for legal personhood, coupled with observations of cetacean behavior mirroring elements of contractarianism, collectively indicate that understanding cetacean communication could significantly impact the ongoing legal discourse.

CONCLUSION

Fifty years ago, Carl Sagan posed a query on cetaceans that remains relevant:

> Is it possible that the intelligence of Cetaceans is channeled into the equivalent of epic poetry, history, and elaborate codes of social interaction? Are whales and dolphins like human Homers before the invention of writing, telling of great deeds done in years gone by in the depths and far reaches of the sea? Is there kind of a *Moby Dick* in reverse—a tragedy, from the point of view of the whale, of a compulsive and implacable enemy, of unprovoked attacks by strange wooden and metal beasts plying the seas and laden with humans? The Cetacea hold an important lesson for us. The lesson is not about whales and dolphins, but about ourselves.[426]

This lesson continues to resonate in pivotal legal judgments. As Judge Wilson's dissent in *Happy* noted, a right to liberty was the correct outcome not only because Happy was a wild animal that did not deserve to be caged, but also because "the rights we confer on others define who *we* are as a society."[427]

It is too early to tell whether undertakings like Project CETI will succeed in decoding cetacean communication or bring us closer to understanding our place in the natural world. "Like van Leeuwenhoek peering through his newly

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https://ecojurisprudence.org/initiatives/he-whakaputanga-moana-declaration-for-the-ocean-treaty (last visited Sept. 12, 2025) (noting the Māori King's endorsement).

424. Remy Tumin, *In Move to Protect Whales, Polynesian Indigenous Groups Give Them 'Personhood'*, N.Y. TIMES (Mar. 29, 2024), https://www.nytimes.com/2024/03/29/world/australia/whale-personhood-polynesia-maori.html.

425. *See id.* (discussing the expectation that this will result in domestic legislation in New Zealand).

426. CARL SAGAN, THE COSMIC CONNECTION: AN EXTRATERRESTRIAL PERSPECTIVE 180 (2000) (originally published in 1973).

427. Nonhuman Rts. Project, Inc. v. Breheny, 38 N.Y.3d 555, 626 (2022) (Wilson, J., dissenting).

built microscope, we do not [yet] understand everything brought to light by this new digital acoustics technology."[428] However, the pathbreaking findings discussed in this Article and the rapid growth of this research already reveal an "immense world"[429] of nonhuman animal perception, intelligence, and communication; these feats humble humanity into acknowledging our deep connections and similarities with the more-than-human world. These findings also raise fascinating challenges to fundamental legal concepts like rights and legal personhood. Indeed, they remind us that "the word 'human' (and its cognate words, 'humbling,' 'humility' and 'humus') all derive from the Proto-Indo-European root that means 'earth.' Human rights means, quite literally, earthlings' rights."[430]

It bears noting that the means by which we might reveal more about this immense world—AI, bioacoustics, achieving translation, etc.—are not without risks or quandaries. While AI models can, in principle, learn properties of and detect patterns within sperm whale communication that human researchers do not yet understand, and could generate highly realistic whale vocalizations and responses like a chatbot, we do not fully understand how or even what AI models learn. Therefore, deploying AI models for animal communication should be limited to listening until we better understand their operation. Traditional playback experiments (i.e., playing recordings of nonhuman animal sounds to nonhuman animals to observe their responses) pose ethical risks, which are exacerbated in AI-driven playback experiments. Minimizing risks is the guiding principle in any research intervention in the animal world and applying new technologies to such interventions does not change its relevance. That imperative is why Project CETI has partnered with NYU Law's More-Than-Human Rights project to propose ethical and legal guardrails for this type of work, which include the precautionary principle, the best interest of the animal, and remediation obligations.[431] Yet this effort alone cannot address all of the risks inherent in using new technologies like AI. Without understanding what AI models learn, minimizing risks is ultimately unfeasible.

The use of AI-based models in animal communication also raises environmental concerns. Large Language Models (LLMs) like GPT-4 and Llama exemplify AI's recent advances in handling large volumes of textual data—generating, translating, summarizing, and contextualizing it. At present, these

428. BAKKER, *supra* note 8, at 203.

429. *See generally* ED YOUNG, AN IMMENSE WORLD (2022).

430. Rodríguez-Garavito, *supra* note 275, at 26.

431. Katarina Zimmer, *Speaking with Whales: AI Could Help Us Understand What Whales Are Saying. But Should We Talk Back?*, NAUTILUS (Sept. 30, 2024), https://nautil.us/speaking-with-whales-899775 (discussing Project CETI and the More-Than-Human Rights Project's ethical guidelines for the development and use of technology that can help humans communicate with nonhuman animals); NYU MORE-THAN-HUMAN-LIFE (MOTH) PROGRAM, ETHICAL AND LEGAL PRINCIPLES FOR NONHUMAN ANIMAL COMMUNICATIONS TECHNOLOGY (Feb. 2025) (forthcoming) (on file with author).

LLMs require billions to trillions of parameters and massive datasets for training, calling upon extensive amounts of processing power.[432] This heavy computational load has serious implications for carbon emissions that contribute to climate change, freshwater reserves, and already strained electrical grids.[433] AI models analyzing nonhuman animal communications are currently magnitudes smaller and will likely remain so for the foreseeable future. For example, the model that facilitated the discovery of coda vowels in sperm whales[434] is small enough that its entire training carbon footprint is comparable to approximately twenty miles traveled by a car.[435]

Even if renewable energy, efficient computation, and mindful water consumption practices could remedy AI's climate impacts—which is indeed possible[436]—risk remains in more-than-human translation itself. While Project CETI prioritizes whale non-disturbance by using minimally invasive technology[437] and developing ethical and legal guardrails,[438] it must still grapple with the potential impacts of its research and what its findings may equip others to do, especially those in areas outside nonhuman animal biology and conservation. Questions regarding consent to be recorded and eventually talked to (i.e., playback-type experiments) are top of mind as this work develops. However, some risks may be outside of any one organization's individual control—like the tourism, defense, or agricultural industries using this

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432. *See* David Patterson et al., *Carbon Emissions and Large Neural Network Training*, ARXIV 1-2 (2021).

433. *See* David Berreby, *As Use of A.I. Soars, So Does the Energy and Water It Requires*, YALE ENV'T 360 (Feb. 6, 2024), https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions.

434. *See generally* Beguš et al., *Approaching an Unknown Communication System*, *supra* note 29; Gašper Beguš, *CiwGAN and fiwGAN: Encoding Information in Acoustic Data to Model Lexical Learning with Generative Adversarial Networks*, 139 NEURAL NETWORKS 305 (2021) (describing the unsupervised model that learns symbolic-like linguistic representations from raw speech).

435. Calculated assuming an average 0.432 kg/kWh carbon efficiency, with the help of the Machine Learning Emissions Calculator by Alexandre Lacoste et al., *Machine Learning Emissions Calculator*, MLCO2 IMPACT, https://mlco2.github.io/impact#compute tool (last visited Oct. 18, 2024); *see generally* Alexandre Lacoste et al., *Quantifying the Carbon Emissions of Machine Learning*, ARXIV (2019).

436. *See, e.g.*, Eleni Kemene et al., *AI and Energy: Will AI Help Reduce Emissions or Increase Demand? Here's What to Know*, WORLD ECON. F. (Jul 22, 2024), https://www.weforum.org/agenda/2024/07/generative-ai-energy-emissions (describing advances to make AI use less energy).

437. *See generally* David F. Gruber & Robert J. Wood, *Advances and Future Outlooks in Soft Robotics for Minimally Invasive Marine Biology*, 7(66) SCI. ROBOTICS 1 (2022) (describing existing minimally-invasive approaches to monitoring and pointers to future directions); Brianna Wessling, *Project CETI Develops Robotics to Make Sperm Whale Tagging More Humane*, THE ROBOT REPORT (Apr. 14, 2024), https://www.therobotreport.com/project-ceti-robotics-make-sperm-whale-tagging-more-humane (discussing the "gentle, stable, reversible adhesion" used).

438. César Rodríguez-Garavito et al., *Listening to the More-than-Human World: Legal & Ethical Principles for Nonhuman Animal Communication Technologies*, OPEN GLOB. RTS. (Dec. 6, 2024), https://www.openglobalrights.org/listening-to-the-more-than-human-world-legal-and-ethical-principles-for-nonhuman-animal-communication-technologies; Serena Jampel, *Are Whales Trying to Tell Us Something?*, HARVARD CRIMSON (Oct. 26, 2024), https://www.thecrimson.com/article/2024/10/26/project-ceti-translating-whales-scrutiny.

technology as a new commercial tool of control over nonhuman animals. These topics deserve deeper exploration than what is within this Article's scope, but they must be underscored here and understood as a clarion call for ethical and legal safeguards. We need guidelines and regulations to ensure the implications of these efforts are properly accounted for.

Finally, this Article raises challenging normative questions, such as: Why must nonhuman animals resemble humans for us to empathize with their pain and safeguard their well-being? Must they articulate their suffering when we already possess a clear understanding of the injuries we cause? This Article prompts questions that are difficult to resolve because they implicate insurmountable complexities like predicting future outcomes (e.g., what would really move the needle on legal protections?) or speculating on the collective views of humanity (e.g., how "human" must whales be for us to grant them rights?). While this Article cannot definitively answer these questions, we hope it prompts readers to seek answers through the actions they take in their own daily lives.

With appropriate precautions and safeguards, today's cutting-edge technology draws us nearer to interspecies comprehension[439] and a time in which we may have to face those thorny questions. Indeed, what has already been discovered regarding sperm whale communication shows us how close we are. A novel grasp of cetacean communication promises to unveil a trove of knowledge encompassing their behaviors, migrations, experiences of suffering, social dynamics, environmental impact, and cultural nuances. This paradigm shift compels us to question which anthropogenic actions constitute harm and whether a right to freedom from such harm or protection of certain conditions should ensue. Cetaceans, however, are but one example of the many species whose communications scientists are attempting to decode.[440] Despite the imaginations of this Article being rooted in concrete examples of law and jurisprudence pertinent to cetaceans, its conclusions stand for the larger proposition that the translation of nonhuman animal communications may bring about fundamental changes in law. This Article merely scratches the surface of the boundless possibilities that await exploration and realization in this immense new legal world.

439. BAKKER, *supra* note 8, at 203.

440. *Supra* notes 31-32 and accompanying text.