ANIMAL WELFARE ACT: EXCLUDED ANIMALS

Michael McFadden discusses the Animal Welfare Act's exclusion of farmed animals and possible reasons for their exclusion. He then briefly discusses welfare problems faced by farmed animals. He ends by describing the various ways in which consumers are showing increasing concern for farmed animals and how consumers, especially Millennial consumers, are poised to force the agricultural industry to improve conditions for farmed animals.

Sue Leary recounts the history of efforts to include rats, mice, and birds, in the Animal Welfare Act. Next, she explains the historical and contemporary issues with including common laboratory research animals under animal protection laws. She ends her discussion with an analysis of the polarized scientific and political views on this issue.

Kathy Hessler begins by discussing how the Animal Welfare Act ignores aquatic animals. She then explains that although marine mammals are offered some protection, there are no protections for the growing number of other aquatic animals used in research, exhibition, and in the pet industry. Her discussion ends with proposals for solutions to this problem and analysis of the political barriers to those solutions.

I. FARMED ANIMALS & THE AWA

By
Michael McFadden*

I'm the General Counsel for Farm Forward. Our organization works to address farmed animal suffering by advocating directly to consumers and working with nonprofits and institutional food buyers to help them find more humane policies that take into account the problems of factory farming.

We've talked a lot today about animals who are not included in the Animal Welfare Act (AWA). Various estimates of mice and rats, for ex-

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ample, have been in the hundred or hundreds of millions[1] versus maybe only one or two million other research animals every year.[2] I would argue that the—well, maybe not the elephant or the gorilla, but—the chicken in the room today is farmed animals. Ninety-eight percent of animals raised for human benefit are excluded from the AWA.[3] Pets represent about 200 million animals,[4] while non-rodent research animals are about one million and exhibited animals are likely less than one million.[5] All of these are covered by the AWA.[6] But the AWA excludes rats, mice, cold-blooded animals,[7] and, most significantly, excludes the 9.2 *billion* farmed animals we raise every year in the United States.[8]

Farmed animals are excluded from the AWA in two ways. (We can go through this fairly quickly as I'm sure most of you are very familiar.) But there are, in a sense, two ways in which they're excluded. First, there is only a limited set of use categories for animals protected under the AWA.[9] It includes research animals, exhibition animals, and companion animals, but not farmed animals.[10] Second, farmed animals are explicitly excluded from the AWA's definition of the word "animal."[11]

How was their exclusion rationalized? How did this happen? It's called the Animal Welfare Act, so why are 98% of animals whom we interact with and whom we've raised for our benefit not in the act? For those who don't know the history of the AWA, in 1966, it was originally

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[1] *Mice and Rats in Laboratories*, PETA, https://www.peta.org/issues/animals-used-for-experimentation/animals-laboratories/mice-rats-laboratories/ [http://perma.cc/6NZL-TZXD] (accessed Jan. 4, 2019).

[2] APHIS, USDA, ANNUAL REPORT ANIMAL USAGE BY FISCAL YEAR (2018), https://www.aphis.usda.gov/animal_welfare/downloads/reports/Annual-Report-Animal-Usage-by-FY2016.pdf [http://perma.cc/8SQH-SJZU] (accessed Jan. 4, 2019).

[3] Animals raised for human benefit include animals raised for use as pets, research, exhibition, and farming. *See id.* (showing approximately one-to-two million animals other than rats and mice are used annually for research which are covered by the AWA); *Facts + Statistics: Pet Statistics*, INS. INFO. INST., https://www.iii.org/table-archive/22253 [http://perma.cc/NZF9-3DYF] (accessed Jan. 4, 2019) (showing pet ownership stats from 2015–2016 in the United States based on a survey by American Pet Products Association); *Farm Animal Statistics: Slaughter Totals,* HSUS, http://www.humanesociety.org/news/resources/research/stats_slaughter_totals.html [http://perma.cc/K4HC-MVDD] (accessed Jan. 4, 2019) (showing approximately 9.2 billion land animals are used each year for farming which are not covered by the AWA).

[4] *See* INS. INFO. INST., *supra* note 3 (showing that of the 311 million pets in the United States, approximately 200 million of them are types of animals covered by the AWA).

[5] *See* APHIS, USDA, *supra* note 2 (showing approximately 1.18 million non-rodent animals were used for research in the United States in 2016).

[6] 7 U.S.C. § 2132(g)(2018).

[7] *Id.*

[8] HSUS, *supra* note 3.

[9] 7 U.S.C. § 2132(g).

[10] *Id.*

[11] *Id.*

the Laboratory Animal Welfare Act or LAWA.[12] In 1970, it was renamed and the initial bill offered would have amended the language and expanded the definition of animal to be any warm-blooded animal.[13] That would, of course, have included farmed animals. There would still have been the limited use cases, so we're only talking about farmed animals used for research, but they would have been included in that initial 1970 bill. However, that was rejected for a variety of reasons. Remember, it was originally the Laboratory Animal Welfare Act, and the 1970 amendments did far more to change the name of the act than they did to change its underlying protections. It remained, in essence, the Laboratory Animal Welfare Act. Thus, one could argue that legislators didn't need to actively rationalize the Act's exclusion of farmed animals simply because they changed its name. But there were at least two other reasons besides its former name that I believe were implicitly at work in preventing the 1970 changes from including farmed animals. First, doing so would have been considered too costly.[14] (This, by the way, is an argument we hear again and again in our fight for better farmed animal welfare.) Second, including farmed animals was seen as unnecessary.[15]

Speaking to the cost issue, the American Society of Animal Science stated at the AWA congressional hearing on June 8th, 1970, "[a] climate must prevail permitting the maximum research output per dollar of public funds expended."[16] They argued, in essence, that there must be absolutely no hindrance, no burdens put on research if the AWA were to be successful.

But let's focus on the second argument—that including farmed animals was unnecessary. We'll talk in a moment about factory farming and make sure we all share a common definition for what it means today, but back in 1970, while industrialized farmed animal production had already begun in earnest, it was still, relative to today, very much in its infancy. It was much less developed than it is now. How would we define a "factory farm" today? It's a very politicized term and there are several different definitions one could use. You could look to concentrated animal feed operations (CAFOs), which have a statutory definition behind them. "Industrial farm animal production" is the

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[12] *Legislative History of the Animal Welfare Act: 1960s,* USDA. NAT'L ACRIG. LIBRARY, https://www.nal.usda.gov/awic/legislative-history-animal-welfare-act-1960s [http://perma.cc/9EA3-AJMY] (accessed Jan. 4, 2019).

[13] *Care of Animals Used for Research, Experimentation, Exhibition, or Held for Sale as Pets: Hearing on H.R. 13957 Before the Subcomm. on Livestock and Grains of the H. Comm. on Agric.*, 91st Cong. 84 (1970) (statement of Mr. Whitehurst introducing H.R. 13957).

[14] *Id.* at 46–47 (statement of Charles S. Hobbes, Head of the Animal Husbandry and Veterinary Science Department, University of Tennessee).

[15] *Id.* at 47.

[16] *Id.* at 46.

term used by the Pew Research Institute.[17] But in my opinion there are two different factors to consider when defining factory farming.

The first is obviously the environment—cramped, intensive, and typically with feed brought to the animals instead of allowing them to forage. They're limited in the range of their naturalistic behaviors that their environment physically allows them to express.[18] Generally, they're just not able to act like they would want to as animals. The second factor is genetics. This is an especially bad problem for poultry. Over 9 billion animals are raised on factory farms every year, and the vast majority of animals excluded from the AWA are, in fact, farmed animals and are, in fact, on factory farms.[19]

I don't want to gross you out too much with the details. I could show you all the videos in the world, and most of you have probably already seen them. Factory farming isn't a fun conversation to have with friends and family over a meal, especially at Thanksgiving, but it's the reality that these animals face, and there are a lot of these animals. Meat chickens (so-called "broilers") grow so obese so quickly that up to a third of them can't walk correctly[20] and many can't breathe correctly.[21] They're eating constantly because that's the way we've bred them.[22] They don't really have an upper limit on their appetite, which means that even though they're obese, they're likely constantly hungry.[23] And that's probably even more so the case with

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17 PEW COMM'N ON INDUS. FARM ANIMAL PROD., PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA 1 (2008), http://www.pcifapia.org/_images/PCIFAPSmry.pdf [http://perma.cc/PK5E-M9SY] (accessed Jan. 4, 2019).

18 FOOD & WATER WATCH, FACTORY FARM NATION 6 (2015), https://www.foodandwaterwatch.org/sites/default/files/factory-farm-nation-report-may-2015.pdf [http://perma.cc/8KAF-9EP2] (accessed Jan. 4, 2019) (juxtaposing natural conditions and behaviors to farming conditions and behaviors).

19 Scott Plous & Harold Herzog, *Should the AWA Cover Rats, Mice, and Birds? The Results of an IACUC Survey*, 28 LAB ANIMAL 38, 38 (1999).

20 HSUS, AN HSUS REPORT: THE WELFARE OF ANIMALS IN THE CHICKEN INDUSTRY 1–2 (2013), http://www.humanesociety.org/assets/pdfs/farm/welfare_broiler.pdf [http://perma.cc/8YPD-X7F5] (accessed Jan. 4, 2019).

21 *See* Heather Paxton et al., *The Gait Dynamics of the Modern Broiler Chicken: A Cautionary Tale of Selective Breeding*, 216 J. OF EXPERIMENTAL BIOLOGY 3237, 3244 (2013) (discussing the trial results of halting movements of the chickens and their behavior of breathlessness after mild exertions of walking).

22 *See* Ian C. Dunn et al., *Decreased Expression of the Satiety Signal Receptor CCKAR is Responsible for Increased Growth and Body Weight During the Domestication of Chickens*, 304 AM. J. OF PHYSIOLOGY-ENDOCRINOLOGY & METABOLISM E909, E909 (2013) (discussing the correlation between animal growth, size, and rates of appetite from domestication); *See* E.A.M. Bokkers & P. Koene, *Eating Behaviour, and Preprandial and Postprandial Correlations in Male Broiler and Layer Chickens*, 44 BRITISH POULTRY SCI. 538, 538 (2003) ("Broilers have been selected extensively for increased growth rate. This selection has resulted primarily in increased appetite with a minimal increase in feed efficiency.").

23 *See, e.g.*, M.M. Van Krimpen & I.C. De Jong, *Impact of Nutrition on Welfare Aspects of Broiler Breeder Flocks*, 70 WORLD'S POULTRY SCI. J. 139, 140 (2014) ("[T]here is a problem in that the birds are chronically hungry and suffer from frustration of the feeding motivation which has a negative effect on bird welfare.").

parent and grandparent birds of those chickens because they are severely feed restricted in order to prevent them from growing so obese that they can't reproduce effectively.[24]

The few problems I've just mentioned are a tiny subset of the welfare challenges faced by farmed animals in the U.S. The bigger picture is this: On a scale that gives China, India, Brazil, and Argentina a C, the organization World Animal Protection gave us a D.[25] The U.S. and Canada are really the only Western countries ranked that poorly. So, we have a pretty grim problem here. What do we do? Ninety-nine percent of farmed animals are factory farmed.[26] They represent the vast majority of all animals that we raise for our benefit in the United States and in the world.[27] Is there any hope? How does the AWA factor into this if at all?

There is hope. I believe the tide is turning. Our organization, Farm Forward, was founded about ten years ago. Ten years ago, pigs elicited some concern from consumers, cows got some compassion, but chickens and turkeys—not as much. In just the past decade, organizations like Farm Forward, American Society for the Prevention of Cruelty to Animals (ASPCA), and Humane Society of the United States (HSUS) have seen a sea change in compassion, not just for the cuddliest of farmed animals, but also for those whom we typically think of as being less like humans. At the same time, consumer values are changing, with reports consistently showing large majorities of consumers believing that farmed animal welfare is important to them.[28] The organics market is booming, and studies show that animal welfare is a big reason why consumers buy organic (even though to a large extent organic does not guarantee higher welfare).[29] Consumers are becoming much more aware of the key benefits that go along with mitigation of factory farming—issues like superbugs, other food safety issues, even issues that are not necessarily associated like GMOs. These are terms that consumers throw around and even though Farm Forward doesn't

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[24] *Id.*

[25] *Animal Protection Index*, WORLD ANIMAL PROT., https://api.worldanimalprotection.org/ [https://perma.cc/DM75-D4LT] (accessed Jan. 4, 2019). (The grades referred to are from 2016, currently the grades are as follows: China has a C, India has a C, Brazil has a C, Argentina has a B, and the United States has a D).

[26] *Facts–Farm Animals*, ANIMAL MATTERS, http://www.animalmatters.org/facts/farm/ [http://perma.cc/S59W-6SJK] (accessed Jan. 4, 2019).

[27] COMPASSION IN WORLD FARMING, STRATEGIC PLAN 2013-2017 FOR KINDER, FAIRER FARMING WORLDWIDE 15 (2013), https://www.ciwf.org.uk/media/3640540/ciwf_strategic_plan_20132017.pdf [http://perma.cc/Z3FJ-UYER] (accessed Jan. 4, 2019).

[28] *Consumer Perceptions of Farm Animal Welfare*, ANIMAL WELFARE INST., https://awionline.org/sites/default/files/uploads/documents/fa-consumer_perceptionsoffarmwelfare_-112511.pdf [https://perma.cc/6HDQ-BV32] (accessed Jan. 4, 2019).

[29] *See The 'USDA Organic' Label and Farm Animal Welfare*, AM. SOC'Y FOR THE PREVENTION OF CRUELTY TO ANIMALS, https://www.aspca.org/shopwithyourheart/advocate-resources/usda-organic-label-and-farm-animal-welfare [https://perma.cc/V8XC-RQF4] (accessed Jan. 4, 2019) (explaining that some organic farms raise animals in conditions virtually indistinguishable from non-organic factory farms).

use some of them because they're not all accurate terms, my point is that those fears still play into consumers' desires to move away from factory farming. On top of that, we have more and more companies committing themselves to better welfare policies. Wal-Mart, Kroger, Kraft, Safeway, and many others just in 2016 committed to going cage-free with their eggs.[30]

There have also been a lot of state-level reforms in the past ten years, "YES! On 3" being a good example.[31] The desperation exhibited by the agricultural industry by its attempt to pass Ag-Gag legislation over the past few years is further evidence of just how rapidly things are changing. These are all reasons why we should have some courage. We can take heart that things are improving. But how does this relate to the AWA? Can we actually translate any of this energy, any of this excitement, any of this change, into changes at the federal level, whether via the AWA or a different vehicle?

In the long term, I believe the answer must be "Yes." Ethics drive law, and our ethics have changed radically since 1970, when farmed animal welfare wasn't on the radar for most consumers and when factory farming wasn't as egregious and upsetting as it is today. In the long term, I think the answer has to be yes. And while we continue to see state-level victories, in the long term I think we may see changes at the federal level as well.

In the short term, it's harder to say. We could talk about the AWARE Act—The Animal Welfare and Agricultural Research Endeavors Act—which was proposed in early 2015 by Congress to protect the tiny subset of farmed animals used for agricultural research at federal facilities.[32] This was a small, targeted bill put out in the wake of a scandal that was the subject of a *New York Times* expose.[33] It currently has a 1% chance of passing, according to GovTrack.[34] So this is tough. And what I'm proposing is something much bigger and more radical—protecting all farmed animals at the federal level.

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[30] Lisa Acho Remorenko*, Significant Gains for Animals in 2016,* SANTA BARBARA INDEP. (Jan. 6, 2017) https://www.independent.com/news/2017/jan/06/significant-gains-animals-2016/ [http://perma.cc/BT4Z-9PR9] (accessed Jan. 4, 2019).

[31] *See Massachusetts Minimum Size Requirements for Farm Animal Containment, Question 3*, BALLOTPEDIA, https://ballotpedia.org/Massachusetts_Minimum_Size_Requirements_for_Farm-_Animal_Containment,_Question_3_(2016) [http://perma.cc/YS8C-TUCG] (accessed Jan. 4, 2019) (proposing a prohibition on the sale of eggs, veal, or pork from farmed animals kept in confined spaces such that the animal cannot lie down, stand up, extend its limbs, or turn around).

[32] The Animal Welfare and Agricultural Research Endeavors Act, H.R.746, 114th Cong. § 388 (2015).

[33] Michael Moss, *U.S. Research Lab Lets Livestock Suffer in Quest for Profit*, N.Y. TIMES (Jan. 19, 2015), https://www.nytimes.com/2015/01/20/dining/animal-welfare-at-risk-in-experiments-for-meat-industry.html?_r=0 [http://perma.cc/R4P8-39SW] (accessed Jan. 4, 2019).

[34] *H.R. 746 (114th): AWARE Act*, GOVTRACK, https://www.govtrack.us/congress/bills/-114/hr746 [http://perma.cc/8HWY-275V] (accessed Jan. 4, 2019) (noting that the measure died in the previous session of Congress).

So, what can we do in the short term and medium term that could actually encourage these bigger changes in the long run? I think one of the biggest opportunities here is third-party welfare certifications. If you aren't familiar, please get familiar, because this is where we can make a difference as individual consumers every time we buy a certified product. If you are someone who eats animal products, you are voting with those dollars that you actually want a higher-welfare product. Global Animal Partnership—with its 5-Step program—Animal Welfare Approved, and Certified Humane are some of the best programs out there. They're a small percent of the market now but they're growing, and an increasing number of food companies are committing voluntarily to using their standards.[35] Institutional buyers are as well. We've been working with a few universities and they are excited and actually want to get on board. It's often not as oppositional a conversation as you might think. When we began working with the University of California, we were surprised to see that the biggest hurdle was finding alternative supply chains. They said, "Help us, we don't know where to get these animals. Do they exist?" And our answer was "Sort of. Let's help build that supply chain for you."

There's one more point I'd like to make on food label certification. Millennials, I know you're out there. This is very important. Clearly, we're going to take over and things are going to go very well for us. And here's how I would describe millennials: We're zealous, we're ignorant, and we're numerous. Our zeal and our numbers are good things, but our ignorance is not. Seventy-seven percent of millennials say they're either well informed or know quite a bit about organic products.[36] Sixty percent say that they have a "strong connection" to the organic label.[37] But the data on organic shoppers, and this includes millennial shoppers, show that millennials are now the biggest buyers of organic products,[38] but that the majority of them are misinformed about organic label's requirements. What I'm saying is that we millennials are excited about changing our food system but we're buying the wrong things.

I see in this room some millennials who are also training to become attorneys. In my experience, most of the people who know about and support third-party certifications haven't read those certification's standards in detail. They don't really know all the rules behind them. This is even more true of labels like organic, and the reason is that the standards behind these certifications are long and complicated. This is why we need young people with sharp legal minds on this issue. I re-

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[35] *Animal Welfare Audit and Certification Programs*, USDA, https://www.nal.usda.gov/awic/animal-welfare-audit-and-certification-programs [http://perma.cc/DEP3-VVUV] (accessed Jan. 4, 2019).

[36] Maggie McNeil, *Milennials and Organic: A Winning Combination*, ORGANIC TRADE ASS'N (Sept. 22, 2016) https://www.ota.com/news/press-releases/19256 [http://perma.cc/T8VZ-9T64] (accessed Jan. 4, 2019).

[37] *Id*.

[38] *Id.*

cently saw a label on a turkey at Whole Foods. The label was covered in vague, nice-sounding phrases, like "Thoughtfully Raised on Sustainable Family Farms." What does that mean? It means nothing. This is what we're fighting. We're in a labeling arms race. The industry knows that consumers want meaningfully higher-welfare products but it hasn't yet committed to actual change. We need consumers to commit to buying third-party-certified products and to commit to actually understanding how those products are different, the goal being in the long term that these certifications can serve as de facto welfare regulations. The arc of the moral universe is long but it bends toward justice. Our ethics have changed since 1970 and our laws should as well. Thank you.

II. RATS, MICE, AND BIRDS UNDER THE AWA?

By
Sue Leary**

I feel like I'm preaching to the choir here because I think most people who have an interest in this issue are aware that birds, rats, and mice bred for use in research are not covered by the Animal Welfare Act (AWA). What they don't know is that there is a story there, and I'm here to tell that story.

I'm with an organization called the Alternatives Research & Development Foundation. We're associated with the American Anti-Vivisection Society (AAVS) and here's what we do: we were founded to support the development, validation, and adoption of non-animal methods. We have an alternatives research grant program, and we've given over $3 million in grants to develop alternative methods. We also look at sponsoring scientific meetings. There are a number of you here who may be familiar with the World Congress on Alternatives and Animal Use in the Life Sciences, including Alan Goldberg, who ran the first one.[39]

We provide an award of recognition for people who've made significant contributions to the field of alternatives, with the William and Eleanor Cave Award.[40] We also engage in science policy regarding al-

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[39] *Curriculum Vitae – Alan M. Goldberg, Ph.D.*, BLOOMBERG SCH. OF PUB. HEALTH, JOHNS HOPKINS, http://caat.jhsph.edu/about/staff/goldberg/index.html [http://perma.cc/NMZ3-ZV6X] (accessed Jan. 4, 2019).

[40] *The William and Eleanor Cave Award*, ALTS. RES. & DEV. FOUND., https://www.ardf-online.org/cave-award.html [http://perma.cc/EG8G-SEPE] (accessed Jan. 4, 2019).

ternatives. That's where we were coming from, when, in 1998, we got involved in all these aspects of the birds, rats, and mice issue. Today I want to go over some of the key events, the issues, and what's going on here; are we really making some science-based decisions or is this politics? Also, some recommendations. This is all basically coming from an article we put together in 2011 for a poster at one of the World Congresses. I thank my coauthors Crystal Schaeffer and Vicki Katrinak who work, or worked, at AAVS.[41]

In 1970, the AWA expanded.[42] You can see our little timeline here, the amendments that we were excited about in 1985.[43] [Referring to slide in appendix.] Then a significant case in 1992 by our colleagues at ALDF and HSUS, where they got a very nice decision on the merits of the case: That excluding birds, rats, and mice (and I won't recite, the genus *Rattus*, genus *Mus*, etc.), was arbitrary and capricious and violated the law.[44] Unfortunately, because they lost on standing, that was never applied.[45] However, I should say that there were already murmurings that the United States Department of Agriculture (USDA) had some recognition that they came pretty close, and maybe they should start thinking about getting the excluded animals in there.

In 1998, after a number of years where we had been funding some terrific work on alternatives to the production of monoclonal antibodies, which is almost entirely on mice, we realized that we had no way to find out if those terrific alternatives were being used, because no one was even counting the mice that were being used. A lot of the alternative methods that were being developed were alternatives to the use of rats or mice, but we had no way to compel people to consider these alternatives because they were excluded from the law. That was the basis of our interest.

We filed a petition with the USDA, then frankly what happened was, they did request public comments on the petition, but it was very clear from the way they phrased the request for public comments that they were going to maintain that they actually did have discretion to exclude them. We didn't wait for a long comment period. We initiated a lawsuit, and filed our complaint in 1999.[46] Interestingly, one of our coplaintiffs—some of you know this case, some of you teach it—was a young woman who was a student at a liberal arts college. This is a college that did not have a research program, they had no Institutional Animal Care and Use Committee (IACUC), but they were using rats in

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41 Sue A. Leary et al., *The Exclusion of Mice*, *Rats, and Birds*, AV MAGAZINE, 2011, at 12.

42 Animal Welfare Act of 1966, 7 U.S.C. §§ 2131–2159 (1966), *amended by* Pub. L. No. 91-579, 84 Stat. 1560 (1970).

43 *See* Slide in Appendix http://law.lclark.edu/law_reviews/animal_law_review.

44 Animal Legal Def. Fund v. Madigan, 781 F. Supp. 797, 806 (D.D.C. 1992).

45 Animal Legal Def. Fund v. Espy, 23 F.3d 496, 497–98 (D.C. Cir. 1994).

46 *See* Alts Research & Dev. Found. v. Glickman, 101 F. Supp. 2d 8 (D.D.C. 2000) (providing the outcome from the initial lawsuit).

psychology classes. She personally had to intervene for these animals. She cared for them over the holidays when the professor didn't seem to care at all about what happened to them. She had been in contact with us because she called the AAVS office and said, "Can you help me find homes for these rats?" She had suffered a lot of personal injury, in order to advocate for these animals. She actually was granted standing by the judge.[47]

As soon as that happened, the USDA, knowing that they lost on the merits of the case before, approached us about settling. Unfortunately, there were some people upset about that. The National Association for Biomedical Research filed a motion to intervene.[48] Johns Hopkins filed a motion to intervene too,[49] but we did reach a settlement with the USDA [on October 3, 2000] and they did agree to initiate rulemaking that would include birds, rats, and mice. Only three days later, there was another motion to intervene that was denied,[50] and then less than a month later the Agriculture Appropriations Bill prohibited the USDA from enacting the terms of our settlement.[51]

It all happened pretty fast, ending up with the Farm Bill in 2002, when Jesse Helms, who was leaving office, managed (without any floor discussion—I think it was pretty late at night), to get this amendment on the bill. So now mice are now formally excluded. However, there is the matter of the comma in the Helms amendment after *Mus*. I'll explain that later.

Here are the key issues that I think are often overlooked when this issue is taught. First, there was a lot of support in the research community. There is a lot of polarization now and that's research [proponents] versus animal people. That wasn't entirely the case then. Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), which is a major organization that accredits laboratories that do animal research, its statement says it 'conditionally supports,' but they recognized it, because they cover all vertebrates.[52] AALAS, at the time, which is the American Association for Laboratory Animal Science, supported it,[53] as did our friends at the Center for Alterna-

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[47] *Id.* at 14.

[48] Motion for NABR to Intervene as Defendant, *Glickman*, 101 F. Supp. 2d 7 (No. 99-581).

[49] Motion filed for John Hopkins Univ. to Intervene as a Defendant, *Glickman*, 101 F. Supp. 2d 7 (No. 99-581).

[50] Motion Hearing Before Judge Ellen S. Huvelle: Denying Motion to Intervene and for TRO, *Glickman*, 101 F. Supp. 2d 7 (No. 99-581).

[51] Norma Bennett Woolf, *The Saga Continues: USDA, Activists Settle Rodent and Bird Case, but Congress Withholds Money for Implementation*, NAT'L ANIMAL INTEREST ALL. (Jan. 12, 2012) http://www.naiaonline.org/articles/article/the-sage-continues #sthash.2qfblSap.dpbs [http://perma.cc/EBT2-QXNM] (accessed Jan. 4, 2019).

[52] *AAALAC's Position on Inclusion of Rats, Mice, and Birds Under USDA Regulatory Oversight*, CONNECTION (Summer 1999) at 7.

[53] Am. Ass'n for Lab. Animal Sci., *AALAS Position Statement on the Inclusion of Rats, Mice, and Birds Under USDA Regulatory Oversight*, 58 CONTEMPORARY TOPICS IN LABORATORY ANIMAL SCI., no. 5, 1999, at 25–26.

tives to Animal Testing[54] and this center, the Scientists Center for Animal Welfare.[55] We also had company support from Colgate-Palmolive,[56] and Procter & Gamble,[57] and there was a survey of rank-and-file research people by Plous and Herzog and the majority of them *did* support inclusion of rats and mice.[58] I think this is often overlooked: It wasn't a monolith of the scientific community.

The second issue that I wanted to emphasize is that this really does have a lot to do with alternatives. We heard earlier that the consideration of alternatives is a part of the law. It's not very well understood—perhaps by the IACUCs, but it is part of the law. It is something that we can use as a way to look seriously at what's happening to animals in laboratories. Again, I refer to our monoclonal antibody campaign, which affected an estimated 1 million animals a year,[59] and we see in Europe that directives about alternatives are effective.[60]

The third thing is that this exclusion is a barrier to harmonization even within U.S. policies. Of course, we had a statement from Senator Dole saying that was not what he had in mind with the 1970 amendments.[61] It was against Congressional intent. But also, if you look at National Health Institute (NIH) policy, the Guide for the Care and Use of Laboratory Animals, produced by the Institute for Laboratory Animal Research (ILAR)[62] and, we take an example from Europe,

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[54] *A CAAT Timeline: 1981-2012*, CTR. FOR ALTERNATIVES TO ANIMAL TESTING, JOHNS HOPKINS, http://caat.jhsph.edu/about/timeline.html [http://perma.cc/MF7Z-V3WW] (accessed Jan. 4, 2019).

[55] *SCAW's Position Statement*, 20 SCAW NEWSLETTER, Winter 1998–1999, at 1, 7.

[56] Letter from David Wilcox, Vice President, Product Safety, Regulatory and Information, Global Tech., Colgate Palmolive Co., to Tom Harkin, U.S. Senator (Apr. 29, 2002) (on file with Sue Leary).

[57] Letter from Larry Garnes, Vice President of Corp. Research & Dev., Prod. Safety & Regulatory Affairs/External Relations, The Proctor & Gamble Company, to Robert Byrd, U.S. Senator (Oct. 5, 2001) (on file with Sue Leary).

[58] Scott Plous & Harold Herzog, *supra* note 19, at 38–40.

[59] Statistic based on 1991 report by Business Communications Company, which estimated 2.6 million mice were used to manufacture Mabs worldwide. U.S. was 40% of world total. *See* Dr. Coenraad Hendriksen, *Monocolonial Antibodies* in INTERNATIONAL CONFERENCE OF THE COUNCIL OF EUROPE ON ETHICAL ISSUES ARISING FROM THE APPLICATION OF BIOTECHNOLOGY: PROCEEDINGS (Council of Europe Publishing, May 1999) (citing 2.6 million mice statistic).

[60] *Alternatives to Animal Testing and Safety Assessment of Chemicals*, EUROPEAN COMM'N: E.U. SCI. HUB (Oct. 2, 2017), https://ec.europa.eu/jrc/en/research-topic/alternatives-animal-testing-and-safety-assessment-chemicals [http://perma.cc/VN5C-9HYD] (accessed Jan. 4, 2019).

[61] *See* Bob Dole, *Senator Bob Doyle Speaks for Animals*, AV MAGAZINE, Summer 2006, at 6 ("As someone deeply involved with the process of expanding and revising the provisions of the AWA, I assure you that the AWA was meant to include birds, mice, and rats.").

[62] COMM. FOR THE UPDATE OF THE GUIDE FOR THE CARE AND USE OF LAB. ANIMALS, NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS 2 (8th ed. 2011).

which covers all vertebrate animals,[63] to show that the exclusion is inconsistent with just about every other standard.

Lastly, here is the upshot: the vast majority of animals used in research are not covered by the AWA and that means that a lot of genetically engineered mice, which are the major category who have major welfare problems,[64] are not included; we estimate [they make up] about 95%. I'm not opposed to saying 99% [as has been said] but we estimate around 95%.

One of the things we did was look at this; it's always a question of numbers, how many? Everybody asks: "How many?" Of course, we don't know because they don't count them, that's the problem. We did extrapolate though, from some figures from Europe. The European Union collects a tremendous amount of information about the animals being used. We just ran a few numbers and assumed that similar percentages of birds, rats, and mice—I should say all vertebrates which is really our position right now—used in Europe were also used in the U.S. Then we're estimating, using the most recent European statistics for 2011,[65] about 15 million vertebrates used in the U.S. who are not covered by the AWA.

I don't think there's any question that this was obviously a political issue and there were certain players who were involved, especially and most prominently, the National Association for Biomedical Research and Johns Hopkins. They had some claims; they were concerned over the ability of the agency to take on this job. We felt that we could work this out in the regulatory process, but they were saying that it was just going to be a disaster. Of course, they've said that before.[66]

They felt that currently established standards that were voluntary were protecting the animals sufficiently. They were concerned about administrative and economic costs for universities and of course that's how they got the universities very interested in the issue and lobbying on their behalf. The quote from Johns Hopkins, was they were opposed to any USDA regulation of the use of mice, rats, and birds in research.[67] They were just opposed.

Association of American Medical Colleges, National Association for Biomedical Research, Federation of American Societies for Experimental Biology and Association of American Universities are the orga-

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[63] Council Directive 2010/63/EU, 2010 O.J. (L 276) 33.

[64] NINA MAK, ANIMAL WELFARE FOR SALE: GENETIC ENGINEERING, ANIMAL WELFARE, ETHICS, AND REGULATION, AM. ANTI-VIVISECTION SOC'Y 2, 6 (2008), http://aavs.org/cms/assets/uploads/2014/-08/aavs_report_ge-anmial-welfare.pdf?x82509 [http://perma.cc/7RDK-F8P4] (accessed Jan. 4, 2019).

[65] *Seventh Report on the Statistics on the Number of Animals Used for Experimental and Other Scientific Purposes in the Member States of the European Union*, at 3, COM (2013) 859 final (December 5, 2013).

[66] Estelle A. Fishbein, *What Price Mice?*, 285 J. OF AM. MED. ASS'N 939, 940 (2001).

[67] Memorandum in Support of the Johns Hopkins University's Motion for Leave to Intervene, *Glickman*, 101 F. Supp. 2d 7 (No. 99-581).

nizations that came out the most strongly. They were identified by an editorial in *Nature* magazine.[68] In that same editorial, they identified that it was Senator Thad Cochran who made that first barrier in the appropriations of the USDA.[69] They also went on to say that AALAS, which as I say is an association of laboratory animal scientists, call the exclusion "ethically indefensible."[70] They felt that the research lobbyists were giving a false impression that researchers are united in this. I think this is a key point. The *Nature* editorial said that lobbyist arguments verged on the reactionary and ultimately that research could suffer.[71]

Again, I think that when we look forward, we're probably going to be needing the science community to work with us on this and it's very possible. We all know the reasons, we are together in this. There are ethical reasons, there's the issue of public accountability—how many animals are being used? This is a lot of taxpayer-funded money. It's a way for us to measure our progress on alternatives. It will harmonize the laws and it will stimulate the use of alternatives. Here are some ways to do that. We could facilitate scientific and political acceptance by starting with a voluntary [reporting] program. We do need to make sure that Animal Care has the funding to carry out their duties; and another one of our suggestions was to convene a working group.

I do want to thank some of the wonderful people, many of whom are in this room, who helped us in the process of working to defend the settlement that we had, and then working to submit comments on the birds because that comma [mentioned previously] meant that birds who are not bred for use in research are covered by the Animal Welfare Act, and the USDA did invite public comments for that.

However, they have not acted on it. We're pursuing that. But we had a lot of support from all the animal protection organizations. We are very happy for that.

III. AQUATIC ANIMALS & THE ANIMAL WELFARE ACT

By
Kathy Hessler***

I'm here to talk to you about aquatic animals. Aquatic animals are animals that we don't tend to think about very often. If we don't see them, we can't really know them. We can't think about them. Aquatic

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[68] *In Defense of Animal Research,* 407 NATURE 659, 659 (2000).

[69] *Id.*

[70] *Id.*

[71] *Id.*

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animals are very much the most ignored and "othered" animals we have right now.

They fit into both of the categories that my colleagues just spoke about: Into the farmed animal category, and into the research animal category, as well as all of the categories that are covered and excluded under the Animal Welfare Act (AWA). I'm not going to go very deeply into the coverage issues because we've already been talking about that, but this is my quick overview. When we're talking about aquatic animals, there are overlaps with other types of animals we've been talking about a lot today. Some are vertebrates, some are not vertebrates, some are marine mammals, some are not, some are warm-blooded, and some are not.

Aquatic animals represent a very, very large group of animals and these animals are all over the world. They are in our streams, our rivers, our lakes, our oceans—but they're in our factories as well. They're in our homes. They're in aquariums. They're all over and they are the least regulated animals. We need to have some very significant conversations about how we treat and use them, all of them. When I talk to people about doing aquatic animal work, people assume I'm just talking about fish. That's why I have this list: Amphibians, Fish, Cetaceans, Marine Mammals, Crustaceans, Pinnipeds, Mollusks, and Reptiles. Fish are on the list, but they're just one category of aquatic animals we need to be thinking about. Again, if we don't realize that all of these types of aquatic animals are out there and that all of them fit into food categories and into testing categories and into exhibition categories, then we're not thinking about the kinds of regulations that actually should apply to them and what their needs might be. That's why we have the list.

We know the categories under the AWA for exhibition, research, pets, and transportation. Again, I want you to be thinking about the types of activities that the AWA regulates because the animals I'm talking about don't get any of the minimal protections that have been discussed if we're not talking about marine mammals. For the rest of the aquatic animals, we're not doing any record keeping, we're not worried about their housing, we're not regulating for their protection under the AWA. We're just not caring about these animals under the AWA. We need to start thinking about *how* we care about them.

Everyone here is very familiar with the definition of "animal" under the AWA. But I just want to point out that, as my colleagues have said, there are different ways of thinking about exclusions under this act. In talking about laboratory animals, Sue led us really nicely through why and how we got to the exclusion for birds, mice, and rats. Farm animals are their own category of exclusion as Michael explained. Aquatic animals are not there at all. They're not even important enough to be excluded. They are so far outside of our sphere of understanding or concern that it is clear to everyone that they're not covered without even needing to say they're not covered. I want to emphasize that point. That's the status of these animals in our society.

Part of my job is to lift them up. I want everyone to see them, start thinking about them. When we're talking about farmed animals, it's useful to say we're talking about the many billions of *terrestrial* farmed animals. There are 60 billion terrestrial animals killed in the U.S. annually; globally, the number is somewhere between 100 to 200 billion.[72] To that figure we need to add 1 to 4 trillion *aquatic* animals, just in the food industry.[73] That's nine terrestrial animals being eaten annually for every human being on the planet, and 150 to 300 aquatic animals eaten annually by every human being.[74] We're talking about a lot of animals, a lot of suffering.

The AWA doesn't exclude all aquatic animals, so which ones does it cover? As we've discussed—marine mammals—that includes cetaceans (whales and dolphins), pinnipeds (seals and sea lions), polar bears, otters, and manatees. Warm-blooded animals are also generally covered. Science has taught us since kindergarten that fish aren't warm-blooded, that aquatic animals other than marine mammals aren't. It turns out that Salmon Sharks, some Billfish, and some tuna are *partially* warm-blooded.[75] One question is, is that enough for AWA

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[72] *See Food*, ANIMAL EQUITY, https://www.animalequality.net/food [https://web.archive.org/-web/20180704143945/https://www.animalequality.net/food] [http://perma.cc/5NJ6-UP5R] (accessed Sept. 11, 2018) (estimating over 56 billion terrestrial farmed animals are killed annually by humans); *see also Animal Slaughter Counter*, THE VEGAN CALCULATOR, http://thevegancalculator.com/animal-slaughter/ [http://perma.cc/B4XR-46ZF] (accessed Jan. 4, 2019) (estimating over 150 billion animals are slaughtered each year); *Factory Farms*, A WELL-FED WORLD, https://awfw.org/factory-farms/ [http://perma.cc/NMU7-4G4U] (accessed Jan. 4, 2019) ("Globally, the death toll [of land animals killed for human consumption] exceeds 70 billion."); *Animals Killed for Food in the United States in 2000*, UNITED POULTRY CONCERNS, https://www.upc-online.org/slaughter/2000slaughter_stats.html [http://perma.cc/8P9C-U6GG] (accessed Jan. 4, 2019) (showing figures from the USDA's National Agricultural Statistics Service (NASS) that demonstrate over 880 million terrestrial animals were killed in the United States for food in 2000).

[73] *See* A. MOOD & P. BROOKE, ESTIMATING THE NUMBER OF FISH CAUGHT IN GLOBAL FISHING EACH YEAR 1 (July 2010), http://fishcount.org.uk/published/std/fishcount-study.pdf [http://perma.cc/P3CX-ZG5X] (accessed Sept. Jan. 4, 2019) (estimating the number of fish killed annually for food using estimated mean weights); *see also Fish Count Estimates*, FISH COUNT, http://fishcount.org.uk/fish-count-estimates#wildestimat [http://perma.cc/Z43J-YQRC] (accessed Jan. 4, 2019) (estimating the number of fish killed annually for food using fisheries and aquaculture tonnages).

[74] Official statistics regarding consumption or capture of fish use tonnage rather than numbers of animals, making it difficult to estimate the number of fish involved. Using Table 5 from A. MOOD & P. BROOKE, *supra* note 73, and taking a mid-range estimate of 2 trillion fish captured (not including farmed fish or other species) and dividing the planet's 2016 population of 7.4 billion people we get an average of 270 fish per person, per year. For additional discussion of global production and consumption, *see* FOOD AND AGRIC. ORG. OF THE U.N., THE STATE OF THE WORLD FISHERIES AND AQUACULTURE ii (2016), http://www.fao.org/3/a-i5555e.pdf [http://perma.cc/WQ2C-4Y58] (accessed Jan. 4, 2019) (stating that global per capita fish consumption rises above 20 kilograms a year).

[75] Tanya Brunner, *Endothermy, the Heat Within*, SHARK SAVERS, http://www.sharksavers.org/en/education/biology/endothermy/ [http://perma.cc/8AXU-E58N] (accessed Sept. 11, 2018); Deborah Netburn, *Deep in the Ocean, the World's First Known*

protection? How much warm-blooded-ness does an animal need to have in order to be covered? This might be an interesting legal question to put forward. But there is another example to consider. In 2015, the Opah was discovered to be the first fully warm-blooded fish.[76] So this might be another avenue to use to crack that wall against legal protection. If the AWA means to protect warm-blooded animals, then I have a fish for you to consider.

We've had lots of conversation about the weaknesses of the AWA. I'm not here to defend the AWA as being a wonderful piece of legislation, but it is important to note that it does do some positive things. However, those minimal protections aren't available for aquatic species (other than marine mammals). For policy-making and other reasons, it would be helpful to know the actual numbers of animals used in the U.S. If the United States Department of Agriculture (USDA) had to do record keeping with respect to *all* animals used, that would be a place to start developing a better understanding of their uses, and people would have their eyes opened with respect to how large the numbers actually are. That would help motivate changes in policy.

Looking at some of the different usage categories for a moment, we note that the use of zebrafish in research is increasing very fast. They are not used anywhere nearly as frequently as rodents just yet, but their numbers are increasing significantly and quickly. In part, this is because when people start thinking about replacing animals in research, they think about a vertical taxonomy.[77] People are less inclined to use primates (nonhuman primates) and don't want to use dogs for all the reasons that you already know, so researchers use more mice. If we don't want them to use mice, to avoid animal testing they may start to use more fish. There are some important scientific reasons why researchers use specific animals as models. But when there is a choice, the decision can be partly driven by a valuation such that the "lower" down the taxonomic scale an animal is, the less we care about them or worry about their use. I'm here to challenge that thinking, and that includes caring about the use of "even" zebrafish. Part of the reason researchers use them is they can be bred to be trans-

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Warm-Blooded Fish, L.A. TIMES (May 15, 2015), http://www.latimes.com/science/sciencenow/la-sci-sn-warm-blooded-fish-20150514-story.html [http://perma.cc/XF6N-VAVA] (accessed Jan. 4, 2019).

[76] *Are All Fish Cold-Blooded?*, NAT'L OCEAN SERV., https://oceanservice.noaa.gov/facts/cold-blooded.html [https://web.archive.org/web/20170709172028/https://oceanservice.noaa.gov/-facts/cold-blooded.html] [https://perma.cc/T4XU-L6YH] (accessed Jan. 4, 2019); Stephanie Pappas, *First Warm-Blooded Fish Found*, LIVE SCI. (May 14, 2015), https://www.livescience.com/-50839-first-warm-blooded-fish-found.html [http://perma.cc/2ABC-W5C6] (accessed Jan. 4, 2019).

[77] A short-hand way of expressing the idea that animals who are more similar to humans are valued more highly with primates deemed closest and insects deemed furthest, discussed somewhat by Melanie Joy in her book, Why We Love Dogs, Eat Pigs, and Wear Cows. MELANIE JOY, WHY WE LOVE DOGS, EAT PIGS, AND WEAR COWS (2010).

lucent.[78] Juveniles are naturally translucent,[79] but now adults can be bred to be translucent which is useful for researchers to see, for example, the tumors they are inducing in these animals.

In addition to the AWA, we talked a little bit today about the Public Health Service policy (PHS policy). Some of the animals who aren't covered under the AWA are covered under the PHS policy.[80] However, there is no statutory mandate for implementation and there is no citizen suit provision, which means that it doesn't have external enforcement options. I also want to be clear about which animals are covered under which rubric. The PHS policy covers vertebrates broadly, including fish, amphibians, and reptiles, animals that the AWA does not cover.[81]

We also have the Cambridge Declaration on Consciousness, noting that animals have consciousness, including some aquatic animals.[82] Additionally, we need to address the fact that two of the Three Rs principles already discussed today are not in fact required by law.[83] This is not true everywhere. There is a lot we can learn from the scientific community elsewhere. Other jurisdictions, Europe and England in particular, are doing a much better job of incorporating ethical principles and updated scientific data into the regulation of animal research. It is important to look at these and other developing regulatory models

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[78] Paride Antinucci & Robert Hindges, *A Crystal-Clear Zebrafish for In Vivo Imaging*, 6 SCIENTIFIC REPORTS 1, 1 (2016), https://www.nature.com/articles/srep29490.pdf [http://perma.cc/CVE9-BT5L] (accessed Jan. 4, 2019); Richard White et. al, *Transparent Adult Zebrafish as a Tool for in vivo Transplantation Analysis*, 2 CELL STEM CELL 183, 183 (2008) https://www.cell.com/cell-stem-cell/fulltext/S1934-5909(07)00275-5?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1934590907002755%3Fshowall%3Dtrue [https://perma.cc/Q87H-MSS8] (accessed Jan. 4, 2019).

[79] *Zebrafish FAQs*, U. OF OREGON, http://www.uoneuro.uoregon.edu/k12/FAQs.html [http://perma.cc/R3YK-72FB] (accessed Jan. 4, 2019).

[80] *See Public Health Service Policy on Humane Care and Use of Laboratory Animals*, OFFICE OF LAB. ANIMAL WELFARE, NAT'L INSTITUTES OF HEALTH, U.S. DEP'T OF HEALTH & HUMAN SERVS (2015), https://olaw.nih.gov/policies-laws/phs-policy.htm [http://perma.cc/GH4F-VZJ7] (accessed Jan. 4, 2019) (explaining that PHS policy, which has been adopted by U.S. government agencies, implements requirements and procedures for vertebrate animals used in research).

[81] Stephen Potkay et al., *Frequently Asked Questions About the Public Health Service Policy on Humane Care and Use of Laboratory Animals*, OFFICE OF LAB. ANIMAL WELFARE, U.S. DEP'T OF HEALTH & HUMAN SERVS. (1997), https://grants.nih.gov/grants/olaw/references/faq_labanimals1997.htm [http://perma.cc/KZ9J-YNYR] (accessed Jan. 4, 2019).

[82] *The Cambridge Declaration on Consciousness*, U. OF CAMBRIDGE (July 7, 2012), http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf [http://perma.cc/ZV5P-5C9Q] (accessed Jan. 4, 2019); *Five Years of the Cambridge Declaration on Consciousness*, ANIMAL ETHICS (July 7, 2017), http://www.animal-ethics.org/five-years-of-the-cambridge-declaration-on-consciousness/ [https://perma.cc/EXR9-8HXZ] (accessed Jan. 4, 2019).

[83] Referring to the Three Rs of animal experimentation: Replacement, Reduction, and Refinement. *See* Fenwick et al., *The Welfare of Animals Used in Science: How the "Three Rs" Ethic Guides Improvements*, 50 CAN. VETERINARY J. 523 (2009) (explaining the use of the "Three Rs" tenant to improve animal welfare).

that incorporate the actual and evolving science related to animals' capacities to feel pain and experience other sensations and emotions. We also need to consider the conditions in which these animals are used, raised, transported, and held for research. Additionally, the veterinary difficulty in determining appropriate conditions and handling is much more complicated for aquatic animals compared with terrestrial animals. There are more aquatic than terrestrial species and more variations among them, and there are fewer available veterinarians with expertise in aquatic animals. Because we don't have enough veterinarians who are trained in the different types of physiology of these animals, this presents a really significant problem in developing appropriate regulations.

In addition to considering the plight of aquatic animals used in research, there are other categories to address—first, exhibition. Aquatic animals are widely used in exhibition in the U.S.; in fact, millions are taken from the wild for exhibition purposes and others are bred specifically for this industry.[84] The breeding programs are particularly problematic to address, in part because there is so little public information available about their practices and the numbers of animals used. In the United States alone there are over 115 aquariums that some would consider reputable.[85] There are significant issues regarding how they are managed, and when there are problems, the fact is that we're not really doing much to address the problems—this is in part because of the lack of legal protections for these animals. In addition to licensed or accredited aquariums, there are other facilities that operate without any real regulatory oversight, in the same way so-called roadside zoos operate.

Another overlooked category of aquatic animal use is the pet industry. Pet trade and breeding is a much larger industry than I had realized when I started doing this work. The numbers are significant, including 95.5 million freshwater fish owned in the U.S., and that is just freshwater finned fish.[86] This does not include all aquatic ani-

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[84] *Capture of Marine Life*, ANIMAL WELFARE INST., https://awionline.org/content/capture-marine-life [http://perma.cc/VS5P-SRXU] (accessed Jan. 4, 2019); *Part 1: Study Finds Many Marine Mammals Dying in Captivity*, SUN SENTINEL (May 16, 2004), http://www.sun-sentinel.com/sfl-dolphins-parksmay16-story.html [http://perma.cc/SMW3-PLPT] (accessed Jan. 4, 2019); *Marine Animal Exhibits: Chlorinated Prisons*, PETA, https://www.peta.org/issues/animals-in-entertainment/animals-used-entertainment-factsheets/marine-animal-exhibits-chlorinated-prisons/ [http://perma.cc/8RVX-7RA2] (accessed Jan. 4, 2019).

[85] *See Public Aquarium Listing*, THE SEA, http://www.seasky.org/aquarium/aquarium-public-aquariums.html [http://perma.cc/XN9Q-WWX4] (accessed Jan. 4, 2019) (providing a list of public aquariums in the United States); *see also Currently Accredited Zoos and Aquariums*, ASS'N OF ZOOS AND AQUARIUMS (updated Apr. 2018), https://www.aza.org/current-accreditation-list [http://perma.cc/8X2X-HWR7] (accessed Jan. 4, 2019) ("The total number of AZA-accredited zoos and aquariums is 232.").

[86] See Nicholas Saint-Erne*, Pet Fish Industry in the U.S. and Careers in Aquatic Veterinary Medicine,* VETERINARY INFO. NETWORK (2016), https://www.vin.com/apputil/content/-defaultadv1.aspx?id=7312387&pid=14818& [http://perma.cc/DAA5-KJEX] (accessed Jan. 4, 2019) (estimating numbers of fresh water fish kept as Pets in the United

mals, such as reptiles, octopus, and saltwater fish. In 2015–2016 there were also 9.5 million saltwater fish and 9.3 million reptile pets in the U.S.[87] A lot of money is being spent on the acquisition of aquatic pets. Thirteen percent of U.S. homes keep fish. There are an estimated 480 million goldfish sold annually in the U.S.,[88] with 250 million bred in the U.S. alone.[89] These numbers are significant and present huge issues, and that's just for goldfish.

There are additional and related issues I don't have time to discuss in detail, but I'll just mention two: The use of cyanide to take exotic fish from coral reefs (there are 500 metric tons used annually in the Philippines alone)[90] and significant transportation issues that should be addressed under the AWA for aquatic animals. There are studies about the stress and harm caused to aquatic species during transportation that U.S. law is ignoring.[91]

Given all of these problems, the question is what do we do about it? We can amend the AWA. This is a conversation that the animal law community has engaged in for a really long time and a number of efforts have been made as the previous panel has discussed. Amending the AWA is one option; we could work to include aquatic animals in its coverage. Or we could start working with veterinarians and using the increasingly available scientific information about the capacities of

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States in 2015). The number as of 2018 is 139.3 million freshwater fish and 18.8 million salt water fish. Julie Springer, *The 2017-2018 National Pet Owners Survey Debut*, THE AM. PET PRODUCTS ASS'N (2018), https://americanpetproducts.org/Uploads/MemServices/GPE2017_NPOS_Seminar.pdf [http://perma.cc/4KT5-WHP9] (accessed Jan. 4, 2019).

87 *See* Springer, *supra* note 86 (documenting the ownership of 18.8 million saltwater fish and 9.4 million reptiles in the United States).

88 Vanessa Weldon, *Goldfish*, EXTENSION (June 5, 2011), http://articles.extension.org/-pages/58765/goldfish [http://perma.cc/XR7P-CF3C] (accessed Jan. 4, 2019).

89 *Goldfish Born, Bred in Arkansas*, WASH. TIMES (Aug. 23, 2004), https://www.washingtontimes.com/news/2004/aug/23/20040823-105746-3287r/ [http://perma.cc/4Y6F-2TU6] (accessed Jan. 4, 2019).

90 Nicholas Whipps & Rene Umberger, *Analysis: U.S. Pet Trade Imports 6 Million Tropical Fish Exposed to Cyanide Poisoning Each Year*, CTR. FOR BIOLOGICAL DIVERSITY (June 16, 2016), https://www.biologicaldiversity.org/news/press_releases/2016/cyanide-fishing-06-16-2016.html [http://perma.cc/39UT-K6LN] (accessed Jan. 4, 2019).

91 *See Opinion of the Panel on Animal Health and Welfare of the Norwegian Scientific Committee for Food Safety: Transportation of Fish Within a Closed System*, THE NORWEGIAN SCI. COMM. FOR FOOD SAFETY (May 14, 2008), https://vkm.no/download/18.d44969415d027c43cf154e6/-1500390477876/Transportation%20of%20fish%20within%20a%20closed%20system.pdf [http://perma.cc/UM4H-X8XK] (accessed Jan. 4, 2019) (defining "stress" and listing symptoms of stress in fish); Flavia D. F. Sampaio & Carolina A. Freire, *An Overview of Stress Physiology of Fish Transport: Changes in Water Quality as a Function of Transport Duration*, FISH AND FISHERIES (Mar. 28, 2016), https://onlinelibrary.wiley.com/doi/pdf/10.1111/faf.12158 [http://perma.cc/9MB7-QGTY] (accessed Jan. 4, 2019); Lucy Towers, *Catching, Handling and Transport: The Implications for Fish Welfare*, THE FISH SITE (Nov. 4, 2013) https://thefishsite.com/articles/catching-handling-and-transport-the-implications-for-fish-welfare [http://perma.cc/24K5-U2F9] (accessed Jan. 4, 2019); *Harvesting, Holding, and Hauling*, TEX. A&M AGRILIFE EXTENSION AQUACULTURE, FISHERIES, & POND MGMT., TEX. A&M UNIV., https://fisheries.tamu.edu/aquaculture/harvesting-holding-and-hauling/ [http://perma.cc/68S9-F7XK] (accessed Jan. 4, 2019).

aquatic animals to improve their conditions. We could also submit petitions asking the USDA to engage in rule-making to protect these animals. Or we could develop an entirely new framework. We could say that the AWA is either sufficiently broken that we don't want to use it, or that it's just too narrow for aquatic species so we need to come up with another framework to address their needs. We could also look at the state level and work to start banning specific activities, certain kinds of exhibition (which is already happening), certain kinds of transport, and certain kinds of breeding. Again, that is happening in some forums for some non-aquatic animals and is relatively easy to do theoretically, but politically presents some challenges.

One particular challenge is federal preemption. On this topic, there is a case from the Ninth Circuit that was just decided suggesting that if the USDA has the ability to regulate something, but chooses not to (a GMO plant in this case) then state and local communities can.[92] For those places trying to adopt GMO bans, and there are a number of them in the country,[93] this case offers insight as to when local regulations can withstand preemption challenges. This presents a really interesting irony. If the USDA has already said it has approved a product for the marketplace, finding no need to regulate it because it's not deemed harmful, then a local or state government can choose to ban it. If the agency has chosen not to regulate something after consideration, then no preemption applies.

Another political challenge to creating legal protections for aquatic animals is Congress. There is not much consensus for approving new legislation. And we have State House challenges as well. I have also included our new President-elect as a challenge because he's not interested in regulation; in fact, he's interested in deregulation. He has friends and supporters in animal-use industries, and he's not a fan of science, so that's not helpful for the animals.

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[92] Atay v. County of Maui, 842 F.3d 688, 700–01 (9th Cir. 2016); *see also* Mateusz Perkowski, *State and Local GMO Bans Declared Legal*, CAPITAL PRESS (Nov. 18, 2016), http://www.capitalpress.com/Nation_World/Nation/20161118/state-and-local-gmo-bans-declared-legal [http://perma.cc/8D2M-2EFW] (accessed Jan. 4, 2019) (explaining the Ninth Circuit ruling in *Atay v. County of Maui*).

[93] For current GMO-related news in the U.S., *see, e.g.*, *GMO News Related to the United States*, GMO-FREE EUROPE (Nov. 8, 2018), https://www.gmo-free-regions.org/gmo-free-regions/americas/united-states/gmo-news-related-to-the-united-states.html [http://perma.cc/7FVN-SUBV] (accessed Jan. 4, 2019) (collecting articles relating to GMO crops). Congress passed a GMO bill in July 2016, which preempted the passed and pending ordinances around the country. *See* Megan Poinski, *USDA on GMO Labeling Law: 'Still on Track, but a Little Behind,'* FOOD DIVE (June 7, 2017), https://www.fooddive.com/news/usda-on-gmo-labeling-law-still-on-track-but-a-little-behind/444383/ [http://perma.cc/R4K6-M5L3] (accessed Jan. 4, 2019) (describing the law requiring USDA to label all GMO foods); Dan Charles, *Congress Just Passed a GMO Labeling Bill. Nobody's Super Happy About it*, ALL THINGS CONSIDERED, NAT'L PUB. RADIO (July 14, 2016), https://www.npr.org/sections/thesalt/2016/07/14/486060866/congress-just-passed-a-gmo-labeling-bill-nobodys-super-happy-about-it [http://perma.cc/WK6J-ZAZC] (accessed Jan. 4, 2019) (describing the USDA GMO-labeling law).

What can we do despite those challenges? There are some effective consumer awareness campaigns for terrestrial animals, but there is a lot of work to do with respect to aquatic animals, in particular about education. People just don't know what happens to them, so there's a lot that can be done there. Another option for protecting animals includes working with venture capital groups to create alternatives to the use of animals. This area is really thriving with the development of alternatives to beef, chicken, and milk products and has started for some fish products as well. There are also options to use the recently amended Toxic Substances Control Act legislation for animal research and to look at the UK and EU models for additional improvements. We should be revisiting science-based rules every five years or so, just like some European conventions do[94] because of the rapid pace of scientific developments.

Working for solutions is what we'll be doing, and is part of mission statement of the Aquatic Animal Law Initiative at Lewis & Clark.

[94] Wim deLeeuw, *The Council of Europe: What is it?*, *in* THE DEVELOPMENT OF SCIENCE-BASED GUIDELINES FOR LABORATORY ANIMAL CARE 23, 27 (2004).