



MARINE MAMMAL COMMISSION

4 May 2016

Regulatory Analysis and Development
Policy and Program Development
Animal and Plant Health Inspection Service
Station 3A-03.8
4700 River Road, Unit 118
Riverdale, MD 20737-1238

Re: Docket No. APHIS-2006-0085

Dear Regulatory Analysis and Development:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Animal and Plant Health Inspection Service's (APHIS) 3 February 2016 notice (81 Fed. Reg. 5629) proposing to amend its regulations implementing the Animal Welfare Act (the AWA) as they pertain to marine mammals. Specifically, APHIS is proposing to amend its regulations regarding the care and treatment of marine mammals at licensed facilities in the United States as they relate to space requirements, variances and implementation dates, indoor and outdoor facilities, water quality, and interactive programs¹ (9 C.F.R. § 3.100 et seq.).

Background

The AWA directs the Secretary of Agriculture to promulgate standards and other requirements governing the humane handling, care, treatment, and transportation of certain animals by dealers, research facilities, exhibitors, carriers, and other regulated entities (7 U.S.C. § 2131 et seq.). Under the AWA, APHIS published regulations in 1979 for the humane handling, care, treatment, and transportation of marine mammals used for research or exhibition purposes (9 C.F.R. part 3, subpart E, sections 3.100 through 3.118), some of which have remained unchanged since 1979 or 1984. In 1998, APHIS revised certain sections of its regulations for marine mammals based on the outcome of a negotiated rulemaking by the Marine Mammal Negotiated Rulemaking Advisory Committee (the Committee). That final rule became effective 3 April 2001 and reflected consensus language developed by the Committee for amendments to 13 of the 18 sections that comprise the 1979 regulations and for 1 paragraph in another section (66 Fed. Reg. 8744). Consensus language was not developed for the most contentious issues including specific space requirements to particular marine mammals, variances and implementation dates, indoor and outdoor facilities, or water quality. In addition, APHIS promulgated but subsequently suspended enforcement of regulations pertaining to interactive programs² (as of 2 April 1999) due to some

¹ Previously referred to as swim-with-the-dolphin programs.

² The final rule was effective 5 October 1998 (63 Fed. Reg. 47128).

misunderstandings regarding shallow-water interactive programs³ (64 Fed. Reg. 15918). In May 2002, APHIS published an advance notice of proposed rulemaking (ANPR) soliciting input on potential regulatory revisions and to address the outstanding issues from the negotiated rulemaking (67 Fed. Reg. 37731).

General issues

The Commission did not comment specifically on the ANPR, but rather called APHIS's attention to a detailed discussion paper that it had sent to the Administrator of APHIS in 1991 reviewing the marine mammal standards and identifying issues that needed to be addressed. At that time, the Commission declined to make specific recommendations with respect to the provisions concerning minimum space requirements. Instead, the Commission identified the process by which those requirements should be reviewed and identified several experts that APHIS might call on to provide the necessary expertise. The Commission recommended that a thorough review be conducted by APHIS, the National Marine Fisheries Service (NMFS), and the Fish and Wildlife Service (FWS), in consultation with "individuals knowledgeable in the fields of marine mammal husbandry, and behavior." The Commission noted that the review should account for not only the sizes of the animals in question, but also current knowledge of marine mammal physiology and behavior (including exercise needs, auditory capabilities, pre- and post-natal requirements, etc.), both the physical and psychological well-being of the animals, and factors such as social groupings, interspecific compatibility, and environmental enhancement that might allow for more normal behavior and social interactions.

It is particularly disappointing that now, 25 years later, APHIS has done nothing to follow through on this recommendation and has opted not to address the minimum space requirements under section 3.104, which are among the most important provisions for improving the health and welfare of marine mammals maintained in captivity, as part of this rulemaking. The preamble to the proposed rule explains this omission by noting that APHIS does not have "sufficient scientific or other supporting data to propose space requirements changes at this time." It is unclear what type of information APHIS would deem sufficient. However, abundant data are available regarding daily movement patterns, foraging behavior, and social interactions of the marine mammal species commonly kept in captive facilities for both public display and research purposes.

As discussed in the section on space requirements herein, the Commission remains concerned that the current minimum enclosure sizes are too small. Rather than focusing on the average sizes of the marine mammals maintained in captivity and applying pre-existing and somewhat arbitrary multipliers to derive space requirements, APHIS needs to reassess its entire approach. APHIS should be requesting not only data that might support a change to the status quo, but also examining whether it has sufficient information to justify retention of the existing space requirements. As an initial step in this examination, research involving a pair of bottlenose dolphins demonstrated significant changes in behavior from being housed in a small pool, to a larger pool, and after being returned to the wild, with increasing size of available swimming areas correlated with increasingly energetic activity patterns (Bassos and Wells 1996). It is unclear how that finding may translate to other, larger species. For instance, what scientific data support retaining a regulatory

³ Programs in which members of the public enter the primary enclosure of a marine mammal to interact with it and in which participants remain primarily stationary and non-buoyant.

provision that allows a cetacean species that averages 4 m in length and that is capable of traveling more than 100 km per day in the wild to be kept in a pool that is only 8 m across and 2 m deep? While such an enclosure may be sufficient to support the survival of that animal, mere survival should not be the standard of what constitutes humane care and treatment under the AWA. Scientific data are insufficient to determine precisely the minimum dimensions of a pool housing a 4-m long cetacean (e.g., whether the pool should be 16 m, 20 m, or some other length rather than 8 m in width). But, on the basis of common sense, a pool that does not allow a cetacean to swim more than one body length before running into a wall or to assume a full body-length vertical posture in the water must be considered inadequate. Many facilities have come to this same conclusion and have built enclosures that far exceed the current minimum requirements.

Although identifying what constitutes adequate sizes for enclosures is a difficult and inevitably controversial undertaking and one that defies exact quantitative prescription, the Commission remains convinced that the approach that it recommended 25 years ago remains valid. If APHIS had followed that recommendation, it would not have been criticized for relying on the views and recommendations of a panel of experts with the necessary marine mammal experience to inform the promulgation of updated space requirements. As such, the Commission again recommends that APHIS seek advice from NMFS, FWS, and appropriate experts in marine mammal medicine, husbandry, physiology, and behavior to develop proposed changes to the existing marine mammal space requirements. Given the amount of time that it has taken APHIS to propose other changes to its marine mammal regulations, the Commission believes that high priority should be given to this undertaking, with the goal of publishing a proposed rule within the next two years.

The preamble to the proposed rule noted that some commenters thought it would be unfair and costly—and thus impractical—to require facilities to retrofit their marine mammal enclosures to comply with new space requirements. All despite the high cost of acquiring captive marine mammals. While APHIS should seek to avoid placing unnecessary burdens on facilities maintaining marine mammals, the primary goal of the AWA is to ensure the welfare of the animals. If larger sized enclosures are needed to achieve that goal, then cost considerations should be secondary. The Commission believes that APHIS should not have declined to address possible changes to the space requirements based on cost concerns without conducting any independent analysis of the commenters' claims. Presumably, APHIS has information on the sizes of enclosures at the various facilities it licenses and regulates and on the numbers of marine mammals each maintains. If not, this information could be collected in the course of conducting a single round of inspections. Depending on the extent to which space requirements might be changed, some facilities likely would continue to meet the new requirements without needing to make any changes while others may not. Thus, increasing the space requirements presumably would not require retrofitting at all facilities.

To inform decisions on the possible impacts of revising the space requirements, the Commission recommends that APHIS assess the likely impacts of a range of possible options (e.g., increasing existing space requirements by 50 percent, 100 percent, 500 percent, or 1,000 percent⁴) by species or species groupings to see how many facilities would become non-compliant and by how much. If the number is relatively small, then the commenters' concerns would be considered unsubstantiated. However, without this type of information, a reasonable assessment of the extent

⁴ Which equates to 10 times the current requirements.

of the problem is impossible. The Commission believes that an analysis by species or species grouping is essential. Not only is that information essential for assessing the different standards, but it also would help to assess the impacts of the various options. For instance, cost considerations related to increasing space requirements for cetaceans would not be an issue if only facilities housing pinnipeds would become non-compliant. As previously discussed, the Commission believes that APHIS should give high priority to addressing and developing a proposed rule regarding space requirements for marine mammals. The Commission sees no reason why it should take more than an additional year for APHIS to compile the necessary information and complete an analysis of the impact of possible revisions to the space requirements.

On a different issue, APHIS stated in several places in the preamble to the proposed rule that it is proposing to retain or adopt “performance-based” standards. Such standards would apply to water temperature, lighting, shade, water clarity, and space for interactive programs. In general, APHIS is using the term performance-based to refer to subjective standards. For example, rather than specifying specific water temperature ranges for a particular species, the regulations would require that water temperature ranges for marine mammals housed in outdoor facilities not “adversely affect their health and comfort.” Lighting requirements would reflect whatever is “appropriate” for the species involved. Shade and water clarity would need to be “sufficient.” The interactive area for the interactive program must provide “sufficient” space. The Commission recognizes the value of expressing the standards in these ways to avoid specifying differences among the various needs for the numerous species and revising regulations constantly to reflect new information. However, the Commission sees a substantial downside to this approach when there is no common understanding among stakeholders as to what is considered adequate or sufficient.

This point was exemplified with the maintenance of polar bears at a facility in Puerto Rico in 2001. A key concern was the temperatures at which the bears were being maintained. This prompted the Commission to recommend that APHIS, in consultation with other relevant agencies and independent veterinarians, “review the appropriateness of maintaining polar marine mammals in outdoor tropical environments, and the need for more explicit regulations detailing the conditions, if any, under which such exhibits should be allowed.” In response to a Congressional inquiry regarding the maintenance of the bears, the Commission noted that the situation underscored “the problems associated with relying largely on subjective standards regarding areas of compliance under the Animal Welfare Act,” particularly as they pertain to acceptable temperatures. The Commission noted further that “[t]here is no clear-cut demarcation of what constitutes an acceptable temperature range for maintenance of the animals” and it therefore is difficult for APHIS, the facility, the Commission, and others to determine whether a facility is in compliance. The proposed regulations would perpetuate this problem. Possible ways to address these concerns are discussed under the indoor and outdoor facilities section herein.

One issue that was not addressed in the proposed rule, but that is arising with increasing frequency, is the extent to which States may adopt additional requirements related to the care and treatment of marine mammals. Section 2143(a)(8) of the AWA specifies that States or political subdivisions of States are not prohibited from promulgating humane handling, care, treatment, and transportation standards in addition to those adopted by APHIS. In contrast, section 109(a) of the Marine Mammal Protection Act (the MMPA) preempts States from enforcing any State law or regulation relating to the taking of marine mammals unless management authority has been transferred to the State. It would be helpful if APHIS, in consultation with the agencies responsible

for implementing the MMPA, provided additional guidance to States and local jurisdictions that might want to supplement APHIS's marine mammal standards on the extent to which they are allowed to do so. This could be added to the regulations or set forth in a separate policy document.

Space requirements

One of the most contentious sections of APHIS's implementing regulations for marine mammals is section 3.104 regarding space requirements. The formulas upon which space requirements are based, although modified somewhat in 1984, have not been significantly re-examined since their development in 1979. Some comments on the ANPR indicated that the space requirements should be increased. One such comment suggested a ten-fold increase in the current space requirements; while others indicated that it would be unfair and costly to require facilities to retrofit their marine mammal enclosures to comply with new space requirements, which would be financially unfeasible (81 Fed. Reg. 5631).

APHIS's current space requirements, except for polar bears⁵, are based on the average adult length of the species being maintained and a specified multiplier. In the preamble to the proposed rule, APHIS indicated that it had been asked to consider updating the average adult lengths of certain species (i.e., killer whales, beluga whales, and Atlantic bottlenose dolphins) based on the reported sizes of individuals of those species housed in exhibition facilities—data which were provided by the Alliance of Marine Mammal Parks and Aquariums and the Association of Zoos and Aquariums as of 2002. The animals maintained at those facilities reportedly are smaller than their conspecific counterparts in the wild, and the proposed revisions would result in decreased calculated minimum space requirements for those species. The Commission believes adjusting Table 1 based on those data is inappropriate for numerous reasons.

First, the data do not account for the fact that under the MMPA, permits to capture wild marine mammals⁶ for purposes of public display and research remain available. Although facilities have opted not to pursue that option for many years for some species, it does not mean that they cannot. APHIS standards should reflect the species and sizes of animals that could be maintained, not those that actually are maintained. The only way that the proposed changes would make any sense is if the entirety of the regulated community made a binding commitment that it would never seek to acquire marine mammals (at least of certain species) from wild populations or if it did, it would select only animals that did not exceed the specified average adult length of their captive counterparts. In addition, many of the facilities covered by the regulations are stranding network participants that house stranded or rehabilitated animals collected from the wild⁶ and would still need to abide by section 3.104 of the regulations. The Commission also notes that captive animals may be inherently smaller than wild animals. Thus, the proposed revisions for those species may not reflect their true average sizes.

Second, data also should have been compiled from the scientific literature, stranding networks, and researchers/entities that conduct live-capture activities on wild marine mammals rather than relying only on information provided by the industry. Industry data may be biased by

⁵ Space requirements for polar bears do not specifically account for the size of the bears, just the number of bears in an enclosure.

⁶ Both in the United States and in foreign countries that subsequently export the animals.

abnormalities in growth rates of animals raised in captivity or may have been chosen selectively by them.

Third, the data used by APHIS for the proposed changes are outdated by more than 14 years and do not apply to approximately 95 percent of the remaining marine mammal species covered by the regulations. For those remaining species, Tables 1–4 are based on data that are more than three decades old. In addition, the size/morphometrics of polar bears in general and of both sexes⁷ for all species other than pinnipeds are lacking entirely in the regulations. These should be added. By using the average adult length and assuming a 50:50 sex ratio of housed animals, one would underestimate the amount of space required for individuals of any given species approximately 50 percent of the time.

Some of these shortcomings were identified by NMFS but seem not to have been addressed by APHIS. The Commission finds all this a bit puzzling since APHIS has had more than a decade to revise that portion of the regulations, knowing that space requirements were a primary concern. Nevertheless, it is somewhat reassuring that APHIS is requesting scientific data on the sizes of marine mammals as part of the proposed rule—presumably so that additional adjustments can be made. Therefore, the Commission recommends that APHIS, at a minimum, update the space requirements under section 3.104 of the regulations for all marine mammal species including polar bears by (1) compiling data from the scientific literature, stranding networks, and researchers/entities that conduct live-capture activities on wild marine mammals and (2) using the maximum rather than the average adult length of either sex to re-estimate the various space requirements. If APHIS is unsure which researchers/entities conduct live-capture activities on wild marine mammals and thus from whom to obtain the necessary information, the Commission in consultation with NMFS and the U.S. Fish and Wildlife Service would be happy to provide those contacts.

APHIS also indicated that space requirements of hybrid animals would be handled on a case-by-case basis given their rarity and lack of reliable information. The Commission is not convinced that such information is unavailable. Various facilities house hybrids (e.g., Atlantic and Pacific bottlenose dolphin crosses, false killer whale and Atlantic bottlenose dolphin crosses). Further, hybrids have been observed by stranding network participants and appear in the scientific literature in greater frequency than in the past. The Commission recognizes that hybrids likely have larger variability in size than their parental species and thus recommends that APHIS base the various space requirements for hybrids on the maximum length of the longest parental species. This approach is similar to APHIS's approach for housing Group I and II cetaceans in the same pool⁸.

In addition, APHIS indicated in the preamble to the proposed rule that the current space requirements are based on circular pools which, while prevalent 30 years ago, have been replaced largely by more intricately shaped pools. However, APHIS did not propose to change the manner in which it determines the various space requirements (i.e., MHD, depth, volume, surface area (SA), dry resting area (DRA), den space)⁹. Specifically, the volume, SA, and/or DRA requirements for

⁷ Couquiaud (2005), although potentially outdated, provides a summary of the maximum adult length for both males and females of numerous cetacean species in Table 2.3.

⁸ The minimum horizontal distance (MHD) shall be the largest required for any cetacean housed therein.

⁹ Some of those calculations also inform requirements under section 3.111 of the regulations for interactive programs.

cetaceans, sirenians, and sea otters are calculated using pi, which is based on the assumption that a pool is circular with a constant-size radius. The Commission believes that APHIS's outmoded approach based on its circular pool assumption is inappropriate. Facilities also are allowed to apply a 20 percent reduction in MHD requirements if that reduction is added to the MHD at a 90° angle. The Commission understands that the allowance not only has been difficult to understand but also has been difficult to calculate in the past. Yet, APHIS has not provided any further guidance on that matter in the proposed rule.

Further, the Commission notes that the type of space requirements specified in the regulations is not consistent for similar groups of animals. For example, both SA and DRA requirements exist for pinnipeds, but only DRA requirements exist for sea otters and polar bears. Enclosures for sea otters are subject to a volume requirement, but that is lacking for both pinniped and polar bear enclosures. The Commission believes that all types of space requirements, except DRA for cetaceans and sirenians and den space for any species other than polar bears, should be stipulated by APHIS in its regulations. Moreover, MHD and depth requirements¹⁰ for the various species have not been updated in more than 30 years and are in need of review and revision. Those requirements include—

- The MHD requirement for Group I cetaceans is two times and for Group II cetaceans four times the average adult length of the longest species housed in the pool or 7.32 m, and the depth requirement for both Group I and II cetaceans is half the average adult length of the longest species housed in the pool or 1.83 m.
- For sirenians, the MHD requirement is two times the average adult length of the longest species housed in the pool, and the depth requirement is half the average adult length of the longest species housed in the pool or 1.52 m.
- For pinnipeds, the MHD requirement is 1.5 times the average adult length of the largest species housed in the enclosure, and the depth requirement is half the average adult length of the largest species housed in the pool or 0.91 m.
- For sea otters, the MHD requirement is three times the average adult length of an otter housed in the enclosure, and the depth requirement is 0.91 m.
- For polar bears, the MHD requirement of the pool is no less than 2.44 m, and the depth requirement is no less than 1.52 m for up to two bears.

None of the aforementioned requirements would allow the animals to swim, dive, and behave as they normally would in the wild. Some species normally dive to 100s of meters in the wild but would be housed in pools that are a few meters deep—depths that may be shallower than the animal is long. The Commission questions the validity of the assumptions underlying those original requirements and does not believe that those requirements should be considered humane more than 30 years later. Those requirements should account for an animal's exercise needs and cardiovascular fitness, physiological development, social groupings and behavior, pre- and post-natal requirements, etc. For Group II pinnipeds, the DRA requirements for the first five pinnipeds in an enclosure are barely more than the square of the average length of the species, thereafter, the regulations require only the square of the average length. Moreover, the polar bear den requirements of at least 1.83 m

¹⁰ Which are not based on pi.

in length and width and 1.52 m in height are less than the dimensions of den chambers in the wild (Larsen 1985¹¹, Durner et al. 2003¹²).

Section 3.104(a) of the existing regulations specifies that enclosures must be constructed and maintained so that the animals contained within are provided sufficient space, both horizontally and vertically, to be able to make normal postural and social adjustments with adequate freedom of movement, in or out of the water. The Commission does not believe that APHIS has met those requirements with either the current or proposed regulations. Given these shortcomings, the Commission recommends that APHIS (1) reassess and increase its space requirements¹³ under section 3.104 of the regulations for MHD, depth, volume, SA, DRA, and den space for all species/groups of marine mammals—specifically the MHD and depth requirements should allow for each species housed in either the pool or enclosure to swim and behave in a more normal manner and (2) base those calculations on the shapes and natural contours of pools or enclosures currently in use in the United States rather than on circular structures. As discussed previously, APHIS should convene a small group of veterinarians and researchers experienced in the fields of marine mammal medicine, husbandry, physiology, and behavior to provide technical assistance to the agency in developing draft standards with respect to space requirements. This group should attempt to provide advice on both minimum and ideal space requirements for each species of marine mammal covered by the regulations.

The proposed rule would authorize APHIS to determine if partial obstructions of a horizontal dimension compromise the intent of the regulations and/or significantly restrict the freedom of movement of the animals in the enclosure. The Commission opposes that proposal and questions the underlying assertion. All minimum space requirements should be met in an unobstructed manner, otherwise the definition of “minimum” would be rendered meaningless. Furthermore, APHIS requires that only those parts of the primary enclosure that meet the minimum depth requirement be included when calculating space requirements for cetaceans, sirenians, and pinnipeds (sections 3.104(b)(2), 3.104(c)(2), and 3.104(d)(3)(iii) of the regulations, respectively). That same standard should apply to horizontal dimensions as well. Therefore, the Commission recommends that APHIS clarify in its final rule that all minimum space requirements for all species/groups under section 3.104 of the regulations are to be calculated and based on unobstructed horizontal distances and depths.

Variations and implementation dates

Section 3.100 of the regulations contains conditions under which a regulated facility may request and qualify for a variance for a limited period of time from one or more of the space requirements in section 3.104. The provisions were enacted to allow regulated facilities time to come into compliance with the space requirements made in 1984. APHIS indicated in the *Federal Register* notice that those provisions are no longer applicable because it is not proposing to increase the space requirements. However, in keeping with recommendations from the Commission and perhaps other commenters recommending that the space requirements be increased, APHIS should be

¹¹ Chamber widths were 1.10–2.20 m.

¹² Chamber lengths were 1.10–2.40 m and widths were 0.78–1.90 m, with the overall length of the den ranging from 2.73–8.93 m.

¹³ This also would apply to section 3.111 of the regulations for interactive programs.

prepared to review this section of the regulations and stipulate an appropriate timeframe for allowing facilities that are granted variances to come into compliance. Under the current regulations, APHIS required compliance within two years with the ability to issue an additional one-year extension. The Commission believes a similar, if not abbreviated, maximum timeframe of two years from the time the regulations are in effect should be sufficient for any variance granted by APHIS.

Indoor and outdoor facilities

Requirements are specified for various elements of both indoor and outdoor facilities, including but not limited to air and water temperature, ventilation, lighting, and/or shelter. For indoor facilities, APHIS proposed to include a requirement of at least 6 hours of uninterrupted darkness during each 24-hour period. APHIS noted that, if a species of marine mammal is primarily tropical, the lighting conditions for that animal should be as close to 12 hours of light and 12 hours of darkness as possible, whereas the lighting conditions for other species of marine mammals may be closer to 10 hours of light and 14 hours of darkness. APHIS then chose 6 hours as a reasonable minimum period of darkness because it may correspond with typical work hours at a facility, but invited comment on whether that period should be shorter or longer. Although APHIS stated that the proposed minimum 6 hours of light approximates the lighting conditions found in the animal's natural environment—a practice recognized by experts in the field of animal husbandry and behavior to be beneficial in maintaining the overall health of all animals—that proposed duration is inconsistent with APHIS's own examples of marine mammal diurnal periods and with natural environmental conditions. Rather than trying to work around presumed industry needs, the Commission believes that APHIS should set its indoor lighting requirements based on the needs of the specific species of marine mammals being housed and let facilities adjust to that schedule. That approach would better align with APHIS's acknowledgment that approximating the animal's natural environment would be beneficial in maintaining the overall health of all animals, which is the goal of the AWA.

Furthermore, appropriate photoperiodic changes are necessary to induce molting in pinnipeds (Gnone et al. 2000, Mo et al. 2000). For example, Mo et al. (2000) indicated that a naturally occurring photoperiod cycle with a minimum of approximately 9 hours of light and 15 hours of darkness and a maximum of approximately 15.5 hours of light and 8.5 hours of darkness was necessary for establishing a normal molt cycle in captive harbor seals. However, molting was not induced in seals when using a consistently extended photoperiod¹⁴ and naturally fluctuating water and air temperatures (Figure 1 in Mo et al. 2000). For these reasons, the Commission recommends that APHIS require periods of uninterrupted darkness under section 3.102 of the regulations based on the specific species of marine mammal being housed and its natural environmental conditions—(1) if a species has vastly different seasonal photoperiods (e.g., ice-dependent species) and/or needs a specific photoperiod to induce molt (i.e., pinnipeds), base that period of uninterrupted darkness on season-specific diurnal periods or (2) if multiple species are housed together, base that period of uninterrupted darkness on the mean diurnal period of all the species combined. Although the regulations identify the photoperiodic issue as one pertaining solely to indoor facilities, the Commission notes that it may also be an issue with outdoor facilities that provide night-time

¹⁴ With artificial illumination consistently ending at 21:36 for approximately 13.5–17 hours of light and 7–10.5 hours of darkness.

lighting. As such, APHIS should consider whether there is a need to adopt similar requirements for outdoor facilities under section 3.103 of the regulations.

General temperature requirements for outdoor facilities¹⁵ are set forth in section 3.103(a) of the regulations and specify that air and water temperature ranges be “in accordance with currently accepted practices” and “not adversely affect [the animals’] health and comfort.” As previously discussed, the Commission has concerns surrounding the vagueness of those provisions. Marine mammals could be housed in facilities far outside the temperature ranges that they would normally encounter as long as there are no obvious health consequences or signs of distress or discomfort and the animals have been “acclimated” to these unnatural conditions.

The preamble to the proposed rule noted that participants in the negotiated rulemaking “acknowledged the importance of maintaining marine mammals within their optimum temperature range” but contended that scientific data on which to develop a list of acceptable temperature ranges for each marine mammal species is lacking. APHIS stated that it was unaware of any definitive publications that combine the habitat ranges of marine mammals with the environmental temperature ranges in that habitat. Even if no such publications exist, APHIS, in the 20 years since this was flagged as an important issue by the Committee, could have compiled that information from available sources. For most, if not all, marine mammal species maintained in captivity, sufficient information is available for the geographical distribution and ranges occupied in the wild. The National Oceanic and Atmospheric Administration compiles and maintains a wealth of air and water temperature data that could be used to derive at least approximate temperature ranges encountered by these species in the wild based on their distribution and range. In many cases, temporal data on marine mammal migrations and movements and daily or monthly information on temperatures are available, and likely are sufficient to provide insights regarding temperature fluctuations to which marine mammals are exposed throughout the year and between years.

This information should form the core of the regulations—the goal of facilities maintaining marine mammals should be to keep the animals within or as close as possible to this natural range. The Commission also acknowledges that some species of marine mammals can adjust to air temperatures outside those that occur in their natural habitat, seemingly without ill effects, as long as their enclosure allows for thermoregulation by access to features such as cooler or warmer water, shade, climate-controlled dens or other enclosed spaces, heating pads, ice and snow, misters and sprinklers, and wind-generated fans. However, if there comes a point at which acclimation is not possible for some species, such temperatures should not be allowed. Specifically, facilities should monitor an individual animal’s health and behavior to ensure that it does not experience heat stroke or cold stress, skin or hair-coat problems, or show any significant behavioral responses (e.g., increased lethargy, decreased activity, panting, shivering, etc.).

In addition, the Commission calls APHIS’s attention to the paper by Couquiaud (2005). Table 2.3 in that paper delineates appropriate water temperature ranges for numerous cetacean species compiled from various scientific publications. Those data, which may need updating, provide species-specific water temperature ranges that can be used to develop acceptable temperature ranges for these species in the final rule. Until such time that APHIS compiles data from various sources regarding water temperature ranges for all marine mammal species, the Commission recommends

¹⁵ Similar performance-based standards are stipulated in section 3.102(a) for indoor facilities.

that APHIS incorporate the water temperature ranges provided in Couquiaud (2005) as requirements under section 3.102(a) for indoor facilities and 3.103(a) for outdoor facilities.

The existing regulations for outdoor facilities, in addition to the generally applicable environmental temperature provision, include additional requirements pertaining to acceptable cold-weather conditions for various species. For polar bears and ice-dependent or cold-water pinnipeds, ice cover is allowed, but must not impede water entry or exit. For cetaceans and sea otters, pools shall be kept ice-free. For sirenians and warm-water cetaceans and pinnipeds, outdoor pools shall be maintained within the temperature ranges necessary to meet those species' needs. Some, but not all of those requirements can be eliminated if APHIS adopts the Commission's recommendation that it set forth allowable water temperature ranges for each species of marine mammal. However, if APHIS declines to adopt that recommendation, the Commission further recommends that it supplement the water temperature standards under section 3.103(a) to address not only exposure to cold temperatures, but exposure to high temperatures for cold-water and ice-dependent species as well.

Sufficient shelter, and more importantly shade, has been a concern for captive marine mammals given that marine mammals are susceptible to overheating, sunburn, and eye damage from both direct and reflected sunlight. APHIS has proposed to include a requirement in section 3.103(b) of the regulations that shade must be accessible and must cover sufficient area within the enclosure to protect the animals from direct sunlight. The Commission agrees with APHIS that such a requirement is necessary but believes that APHIS needs to specify what constitutes a "sufficient" area. The Commission understands that each pool or enclosure is unique and that environmental conditions (e.g., wind speeds, amount and angle of sunlight) at each facility differ. However, both a minimum area for shade and the amount of time that that amount of shade needs to be present on a given day should be specified. As such, the Commission recommends that APHIS include in section 3.103(b) of the regulations both the minimum area to be covered by shade (e.g., 25 percent of the pool, 50 percent of the dry resting area, etc.) and the minimum amount of time that that amount of shade should be present (e.g., 100 percent of daylight hours).

Similarly, the reflective nature of some of the paints used for both outdoor pools and enclosures can reflect light sufficient to cause eye damage. Gage (2011) stated that exhibit design choices such as colors of pools and surrounding enclosures that are overly reflective, coupled with a lack of shade, are critical for eye health issues. She further indicated that ocular disease in captive pinnipeds is commonplace but is preventable if the animals are provided with more natural (and less reflective) pools and surroundings. This topic was not addressed by APHIS in the proposed regulations, but should have been, especially given that Dr. Gage is an APHIS veterinarian and marine mammal specialist. Gage (2011) specifically stated that, when exhibits are designed or refurbished, the pools and surrounding areas should be coated or painted with colors that are not considered UV- or light-reflective (e.g., earth tones). Dark tones could be used as well. Based on Dr. Gage's findings, the Commission recommends that APHIS include a requirement in section 3.103(b) of the regulations for outdoor facilities that, whenever enclosures or exhibits are being designed or refurbished, the facility coat or paint pools and surrounding areas of the enclosure with colors that are not UV- or light-reflective (e.g., earth or dark tones).

Water quality

Multiple water quality standards are delineated under section 3.106 of the regulations. APHIS proposed to amend the salinity standards to require that all primary enclosure pools be salinized for cetaceans, pinnipeds, and sea otters. Thus, sirenians and polar bears are excluded from those requirements. Although sirenians in the wild spend time in more brackish or fresh water, polar bears inhabit saltwater and should be provided such water. Thus, the Commission recommends that APHIS add polar bears to the amended language in section 3.106(c)(1) of the regulations.

APHIS also indicated that it would exempt from the water salination requirements enclosures housing pinnipeds that are provided oral salt supplements at appropriate levels, as determined by the attending veterinarian, and daily saltwater eye baths. That exemption, APHIS stated, would minimize the additional costs and renovations at existing facilities. The Commission prefers that pinnipeds be housed in saltwater as they inhabit in the wild rather than allowing facilities to meet this need by providing oral salt supplements and saltwater eye baths, as would be permitted under the proposed exemption. In addition, Gage (2011) found that some pools are filled with fresh municipal water where the total chlorine frequently exceeds 2.5 ppm. In some instances, all of the pinnipeds housed in such pools suffer from obvious corneal damage. APHIS regulates chemicals that are added to the water under section 3.106(b)(5), but it is unclear whether those requirements pertain only to chemicals added by the facility or include chemicals that may be added by others, such as municipal water facilities. This should be clarified. Further, it is not clear why excessive levels of chlorine or other chemicals would not be a concern when they may occur naturally in the water sources. Therefore, the Commission recommends that APHIS (1) remove the pinniped exemption under section 3.106(c)(1)(ii), (2) clarify that weekly testing for chlorine and other chemicals is required regardless of who adds the chemical under section 3.106(b)(5), and (3) require facilities using naturally occurring water sources to monitor (and make any necessary adjustments) for chlorine and other potentially harmful chemicals under 3.106(b)(5) of the regulations as well.

As previously noted, the proposed standard for water clarity is performance-based, requiring that clarity be sufficient to view the animals and monitor their behavior and health. The proposed rule explained that this provision has been added in response to public concern over the appearance of pool water rather than health concerns. The Commission suggests that, if this provision is retained, APHIS explain the link to the purposes of the AWA and the directive in section 2143, which is to promote humane treatment and care. If APHIS retains the proposed standard on water clarity, it should not be a subjective one. To avoid possible disagreement on how well one must be able to see animals in borderline situations, the Commission recommends that APHIS instead adopt an objective standard setting forth the water clarity requirement under section 3.106 of the regulations if it decides to retain the proposed standard. Unlike other subjective standards in the proposed regulations, water clarity requirements should not vary according to the species being housed or the type of facility (other than natural lagoon and coastal enclosures) and adoption of a specific, measurable, one-size-fits-all standard is appropriate. There are a number of water clarity standards and testing protocols from which APHIS can select.

General definitions and interactive programs

APHIS proposed to remove the term “swim-with-the-dolphin programs” and replace it with “interactive programs” in section 1.1 of the regulations. It also proposed to clarify that the latter

term includes sessions in which human participants sit on a dock or ledge, including therapeutic sessions. The Commission believes that the proposed changes are warranted but wonders why APHIS also did not include feeding and petting pools as interactive programs. The proposed rule specifically excluded feeding and petting pools and participation of audience members at what has been traditionally known as a performance or show involving marine mammals. The Commission agrees that transitory interactions (i.e., those that occur during shows) should be excluded, but that ongoing or continuous interactions (i.e., those that occur at feeding and petting pools) should not. Given that APHIS proposed to define “interactive area” as that area of a marine mammal primary enclosure where an interactive program takes place and feeding and petting pools are primary enclosures where human participants interact with the animals, it would follow that feeding and petting pools should be included in the definition of interactive programs and should be held to the same regulatory standards as other types of interactive programs.

APHIS noted that interactive programs have been operating for more than 20 years without any indications of health problems or incidents of aggression in marine mammals, as evidenced by medical records maintained by licensed facilities and observations by experienced APHIS inspectors. The Commission is a bit baffled by that statement. Marine mammals have shown aggression in both more traditional interactive programs and in feeding and petting pool interactions¹⁶. Findings from Samuels and Spradlin (1994, 1995) also refute APHIS’s claims—findings APHIS indicated it reviewed when formulating its 1998 final rule regarding swim-with-the-dolphin programs. It is unclear if APHIS has forgotten what those studies concluded or if APHIS is splitting hairs by contending that the cited sources (medical records maintained by licensed facilities and personal observations of APHIS inspectors during site visits) did not document such aggression. Moreover, APHIS would not necessarily be a reliable source for such data inasmuch as it stopped enforcing section 3.111 of the regulations, including the injury reporting requirements under section 3.111(f)(7) in April 1999, less than six months after the effective date.

Additionally, APHIS proposed in section 3.111(d)(5) of the regulations that human participants be given rules and instructions verbally prior to participating in an interactive session and that those participants could be expelled if they fail to follow those rules and instructions and jeopardize human or animal safety or health. Further, sections 3.111(d)(7) and 3.111(d)(8) stipulate what constitutes unsatisfactory behavior of the human participants¹⁷ or the marine mammals¹⁸ during interactive programs. No such requirements are made for feeding or petting pool interactions. Given that interactive programs (including feeding and petting pool interactions) may be dangerous to both human participants and the animals (as referenced in the proposed sections 3.111(d)(5), 3.111(d)(7), and 3.111(d)(8) of the regulations), feeding and petting pool interactions should be similarly regulated. The Commission recommends that APHIS include feeding and petting pools in the definition of interactive programs in section 1.1 of the regulations.

APHIS also proposed to amend section 3.111(d)(1) to increase the allowable interactive time for individual marine mammals from a maximum of 2 to 3 hours per day. That increase was based on information provided by the industry that has had “longstanding interactive programs involving

¹⁶ With the advent of the internet, several videos showing such behavior are readily available.

¹⁷ e.g., grasping or holding an animal’s body unless under direct and explicit instruction by the attendant or chasing or harassing the animal.

¹⁸ e.g., charging, biting, mouthing, or sexual contact with the human participant.

bottlenose dolphins, beluga whales, spinner dolphins¹⁹, California sea lions, and harbor seals, which suggested that the marine mammals would not be harmed by a modest increase in the interactive time per day and a study of Atlantic bottlenose dolphins showing that interactive programs can be an important part of an enrichment program” (Miller et al. 2011). Since interactive programs have not been regulated since 1999, the Commission questions whether APHIS has sufficient data upon which to independently assess industry’s claims. In addition, it is unclear if the industry made those claims when commenting on the 2002 ANPR, in which case they may be based on outdated information. Further, the Miller et al. (2011) study found that at least one dolphin from each of six facilities had an increase in behavioral diversity and play behavior following the dolphin shows and dolphin interaction programs, suggesting that the findings reflect individual differences among dolphins rather than the facilities and that those programs can be an enriching experience. Those data appear to support interactive programs benefiting some individual dolphins, but when one considers the other 12 animals in the study, the majority of animals did not seem to exhibit the same response to the interactive sessions. Further, animals likely would increase their behavioral diversity and play behavior if their trainers interacted with them more frequently or diversified their basic enrichment program—neither of which relies on public participation.

APHIS indicated that the proposed increase of daily interactive time from 2 to 3 hours could generate additional annual revenue of about \$23 to 24 million for the industry (Table 1 of the *Federal Register* notice). Given that incentive, there is all the more reason to examine industry’s claims closely that increasing animal participation by 50 percent per day would have no adverse effects. It is unclear whether APHIS has any independent basis to conclude that the proposed expansion of time spent engaged in interactive programs would not be harmful to any of the animals involved. If it does, that should be provided to the public. If not, the more prudent course of action would be for APHIS to implement the regulations with a 2 hour per day time limit, giving APHIS the opportunity to monitor the programs more closely and collect the information necessary to determine whether a 3-hour limit could be acceptable. If and when APHIS has a sufficient independent basis for concluding that extending participation of marine mammals in interactive programs would have no ill effects on those animals, it could then proceed to amend the regulations accordingly. Until independent data are available, the Commission recommends that APHIS retain the maximum interactive time of 2 hours in section 3.111(2)(d)(1) of the regulations.

The reporting requirements under sections 3.111(f)(3) through 3.111(f)(5) of the 1998 regulations required that all individual animal veterinary²⁰, feeding, and behavioral records and statistical summaries²¹ be kept at the facility for at least 3 years and be made available to APHIS during site inspections. APHIS proposed to decrease the record retention time to 1 year for all records and summaries except necropsy reports, but include water quality records as an additional record type to be retained and available for review for interactive programs. The Commission understands that most facilities retain those types of records for decades and that a 3-year retention requirement should not be overly burdensome to the facility, particularly given available electronic storage options. Further, the facilities have not had to provide statistical summaries of the interactive

¹⁹ Given that the interactive programs occur during normal business hours, it is unclear how spinner dolphins and other species that have a daily rest period during the morning and afternoon hours would be affected by participating in such programs.

²⁰ Including all examination, laboratory, treatment, and necropsy reports.

²¹ Including the amount of time each day that an individual animal participates in an interactive session.

programs since 1999 when enforcement was suspended. Thus, those data presumably have not been reviewed for 17 years. The Commission recommends that APHIS require the facilities to keep all individual medical (including necropsy reports), feeding, water quality, and behavioral records and statistical summaries for at least 3 years under section 3.111(f) of the regulations. Given that water quality records should be retained for the same amount of time for the facility in general as the interactive program, the Commission further recommends that APHIS require facilities to keep water quality records under section 3.106 for at least 3 years. This is particularly important if APHIS is unable to inspect each of the 115 facilities that maintain marine mammals in a given year. Although section 3.105 is not part of the proposed regulations, the Commission believes that the same 3-year retention period should be required for general feeding records as well.

Finally, APHIS added to the definition of “primary enclosure” that those enclosures could include, but are not limited to, display, holding, night, off-exhibit, and medical enclosures. The Commission agrees with inclusion of all those enclosures but thinks that APHIS should have added maternity/breeding enclosures as well. Therefore, the Commission recommends that APHIS include in section 1.1 of the regulations maternity/breeding enclosures in the definition of primary enclosure.

The Commission hopes you find its letter useful. Please contact me if you have questions regarding the Commission’s comments and recommendations.

Sincerely,



Rebecca J. Lent, Ph.D.
Executive Director

cc: Amy Sloan, National Marine Fisheries Service
Lisa Lierheimer, U.S. Fish and Wildlife Service

References

- Bassos, M.K., and R.S. Wells. 1996. Effect of pool size/shape on the behavior of two bottlenose dolphins. *Marine Mammal Science* 12:321–324.
- Couquiaud, L. 2005. Special issue: Survey of cetaceans in captive care. *Aquatic Mammals* 31(3):277–392.
- Durner, G.M, S.C. Amstrup, and A.S. Fischbach. 2003. Habitat characteristics of polar bear terrestrial maternal den sites in northern Alaska. *Arctic* 56:55–62.
- Gage, L.J. 2011. Captive pinniped eye problems, We can do better! *Journal of Marine Animals and Their Ecology* 4(2):25–28.
- Gnone, G., G. Mo, C. Gili, P. Ferrando, C. Bartolucci, E. Boccardo, R. Custereri, C. Porter, and S. Pelle. 2000. Holding harbour seals (*Phoca vitulina*) in a captive environment: Finding solutions to the problems of care. *Bulletin de l'Institut océanographique* 20(1): 245–248.

- Larsen, T. 1985. Polar bear denning and cub production in Svalbard, Norway. *Journal of Wildlife Management* 49:320–326.
- Miller, L.J., J. Mellen, T. Greer, and S.A. Kuczaj II. 2011. The effects of education programmes on Atlantic bottlenose dolphin (*Tursiops truncatus*) behaviour. *Animal Welfare* 20:159–172.
- Mo, G., C. Gili, and P. Ferrando. 2000. Do photoperiod and temperature influence the molt cycle of *Phoca vitulina* in captivity? *Marine Mammal Science* 16:570–577.
- Samuels, A., and T.R. Spradlin. 1994. Quantitative behavioral study of bottlenose dolphins in swim-with-the-dolphin programs in the United States. Final report to the National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland. 57 pages.
- Samuels, A., and T.R. Spradlin. 1995. Quantitative behavioral study of bottlenose dolphins in swim-with-dolphin programs in the United States. *Marine Mammal Science* 11:520–544.