

**Commentary on the
Canadian Association of Zoos and Aquariums (CAZA)
accreditation process:**

**Marineland of Canada
Niagara Falls**

January 2002

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for

World Society for the Protection of Animals (Canada)
&
Zoocheck Canada Inc.

Introduction

For many years, Marineland of Canada has been the subject of intense criticism from animal protection organizations in Canada and around the world. A considerable portion of this criticism concerns substandard animal housing and care, and the relatively high level of cetacean mortality at the facility. Marineland has also been extensively criticized for its practice of capturing cetaceans from the wild and importing them into Canada. A detailed articulation of some of these concerns is contained in the Zoocheck Canada publication *Distorted Nature: Exposing the Myth of Marineland* (1998).

Despite the controversy surrounding Marineland, the Canadian Association of Zoos and Aquariums (CAZA) chose to award accredited status to the facility in October 2000. CAZA was heavily criticized for this (and for accrediting other facilities in the past, such as the West Edmonton Mall Dolphin Lagoon) by animal protection agencies who remain convinced that Marineland should not have been awarded accredited status.

For an institution to obtain CAZA accredited status, it must undergo a peer review by a team of inspectors from other CAZA facilities to determine whether or not the facility satisfies the requirements for accreditation, including the *CAZA Standards of Animal Care and Housing*. The team for the Marineland inspection was comprised of representatives of the Vancouver Aquarium, Calgary Zoo and the Granby Zoo in Quebec.

To determine whether or not Marineland actually does meet CAZA standards, the World Society for the Protection of Animals (WSPA) and Zoocheck Canada conducted a review of the facility. Site visits were made in July 2001 during which photographs and videotape of the conditions were obtained. Additional information was obtained from Niagara Action for Animals who made two site visits of their own.

This review took place more than seven months after accreditation was awarded to Marineland of Canada, thereby allowing the facility time to make additional upgrades to animal accommodation and care beyond those that may have been required to obtain accredited status. If the accreditation was conditional, contingent on Marineland making certain improvements so it would come into compliance with CAZA standards, seven months should be sufficient to respond to upgrading recommendations.

This paper is not meant to be a comprehensive review of the CAZA accreditation process or conditions at Marineland. Instead, it simply provides commentary on particular criteria contained in the CAZA standards, attempts to determine whether or not Marineland satisfies them and offers some concluding comments on the accreditation process and CAZA's standards. I have only closely examined several of the CAZA standards; in many cases I did not have enough information to assess against the other standards, so I can not properly comment on whether or not they are being met.

Most of this commentary is focused on aspects of Marineland that are easily observable by members of the public. A more detailed review of conditions at Marineland and an inventory of its cetaceans can be found in the previously mentioned publication *Distorted Nature: Exposing the Myth of Marineland*.

World Society for the Protection of Animals & Zoocheck Canada

The World Society for the Protection of Animals (WSPA) is an international animal protection organization representing 400,000 of its own supporters and 420 member societies from around the world. WSPA has recently joined the effort to end Canada's role in the trade of cetaceans and to ensure that the interests of captive cetaceans are addressed. WSPA has been concerned about the keeping of cetaceans in captivity for many years and has sponsored several projects to release captive dolphins back into the wild, most notably in Brazil and Guatemala.

Zoocheck Canada is a national animal protection charity, representing more than 10,000 members, supporters and constituents across the country, focussed on the protection of wildlife in captivity and in the wild. Zoocheck has been a leading voice for captive wildlife in Canada and has campaigned to promote the interests of captive animals in every Canadian province.

Marineland of Canada

Marineland was founded in 1961 by current owner John Holer. The facility, located in Niagara Falls, Ontario, is a for-profit amusement/animal park featuring indoor and outdoor cetacean and pinniped (e.g., seals, sea lions) shows, public animal feeding areas, terrestrial animal paddocks, playground facilities and amusement park rides.

The following animal species have been or are currently kept at Marineland:

Bottlenose dolphin (*Tursiops truncatus*)
Beluga whale (*Delphinapterus leucas*)
Orca (Killer) whale (*Orcinus orca*)
Sea lion (*Zalophus californianus*)
Grey seal (*Halichoerus grypus*)
Harbour seal (*Phoca vitulina concolor*)
American black bear (*Ursus americanus*)
Red deer (*Cervus elaphus*)
Fallow deer (*Dama dama*)
Sika deer (*Cervus nippon*)
Elk (*Cervus canadensis*)
American bison (*Bison bison*)

While the movement of terrestrial animal species into and out of Marineland is difficult to monitor due to the number of animals involved, as well as the lack of any provincial or federal requirement for records to be kept and made publicly available, the movement of cetaceans has been tracked by Zoocheck Canada through federal import records, eyewitness counts and staff reports. Since 1999, Marineland has captured and imported into Canada 14 beluga whales and 6 bottlenose dolphins from Russia. The imports occurred after the Canadian Department of Fisheries and Oceans denied Marineland of Canada permission to capture six beluga whales from Canadian waters in Hudson Bay. According to Zoocheck's records, an estimated 20 cetaceans have died while in Marineland's care since 1990.

Canadian Association of Zoos and Aquariums (CAZA)

According to its own literature, the Canadian Association of Zoos and Aquariums (CAZA) is a non-profit zoo industry organization established in 1975 to promote the interests of its members and to encourage the advancement and improvement of zoological recreation, education, conservation and science.

CAZA is operated by an elected, volunteer board of directors and executive committee. The organization maintains one salaried Public Affairs Officer based in the City of Ottawa. Programs are delivered by staff, board and committee members, as well as other CAZA members and associates throughout Canada.

In the mid-1980s CAZA established its accreditation program. All voting, institutional members of CAZA are now required to be accredited by the association's commission. Accreditation involves an application, questionnaire and an announced on-site inspection by a team of three Fellow members, one of whom must be a zoo veterinarian. According to a CAZA brochure, "The accreditation system is the keystone for the professional development of our institutional members."

A fact sheet produced by CAZA sets out the goals and benefits of the accreditation program.

1. *To attempt to establish ourselves as a self-policing association requiring minimum outside control.*
2. *To upgrade the standard of zoos and aquariums in Canada.*
3. *To disassociate ourselves as a group from those institutions loosely defined as roadside zoos who continue to give the profession such a poor image.*

4. *To provide support to management in their approach to their governing authority to improve the standards of operation and to modify operating procedures to be consistent with accepted professional animal management standards.*
5. *Once the standards of accreditation have been accepted by government authorities, accredited institutions will have an easier time of permit application.*

At a WSPA/ Zoocheck Canada workshop, entitled *Wildlife in Captivity: Assessment and Enforcement* (Toronto, October 2000), Greg Tarry, CAZA's past president, indicated that the association's accreditation process is "designed to be used as an evaluation of people looking for membership in our association."

Mr. Tarry then went on to describe in detail the *CAZA Standards of Animal Care and Housing* (1994), a set of generic standards for animal care, accommodation and zoo operations. In my many years of working on zoo-related issues, including several as a member of CAZA, I have come to understand that institutions that wish to become accredited must satisfy the requirements contained in the standards.

To a large extent, interpretation of the standards is contingent on the expertise, experience and bias of the accreditation inspection team members as many of the provisions are generic and subject to substantial interpretation.

As well, some key animal care and accommodation provisions are overly brief and ambiguous. For example, "*Animal enclosures in which animals are on public display should, a) be of a size which enables the animals to: ...iii) achieve a full range of body movements and physical movements normally performed.*" What "full range" and "normally performed" actually means is left to the reader to decide. One person may determine that the statement refers to simple postural adjustments, such as those that can be accomplished by animals in grossly substandard laboratory or circus conditions, while another person may interpret it as allowing an animal to run in a straight line at maximum speed. Another provision contains the phrase "not adversely affect the animals..." The words "not adversely affect" are not defined, so this phrase could be interpreted in a variety of different ways.

A number of other words and terms are not defined or are not provided with an appropriate explanatory context.

Another shortfall is that accreditation inspections provide only a brief snapshot of each facility - essentially what was happening on the day(s) of the inspection. What happens during the years between inspections may be very different. This is important because accreditation creates an assumption that the biological and behavioural needs of animals in CAZA accredited institutions are actually being satisfied.

While the CAZA standards make reference to "psychological and physical stress", "auditory, olfactory, light and visual sensitivities", and "normal physical movement and behaviour", it is not explicitly stated in the standards that the biological and behavioural needs of animals must be satisfied. Surprisingly, CAZA has not yet developed its own species-specific accommodation and care standards.

Despite these weaknesses, the standards have been circulated, and promoted, to numerous government agencies and other interested parties as a possible model for zoo regulation.

Because the standards are so subjective, I've tried to interpret them in a way that I think is reasonable based on my own experience examining hundreds of zoological facilities in Canada and the United States over the past 18 years.

CAZA Position regarding cetaceans in captivity

Since Marineland is primarily focused on the display of marine mammals, specifically cetaceans, it's useful to understand CAZA's marine mammal policy. The 1996 CAZA membership directory contains its *Position Statement on the maintenance and display of cetaceans in captivity*. It reads,

With regard to the keeping of cetaceans, CAZA recognizes the emotional and philosophical arguments against housing dolphins, porpoises and whales in zoological parks and aquariums., however CAZA firmly believes in the purpose and value of its member institutions and supports progressive programs devoted to the care and display of cetaceans.

Therefore, CAZA supports the exhibition and study of captive groups of cetaceans in order to facilitate scientific and husbandry research, public education programs, conservation programs and captive propagation programs.

CAZA supports those institutions that can fulfill the accreditation requirements and adhere to the professional code of ethics outlined by CAZA, that can meet or exceed industry standards for the successful care of captive cetaceans, that can demonstrate progressive, long-term value with their cetacean health care and display programs and that can work to advance the cause of cetaceans through research and conservation education. It was through the public display of cetaceans and the educational thrust of our zoological parks and aquariums that public concern and appreciation for the plight of cetaceans and their habitat has grown.

CAZA strongly supports the development of housing and health care standards for the maintenance of cetaceans in Canadian zoological institutions (To recommend specific standards is beyond the scope and mandate of CAZA, however, through its membership, CAZA will actively participate in any forum dedicated to this purpose.)

CAZA supports the establishment of socially compatible and genetically viable captive populations of different cetacean species at accredited zoological institutions.

CAZA supports the co-operation of accredited zoological institutions in breeding programs aimed at maintaining the genetic variability of captive cetacean groups, which includes the exchange of general information and care techniques, the transfer of animals between accredited institutions and the formation of advisory groups to co-ordinate and manage successful propagation programs.

CAZA also supports the sale or transfer of cetaceans from non-accredited or substandard facilities to accredited institutions and whenever such sale or transfer may be deemed in the best interests of the animal.

CAZA supports the taking of additional cetaceans from wild stocks when required, in order to incorporate new genetic material into captive populations, to salvage endangered populations, to rehabilitate stranded specimens and to study disease and toxic contamination in free-ranging stocks.

CAZA supports the co-operation of accredited zoological institutions with provincial and federal agencies to conduct research for the purpose of developing more refined management and conservation programs, in summary, CAZA recommends the continuation of cetacean display, research and education programs in its member institutions.

This policy clearly demonstrates that CAZA is unquestionably biased in favour of the captivity of cetaceans. Its statement that it recognizes the emotional and philosophical arguments against the keeping of cetaceans in captivity appears to be a backhanded way of implying that there are no legitimate scientific arguments against the keeping of cetaceans in captivity. Clearly, there are many legitimate scientific arguments against cetacean captivity, some of which have been published in the Whale and Dolphin Conservation Society document *A Review of the Scientific Justification for Maintaining Cetaceans in Captivity* (1998) by Dr. Sue Mayer.

CAZA also states, "It was through the public display of cetaceans and the educational thrust of our zoological parks and aquariums that public concern and appreciation for the plight of cetaceans and their habitat has grown." This author knows of no empirical evidence supporting that statement: it is an unsubstantiated, sweeping generalization that, while certainly promoting the captivity industry, has little, or no, basis in fact. CAZA's statement seems to ignore the profound contribution made by numerous cetacean

experts, often working alone with limited funds, and it fails to acknowledge the vast array of educational materials produced by individuals, organizations, businesses and media. Moreover, it disregards the hundreds of non-governmental organizations that have worked diligently for many years to protect wild and captive cetaceans and the environments in which they live.

While the rhetoric contained throughout CAZA's policy statement is alarming, of particular concern is CAZA's support for removal of cetaceans from the wild for no other purpose than the addition of new genetic material to captive populations. The policy is relatively generic, so as written, it would appear to condone nearly all captures by CAZA members. Even Marineland's recent captures of 20 cetaceans in Russia appear to be condoned by this policy.

CAZA's starting premise, as articulated in its *Position Statement on the maintenance and display of cetaceans in captivity*, seems to be that moral and scientific arguments against the capture, keeping and display of cetaceans carry little or no weight and are not to be considered. This is a decidedly subjective and biased point of view. In evaluating the keeping of wildlife in captivity situations, it is extremely important that the inspectorate be open-minded. They should not start with an assumption that the biological and behavioural needs of particular taxa can be satisfied in captivity. CAZA's position regarding the keeping of cetaceans in captivity is problematic and creates serious questions about the integrity of the accreditation process.

In the case of Marineland, the composition of the accreditation review team consisted of CAZA members from the Vancouver Aquarium, Granby Zoo and the Calgary Zoo.

The Vancouver Aquarium (VA) has a decades long history of captive cetacean display. In fact, they recently imported one Pacific white-sided dolphin from Japan and announced their intention to acquire additional animals for display.

In 2001, the Granby Zoo announced its intention to acquire Bottlenose dolphins (*Tursiops truncatus*) for a swim-with-the-dolphins program, one of the most controversial and highly criticized uses of cetaceans. In December, they announced that their plans have been shelved temporarily.

Since the positions of the Vancouver Aquarium and Granby Zoo in favour of the captivity of cetaceans are well known and both facilities may look to Marineland to supply them with cetaceans for their own displays (if the Granby Zoo dolphinarium proposal is resurrected) in the future, the composition of the CAZA accreditation team may preclude an arm's length, impartial assessment and might be seen to be a conflict of interest.

Since an assessment of the wellbeing of cetaceans and the suitability of their physical environment in captivity, is part and parcel of the accreditation process, the accreditation team should have included field biologists who are familiar with the biology and behaviour of these animals in the wild. They may be the only people qualified to assess exactly what "normal" movements and behaviours are, as required by the CAZA standards.

Commentary on Marineland and the CAZA Standards of Animal Care and Housing

[Bolded sections in italics are from the *CAZA Standards of Animal Care and Housing* (1994)]

Animal Facilities

1. A. 1) b) not adversely affect the animals considering its auditory, olfactory and light or visual sensitivities

American black bears

Bears are known to be sensitive to auditory stimuli. For this reason, many experts recommend that exhibits be located in quiet areas. Some even recommend that waterfalls and other noise-producing features not be

incorporated into bear enclosures, unless the deleterious consequences of the chronic noise produced by these features can be mitigated.

At Marineland, Dragon Mountain, purported to be "the world's largest steel roller coaster", is located directly opposite the American black bear exhibit, while another smaller amusement park ride is located a short distance away. The close proximity of the rides to the bear exhibit, and the effect of the sound produced by them, may be a chronic stressor. Further investigation to determine just how much this sound may be affecting them is warranted. In the meantime, since bears are known to be sensitive to auditory stimuli, they should be protected from it. I have serious concerns that the animals' auditory sensitivities are being adversely affected in this case.

The light and visual sensitivities of Marineland's bears are not addressed. American black bears are primarily solitary, semi-arboreal, forest dwelling omnivores that only occasionally frequent open areas, such as meadows and scrubland. Their preferred habitat type is shady, forested areas with plenty of ground cover. They do not normally inhabit open areas fully exposed to the elements.

In Marineland's bear enclosure, there are no natural or artificial shade structures. Instead the animals are forced to seek relief from the sun in the small areas of shade cast by trees outside of the enclosure or in shade found at certain times of each day along the inside edge of the fenceline. The large number of bears in the enclosure make it possible for dominant animals to monopolize preferred shade areas, leaving others with inadequate relief from the sun or no relief at all. In addition to being thermally stressed during warm weather, competition for shady locations may also cause other problems.

Subordinate animals seeking shade may be subject to threats of attack from dominant animals already occupying shady areas. Dominant animals may also be affected because they constantly have to reassert themselves to keep their space. Because the number of bears is so large, the situation may never be able to be resolved, resulting in a tension-filled, stressful environment.

According to the *EEP Ursid Husbandry Guidelines*, "All ursid species must have access to cool, shady, places during hot summer days." This can be accomplished by providing bears with a sufficient number of structures (i.e., dens) so that all bears have access to shade at the same time, and/or through the creation of a sufficient number of shady, humid areas during hot days. Furnishings, such as root balls, logs and rocks can supplement other methods of providing shade, as the bears are able to dig underneath them to create their own shady resting spaces. With the exception of three "den areas" (described later in this paper) in the back wall of the exhibit, none of these are provided for the bears.

In addition, it is possible the bears may be experiencing a certain amount of physical discomfort, similar to what humans would experience while outside on a sunny day without protective eyewear. Animals that inhabit open, sunny desert or polar regions typically possess adaptations that allow them to cope with those conditions, black bears do not.

Each bear should be provided with an opportunity, at all times, to access shade areas. The CAZA requirement that animal's light sensitivities be considered and that the animals not be adversely affected does not seem to be satisfied in this case.

Ungulates

The ungulate enclosures are generally barren and lack a sufficient number and variety of shade structures to accommodate all of the animals they contain. While some of Marineland's ungulate species (e.g., American bison) inhabit open areas in the wild, others (i.e., fallow deer) are meadow and forest dwelling animals that do not remain permanently in exposed areas. In most enclosures, there are patches of shade caused by fencing and outside vegetation but the amount of shade tends to be rather minimal. Constant exposure to the elements, particularly sun on hot days can be problematic for animals. It is far easier to generate heat for warmth when cold than it is to mitigate the effects of overheating. As well, animals that do not normally inhabit open areas may not be able to comfortably cope with prolonged intense sunlight. All animals should be provided with the opportunity to obtain shade whenever they feel it is necessary.

Cetaceans

While the effects that long-term captivity may have on cetacean hearing and vocalization requires further investigation, it is reasonable to assume that the smooth concrete walls and floors of most aquariums behaviourally inhibit, at least partially, the natural vocalizations of most cetaceans, which are designed for predominantly open ocean environments. At the least, echoes off the walls might be annoying and cause behavioural adjustments.

The sounds produced by cetaceans can be quite varied and complex. For example, bottlenose dolphins produce a range of sounds, including clicks, whistles, low frequency tones, as well as a variety of rasps, mews, barks and yelps. While the function of many of these sounds remain a mystery, a few are understood. For example, clicks are used primarily for echolocation which allows the animal to detect bottom topography, food availability and type, the presence of predators, etc.

In captivity, many of the species-typical vocalizations used by wild cetaceans are rendered more or less redundant. Sounds related to hunting are not necessary to the extent that they are in the wild because food is provided and the food item is dead. Sounds that allow cetaceans to keep in contact over considerable open ocean distances are not required because the animals are kept so close together. Echolocation to determine bottom topography and underwater features is not needed because the space provided in aquaria is so small and barren that the animals will commit every inch of it to memory in a few days or weeks.

Because captive cetaceans are not living in an ocean environment according to their evolved natural history, it is reasonable to assume that the type and quantity of sounds they produce, as well as the overall quality of their communication, differs substantially from those of their wild counterparts.

An assessment of cetacean well-being should also consider the acoustic properties of aquarium tanks. Acoustic specialists suggest that pools should have no parallel surfaces, but instead should be irregular in shape to deflect, absorb and disperse sound in a more natural manner.

At Marineland, except for one wall facing the underwater viewing gallery in the Friendship Cove beluga tank, pool walls and floors are generally smooth. The whale pools do not appear to have been designed with acoustics in mind.

While one might quibble about the meaning of the word "adversely" in the phrase "not adversely affect the animals considering [its] auditory, olfactory and light or visual sensitivities," the fact that Marineland's cetacean facilities do not appear to have been designed to create an acoustically comfortable environment and the fact that cetacean vocalizations are, in all likelihood, diminished or redundant in captivity, suggest that the auditory sensitivities of Marineland's cetaceans may indeed be adversely affected.

Cetaceans evolved the ability to produce and receive certain kinds of sounds to ensure survival in specific environmental and social conditions. Those conditions do not exist in captivity. If, as the CAZA standards suggest, animals should be able to behave normally, then that should include both the production of normal sounds and their receipt from conspecifics. Not being able to function normally is an adverse effect.

The outdoor cetacean pools at Marineland are not equipped with shade canopies. Since the animals are kept in relatively shallow pools, with light colored walls that appear moderately to highly reflective, this lack of shade may be problematic. Light is attenuated as depth increases, so moving up and down the water column allows wild cetaceans an ability to modify, at least temporarily, the intensity of light they experience. As well, the varied subsurface topography and lack of constant, artificial, reflective surfaces creates a very different set of lighting conditions in the wild than those found in captive situations. The lighting conditions in aquarium tanks, remain relatively constant, particularly for those animals housed indoors under artificial light.

While a number of scientific studies of cetacean vision have been conducted, the effect of light on psychological welfare is not fully understood. Aquarium owners should therefore apply the precautionary principle and ensure that at least some shade areas are always available as a substitute for adjusting light

exposure by moving up and down the water column. Providing a range of lighting conditions can also be viewed as a form of enrichment.

Lack of shade may also be problematic for Kandu, the large male orca held in the Friendship Cove isolation pool. I observed Kandu floating, essentially motionless on the surface of his pool, stationed in one location with his back and dorsal fin breaking the water's surface. During my two visits, Marineland staff were positioned on the walkway next to his pool to prevent visitors from leaning over to touch Kandu. If a staff member has to be stationed beside Kandu, it seems obvious to me that Kandu's motionless stationing on the surface is not a temporary behavioural aberration. When asked, several other staff members informed me that Kandu floats on the surface a good portion of the time.

While I have concerns about the psychological consequences of Kandu's conditions, I am also concerned about the physical consequences of floating on the surface with his fin and back exposed. It appeared as though a salve had been applied to the exposed portion of Kandu's back. Cetacean skin is specifically designed for an aquatic environment and is prone to cracking and infection if it dries out. Direct sunlight may speed up the drying process and make a problematic situation even worse. Shade should be provided to prevent exposure of Kandu's exposed back and dorsal fin to the sun.

The CAZA requirement that the animals not be adversely affected considering their auditory, olfactory and light or visual sensitivities does not appear to be satisfied at Marineland.

4) Animal enclosures in which animals are on public display should*:

a) be of a size which enables the animals to:

i) exercise natural behaviours to facilitate public education and interpretation.

The opportunity for captive animals to engage in a significant portion of their natural behavioural regime is a critically important factor in the maintenance of physical and psychological wellbeing. Animals that are denied the opportunity to act according to their evolved natural history may experience an overall decrease in fitness (e.g., loss of musculature, decreased cardiovascular abilities), as well as a decrease in interaction with their environment resulting in an overall reduction in behavioural variability. They may become frustrated, withdraw from interaction with conspecifics and many may develop abnormal behaviours, such as hypoactivity and stereotypies. Any suggestion that public education and interpretation can be achieved by viewing animals that are inactive, that engage in abnormal behaviours or that are displayed out of their natural ecological context is absurd.

At Marineland, a number of factors, including a lack of environmental complexity, overcrowded conditions, unnatural social environments and uncontrolled public feeding preclude engagement by the animals in most natural behavioural patterns. Maintenance behaviours, such as eating, sleeping, urinating and defecating, simple postural adjustments, short distance locomotion and a modicum of social behaviours, including mating when males are allowed access to females, may be accomplished, but little else.

American black bears

Overcrowding and uncontrolled public feeding of the American black bears is particularly problematic at Marineland. It is well known that, except for mothers with cubs and during the breeding season, bears tend to be solitary. As such, they require generous space allowances. Even when bears aggregate in the wild, such as at garbage dumps or in the case of brown bears, at preferred salmon fishing locations, adults typically don't tolerate inter-individual distances of less than 15 - 30 m away from a food source. Not providing enough space while feeding can create highly tense situations that cannot be resolved.

The bear exhibit at Marineland is several acres in size, a considerable portion of it being an artificial, concrete-based pool area, where numerous bears can be observed begging for treats thrown down to them by visitors. An enclosure of this size, if properly designed and outfitted, might reasonably be expected to

accommodate from 5 to 8 bears. During my visits, more than 25 bears were observed in the exhibit. The bears do not have the ability to maintain a satisfactory inter-individual distance, nor do they have the ability to remove themselves from each other's view. The space allowance per individual bear is grossly inadequate. As well, the design of the exhibit itself is reminiscent of outdated, inappropriate grotto enclosures found in older zoos.

Close proximity or visual contact can be a powerful source of stress because the natural social boundaries of the animals are pushed far beyond their tolerable range. Excessive displays of aggression between bears were noted during my visits to the facility, as well as facial and body scarring that would indicate fighting.

Some of the aberrant begging behaviours observed include sitting on haunches or standing on hind legs for extended periods, spinning and paw waving. Other abnormal behaviours noted include paw sucking and pacing. These behaviours are not only unnatural, they also negatively impact on the interpretive value of the exhibit and overcrowding is, in all likelihood, a major contributing factor to it.

Clearly this enclosure fails to satisfy the CAZA requirement that public display enclosures be of a size that enable animals to exercise natural behaviours to facilitate public education and interpretation.

Ungulates

Grazing ungulates tend to spend more time feeding in semi-nomadic herds (often very large ones), while browsers tend to live in smaller social groupings in specific territories. So the size, surface terrain, substrate type and furnishing needs of individual ungulate species must be considered when designing enclosures. In many zoos however, the generally large size and herbivorous diet of ungulates has led to their confinement in tedious, hardpan exhibits. This is the primary enclosure style for ungulates at Marineland.

Both grazers (e.g., American bison) and browsers (e.g., red deer, fallow deer) are provided with the same type of enclosure at Marineland. All of the ungulates are kept in vegetation-free paddocks that preclude engagement in natural foraging behaviours. As well, the artificially high density of deer housed in the deer park may not provide sufficient space per animal for the expression of natural social behaviours. While many deer congregate in herds in the wild, with males establishing territories during breeding season, they do not congregate permanently in high densities in confined areas.

A number of aberrant behaviours were observed, including numerous animals, particularly the elk, begging for food treats along the fenceline abutting the visitor walkway. Some animals had positioned themselves between the interior stand-off bar, meant to keep the animals away from the fence, and the fence itself, by ducking under the stand-off bar. In the deer park, fallow deer were aggressively begging for food from visitors, many of them children, and in some cases were pursuing them at a very quick pace.

Marineland's ungulate enclosures appear to fall short of satisfying the CAZA requirement that public display enclosures be of a size that enable animals to exercise natural behaviours to facilitate public education and interpretation.

Cetaceans

The relatively small, barren environments provided for Marineland's whales and dolphins preclude engagement in most natural behaviours. The cetaceans housed at the facility tend to be large, far ranging species that, in the wild, would normally inhabit a territory ranging in size from approximately 75 – 150 square kilometers (bottlenose dolphin) to many thousands of square kilometers (beluga whale, orca). Since the animals' living environment is compressed to only a tiny fraction of what they would experience in the wild (they are only able to swim a few body lengths before encountering the wall of their pool), they are able to accomplish only the most rudimentary aspects of locomotion and a fraction of their natural behavioural repertoire. Even if they were motivated to do so, Marineland's cetaceans do not have the ability to achieve the speed, variety and duration of movements or behaviours that they would in the wild.

In addition to lack of space, pool walls and floors in all of the cetacean pools are generally smooth, featureless and do little to facilitate expression of natural movements and behaviours.

The only contoured underwater surface is one wall of the Friendship Cove pool directly opposite the public viewing gallery. The wall, which has been molded to resemble “natural” rockwork, stands in stark contrast to the rest of the exhibit's pool walls which are smooth. Its location directly opposite the public viewing gallery would seem to indicate that the wall is there for primarily aesthetic reasons, to make the tank appear slightly more natural to viewers by providing a backdrop for the animals and not to make the tank more acoustically comfortable for them.

During inspections, several aberrant behaviours were displayed by Marineland's cetaceans. They include stereotypic swimming (e.g., bottlenose dolphins) and hypoactivity (e.g., Kandu).

Kandu, the large male orca sequestered in the isolation pool of Friendship Cove has been observed on numerous occasions, floating almost motionless at the surface of his pool, his head stationed against one part of the pool wall, back and dorsal fin breaking the surface. During my July visits, a Marineland staff member was positioned next to Kandu to prevent visitors from leaning over and touching him. This seems a clear indication that Kandu's stationing is not unusual. I have observed this lethargy during my previous visits to Marineland. Other visitors and Marineland staff have provided corroboration regarding Kandu's behaviour.

Kandu's hypoactivity is reminiscent of, and may in fact be a condition called “learned helplessness.” According to renowned veterinarian John Webster, in *Animal Welfare, A Cool Eye Towards Eden* (1994), learned helplessness describes “a loss of responsiveness to stimuli in animals, acquired after prolonged periods in which they have been denied the opportunity to perform constructive actions designed to achieve pleasure (i.e., food) or avoid pain. Learned helplessness defines the state of mind in an animal that has given up. I prefer to call it learned hopelessness.”

Clearly, Kandu is not provided with enough space or environmental complexity to express even a fraction of his full range of natural behaviours, and his lethargic behaviour is, in all likelihood, the result of that.

In addition, it appears as though Kandu is being permanently housed in the Friendship Cove isolation pool, possibly because he cannot safely be mixed with the other orcas or to prevent breeding. If that is the case, it is difficult to imagine how Marineland will deal with an animal health emergency should one arise. Holding Kandu in the isolation pool dramatically reduces animal management flexibility.

The CAZA requirement that “Animal enclosures in which animals are on public display should*: a) be of a size which enables the animals to: i) exercise natural behaviours to facilitate public education and interpretation” does not appear to be satisfied in the case of the cetaceans. At Marineland, the quantity and quality of available space provided per animal precludes expression of most natural behaviours.

ii) achieve a full range of body movements and physical movements** normally performed.

The CAZA standards do not provide a definition of “full range of body movements and physical movements normally performed,” so this requirement is difficult to interpret. If narrowly and opportunistically defined only as normal postural adjustments (i.e., stretch, stand, sit, turn around, etc.), then this part of the requirement is being satisfied. If we assume that this requirement is meant to include normal physical movements that occur in a natural situation, such as running or swimming at high speed, deep diving, climbing, digging dens, jumping obstacles and many of the other movements normally performed by animals living in diverse terrain in the wild, then this requirement is not being satisfied at Marineland.

American black bears

American black bears typically inhabit expansive ranges from a few square kilometers in size to many dozens of square kilometers. Their range may include a diversity of terrain and habitat types including

mature forests, woodland, meadows, marsh, swamp, rivers and streams. Black bears are excellent swimmers and climbers and may travel substantial distances in relatively short periods of time. They root around in the earth, tear apart logs, overturn rocks, scramble up hills, cross rivers and streams and engage in a range of other activities that require a diversity of body movements and physical movements. Being primarily forest dwelling animals, they will also often climb trees to nest, obtain food or as a protective measure.

There is little in the Marineland bear exhibit that would allow a bear to achieve a full range of body movements and physical movements normally performed in the wild. At a minimum, most zoos recognize that black bears climb, so they provide them with some type of climbing apparatus. Other zoos do more, providing complex naturalistic enclosures that allow climbing, foraging, digging and other behaviours. Unfortunately, except for two largely horizontal log piles at either side, Marineland's bear exhibit is devoid of furnishings.

This exhibit does not allow the bears to engage in many species-typical movements (e.g., climbing) that are a regular part of a black bear's physical movement repertoire in the wild.

Ungulates

In the wild, ungulates, such as American bison, are one component of a complex, plains ecosystem. They graze over large areas where they experience a range of substrate types, ground cover and terrain (e.g., streams, hills, valleys). Most deer prefer grassy areas surrounded by woodland or forest, where they face numerous physical challenges, such as jumping logs and fences, climbing up and down wooded hills, wading across streams, etc. Many of the normal physical movements exhibited by these animals in the wild cannot be achieved by their counterparts at Marineland in their bland, unimaginative feedlot-type enclosures.

The ungulate paddocks do not allow the animals to express a full range of physical movements. Since their enclosures are, for the most part, crowded, barren and unstimulating, there is little opportunity or motivation for the animals to express a full range of natural physical movements.

Cetaceans

Marineland's cetaceans are unable to achieve a full range of physical movements normally performed. For example, bottlenose dolphins are fast moving, efficient swimmers. They have a torpedo-shaped body, powerful muscles, skeletal features that enhance leverage, flukes that promote lift and thrust and behaviours that minimize expenditure of energy while swimming. They have the ability to travel at considerable speed over long distances in the wild and do so on a regular basis. Swimming at speed or over long distances simply cannot be accomplished in the confined spaces at Marineland.

As well, dolphins, beluga whales and orcas have been known to dive to depths ranging from more than one hundred meters to more than three thousand meters. A shallow dive of a body length or two is all that can be accomplished at Marineland. Deep diving is a normal activity of these animals but it is not possible at Marineland.

b) contain "furniture" and/or procedures to physically and psychologically enrich the environment and stimulate normal physical movement and behaviour of the specimen.

Many modern zoos recognize that not only is the quantity of space provided to captive animals important, the quality of that space is equally, and in some cases, more important. Animal enclosures that are designed to satisfy the biological and behavioural needs of animals provide security, sufficient complexity to facilitate a range of "normal" behaviours, opportunities to achieve objectives and exercise control and a level of novelty. Part of achieving this goal in captive facilities involves the provision of furnishings and procedures – often called "environmental enrichment" - to enhance the animals living space.

When discussing environmental enrichment, it is important to remember that it is a compensatory measure meant to mitigate the loss of physical, psychological and social stimulation that would otherwise be achieved through natural means. While high quality, naturalistic environments usually require very little, if any, added enrichment, very poor captive environments require an aggressive enrichment effort and ultimately, major refurbishment or movement of the animals to more appropriate accommodation elsewhere.

Furnishings that facilitate the expression of natural behaviours and that encourage animals to engage in other kinds of activity are a critically important component of modern captive wild animal husbandry. Increasingly, sterile surroundings and total institutionalized care are being recognized as detrimental to animal well-being.

Enclosures must be equipped with furnishings appropriate to the species and they must be changed on a regular basis to prevent over-familiarity and loss of appeal. Furnishings include, but are not limited to, trees, branches, logs, brush piles, root balls, burrows, sand/bark/mulch pits, other novel substrates, nesting boxes, pipes, tubes, visual baffles, shade structures, climbing apparatus, platforms, hammocks, scratching posts, pools, streams, sprinklers, water jets, rafts, brushes, puzzle feeders, boomer balls, nylobones, traffic cones, rings, etc. Many zoos have substantially enriched their enclosures at very low cost. In fact, Seattle's Woodland Park Zoo has produced a video demonstrating how they completely refurbished their old concrete bear cage at almost no cost.

Other strategies can also be employed to physically and psychologically enrich captive environments to stimulate normal physical movements and behaviours. They include, but are not limited to, olfactory stimulation and delivery of varied feeding strategies, including the introduction of novel food items; the provision of food items that can be physically manipulated; the hiding of food items to encourage foraging and exploratory activity; staggered feeding schedules; the use of spinning feeders and other kinds of feeding devices.

American black bears

American black bears are relatively far-ranging, complex, forest dwelling carnivores. The uninspired, hardpan substrate enclosure at Marineland provides the bears with an essentially alien environment that does not contain furniture to promote their normal, species-typical behaviours as required by the CAZA standards.

Since bears are primarily solitary creatures, visual baffles are particularly important when more than one bear is housed in an enclosure. Interruption of sight lines within an enclosure can be achieved through landscaping (i.e., hills, culverts), fixed features (e.g., large rocks, logs) or artificial structures (e.g., walls, purpose-built dens). Not providing an opportunity for bears to remove themselves from the view of conspecifics may be a constant source of stress, particularly for subordinate individuals.

Marineland's bear enclosure is not structurally enhanced and lacks non-fixed furnishings that would physically and psychologically enrich the environment to promote normal physical movements and behaviours. It is devoid of furnishings, except for two groups of 2-3 large trees, denuded of bark, lying horizontally on the ground at either side of the exhibit.

The CAZA requirement that furnishings be provided to promote normal behaviours is not being satisfied in this case.

Ungulates

A variety of items and techniques to physically and psychologically enrich captive ungulate enclosures to facilitate normal physical movements and behaviours have been employed in zoological facilities around the world. Enrichment can include, but is not limited to, rubbing/scratching posts, olfactory stimulation through the introduction of novel substrates and items, comfortable rest areas (i.e., pits for mulch, soil, silage), natural watering opportunities (i.e., moats, pools, streams), multiple feeding sites, play objects

securely suspended from high locations, occasional introduction of novel substrates and large objects, mechanical devices such as scatter feeders, large, non-destructible trees, planters/browse holders, mud wallows, scrub brush heads, log piles for leg and belly scratching, and varied enclosure topography (e.g., berms, dips).

Ungulate enrichment strategies, associated with feeding and chewing include, but are not limited to, equine cookies and feed, buckets (with handles removed), horse stall toys, chew toys, introduction of novel food items, popsicles, and water misters.

Marineland's bison, elk and red deer paddocks are essentially flat, featureless, devoid of vegetation and lack furnishings. The deer park enclosure, which has a marginally contoured topography, also lacks furnishings and vegetation. All of the ungulate paddocks are wholly artificial and do not, in any way, shape or form resemble the natural environments of the animals they contain. In fact, the enclosures appear more like farm-style feedlots than habitats suitable for wild animals.

None of Marineland's ungulate enclosures contain fixed features or non-fixed furnishings that would physically and/or psychologically enrich the animal's living space or promote normal physical movements and behaviours.

Cetaceans

The indoor dolphin tank, King Waldorf Theatre show tank and Friendship Cove tank bear no resemblance to the natural environment of the cetaceans they contain. Smooth walls and floors lack complexity and harbour no features that would promote normal physical movements and behaviours as required by the CAZA standards.

While Marineland's cetaceans may receive some stimulation through organized operant conditioning programs, in my opinion these should not be viewed as compensation for the lack of space and environmental complexity. The complexity of a wild cetacean's environment is impossible to quantify. But it is clear that the level of stimulation experienced by wild cetaceans far exceeds what is possible at Marineland.

Typical conditioning programs in many aquaria consist of exercise sessions, learning sessions where old behaviours are practised and new ones learned, shows, training for veterinary care (e.g., presentation of flukes), play sessions and in some cases, research. Conditioning programs are often conducted according to an arbitrarily chosen timetable (e.g., during work hours) rather than being dictated by the evolved natural history of the animals themselves.

Operant conditioning programs can provide some stimulation to captive cetaceans, but they do not supplant the need for a proper physical and social environment.

The Marineland cetacean pools are barren and bear more similarity to human swimming pools than the natural environment of the animals they contain. During my visits, I didn't observe any objects or furnishings that would enrich the physical environment of the animals. The CAZA requirement that exhibits contain "furniture" and/or procedures to physically and psychologically enrich the environment and stimulate normal physical movement and behaviours is not being met.

c) contain natural or man-made shelters enabling animals to protect themselves from natural conditions (e.g., sun, rain, snow).

American black bears

According to the *EEP Ursid Husbandry Guidelines*, "All ursid species must have access to cool, shady, places during hot summer days." This can be accomplished by providing bears with a sufficient number of structures (so that all bears have access to shade at the same time) and/or through the creation of a range of shady, humid rest areas during hot days. Furnishings, such as huge root balls, logs and rocks, can

supplement other methods of providing shade. The bears are able to dig underneath them to create their own shady, resting spaces.

In *Wild Mammals In Captivity, Principles and Techniques* (1996), Karl R. Kranz states, "If more than one animal is to be released into an exhibit, ensure that there is at least one suitable resting area, shady spot, perch, toy and/or feeding area for each animal." Also of importance is the provision of sunny, dry, sheltered areas during cool days as well.

Marineland's American black bear exhibit is not equipped with structures to provide shade or protection from the elements. At certain times of the day, some shade is present along the inside edge of the fenceline. However, suitable shady spots, which appear to be few and far between, may be monopolized by dominant animals.

Three cavities in the back wall of the exhibit, presumably to some form of interior accommodation, were observed from the visitor viewing area. It was impossible to determine what was beyond each cavity entrance. However, even if the space beyond was extensive, since the access to these areas can only be achieved by entering through one of the three cavities, they could easily be blocked by dominant animals. As well, if a subordinate bear were already inside, that bear may not be able to exit. It is therefore unlikely that the interior accommodation could be used by more than a few bears at a time.

No other protection from rain or snow was observed in the bear enclosure. I saw no way for the majority of bears to obtain shelter from inclement weather or the cold and snow of the winter season.

Since most black bears at this latitude spend the winter in hibernation (not a true hibernation), some zoos provide an opportunity for their bears to do the same. There was no provision for winter hibernation of bears at Marineland.

Considering that more than 25 bears were observed, it is clear that the CAZA requirement requiring shelters enabling animals to protect themselves from natural conditions is not being met.

Ungulates

The artificial shade structures in the bison, elk and red deer enclosures do not appear able to accommodate all animals in the enclosure at the same time. Numerous individuals were observed crowding around the shade structures, presumably in an attempt to cool off by removing themselves from exposure to the sun. Obviously, they were unsuccessful.

The deer park is not equipped with structures to provide shade or protection from inclement weather. At certain times of the day, some shade is provided along the inside edge of the enclosure by the fence and by vegetation outside of the fence. During past visits, I have observed hundreds of deer crowding close to the fence to obtain shade. During my last visit, I observed a significant number of animals crowding along the fence as well.

A new zigzag fence, enclosing a number of trees in varying stages of growth, has been constructed in the center of the deer park, presumably, once the trees mature, to provide some shade for at least some of the animals depending on how many are in the enclosure at that time. At the present time, the fence provides some minimal shade depending on the position of the sun.

Cetaceans

While overhead shelter to protect Marineland's cetaceans from rain, snow and wind may not be necessary, shelter may be required to minimize integument damage to Kandu (see previous section). As well, providing a range of light conditions (e.g., shady and light areas) may serve as a form of enrichment.

Operations: Security

Item II. D. 1) - 7)

Security must be provided to safeguard the animal collection and the general public.

1) A complete barrier, natural or man-made perimeter fence, must exist around the animal enclosures which protects the animal collection from direct exposure to the non-visiting public and exposure to feral or domestic animals. The level of security required will vary according to the species in the collection and the proximity of the institution to populated areas, to agricultural land and to sensitive wildlife habitat. (Recommended minimum barrier should be the equivalent of a two meter high chain link fence.)

According to Flanagan and Tsipis in *Wild Mammals in Captivity, Principles and Techniques* (1998),

A well-planned, effectively managed security program that protects the public, the zoo's employees, the animals, and the facilities should be a primary objective of all zoos....

The key to an effective security program is prevention. Problems can be avoided through effective planning.

Every aspect of a zoological facility should be planned with the safety of the animals, the staff and the public in mind. Failure to do so may result in animal escapes, and/or animal or human injury or death.

Perimeter fencing is the foundation of a zoo's security system. It forms a barrier that keeps human vandals and feral animals from entering the grounds, and discourages escaped animals from leaving. As the CAZA standards suggest, the fence should be at least two meters high, preferably topped with strands of overhanging barbed wire, and should be constructed of material that will discourage climbing by both people and animals. The bottom portion of the fencing should be attached to a concrete curb or slab, or buried to a depth of at least 1 meter to prevent animals from burrowing into or out of the zoo.

Marineland is not contained by a perimeter fence. Since the property surrounding Marineland is a mix of residential, industrial, agricultural and natural areas, animal escapes would be particularly problematic and pose a considerable risk to Niagara Falls residents and visitors. Unlike many of the other requirements contained in the CAZA standards, this requirement is unequivocal, objective and is not being met by Marineland.

2) Reasonable facilities must be in place to enable containment of an escaped animal within the property. (Complete perimeter barrier as described in D. Security 1).

No such facilities to contain animals in the event of an escape appear to be in place at Marineland (see previous section).

4) Animals on display should have access to structures, cover or adequate area to enable them to remove themselves from contact with the public.

The CAZA standards do not adequately define what is meant by the term "remove themselves from contact with the public." However, the wording of this provision, and modern zoo practice, suggest that the contact in question is visual and that animals require some kind of shelter allowing them privacy from observers. While actual physical contact between visitors and animals is allowed and encouraged in the deer park and, in "controlled" circumstances, in the cetacean petting areas, this kind of contact is the subject of other sections of the standards.

Providing opportunities for animals to remove themselves from visual contact with the public is a critical facet of appropriate housing and should, ideally, be addressed in the initial exhibit design phase. Animals should, preferably, also be able to remove themselves from the view of conspecifics, especially in situations where dominant animals may intimidate more subordinate individuals.

Privacy areas can be provided through proper exhibit design or through the use of natural and/or artificial visual baffles (see previous section). To increase the number of behavioural opportunities available to the animals, natural baffles (e.g., trees) are preferable.

American black bears

The American black bear exhibit provides little opportunity for the animals to remove themselves from public view. The sloping nature of the enclosure, lack of furnishings and visual baffles, raised viewing platform overlooking the exhibit, and the opportunity for dominant animals to monopolize the very few areas where public view may be obscured, preclude any opportunity for the majority of the bears to obtain privacy from human visitors. This exhibit has many similarities to the outdated, grotto enclosures that many zoos used to keep bears in.

The CAZA requirement that animals on display should have access to structures, cover or adequate area to enable them to remove themselves from contact with the public is not being met in this case.

Ungulates

Although the elk, red deer and American bison enclosures may be large enough to enable animals to retreat to a “comfortable” distance from human visitors, they do not provide sufficient opportunity for individual animals, or groups of animals, to remove themselves from the view of the public in the anterior portion of their enclosure. Most ungulates have full view of the majority of their on-display area and all of the other individuals they share it with. Landscape contouring, visual baffles and appropriate furnishings that would allow animals to remove themselves from public view and the view of conspecifics have not been incorporated throughout the exhibits.

The deer park is not structured to provide the animals with opportunities to remove themselves from public view or from physical contact with visitors who choose to move off of the walkway. There are no barriers preventing visitors from walking throughout the entire exhibit. During my visit, several children, in an area furthest from the visitor pathway, were observed repeatedly chasing deer from one location to another in full view of staff. All animals should be provided with the opportunity to remove themselves from public view.

Physical contact also presents a risk of zoonoses, the transmission of disease organisms from animals to humans. I did not notice any handwashing facilities at the deer park entrance.

Cetaceans

The indoor dolphin facility is a circular tank, approximately 13.5 m in diameter, with viewing windows below the water level covering slightly more than half of the pool wall surface. The dolphins housed in this tank are not able to remove themselves from visual contact with the public as they can be viewed through the gallery windows at all times during visitor hours. They are also not able to remove themselves from the view of conspecifics because the pool is so small and it provides each animal with a full view of their entire living space at all times.

Underwater viewing of orcas and beluga whales in Friendship Cove allow the public to visually contact the animals at all times during visitor hours. Since the tanks are relatively small, barren and the animals are unable to remove themselves from public view, it is possible that their accommodation does not enable them to achieve a sufficient distance for comfort.

The CAZA requirement that animals on display have access to structures, cover or adequate area to enable them to remove themselves from contact with the public is not being satisfied in the cetacean exhibits.

5) Public should be prevented from directly contacting dangerous animals by use of double fencing or other barriers.

A secondary barrier should always be present in any area where members of the public have the potential to contact captive wild animals, either directly or through a barrier, such as fencing or netting. Stand-off barriers are an essential component of a zoo's security system.

American black bears

Marineland's American black bear exhibit does not appear to satisfy this requirement. The rear service area of the exhibit can be accessed by members of the public by walking down a maintenance pathway or by walking over the grass mounds at either side of the exhibit. There was no barrier preventing visitors from walking around to the rear service area of the enclosure.

Ungulates

While most ungulate species are generally perceived by members of the public as benign, in the right conditions, they can be extremely dangerous. Captive ungulates in a number of facilities have been responsible for caretaker injuries or deaths, while wild ungulates have injured or killed a large number of people. For this reason, it is important to prohibit, or carefully control, interaction between human visitors and ungulates.

At the time of my visit a large number of deer were observed crowding around a young child feeding them pellets purchased from the deer park concession stand. The deer were aggressively jostling for position and actually knocked the child over. At the red deer and elk enclosures, visitors were observed putting their hands through the fence to feed or pet the animals who were congregated along the fenceline abutting the walkway. There was no secondary barrier keeping visitors away from the primary enclosure barrier.

Cetaceans

The Friendship Cove pool features a designated killer whale and beluga petting area. Visitors are allowed to line up and, while supervised by Marineland staff, make physical contact with one of the animals. A considerable portion of the rest of the water surface around the perimeter of both the beluga and orca pools is also accessible to members of the public. Dozens of visitors were observed leaning over the retaining wall attempting to touch one of the killer whales swimming near the surface (many were successful) or placing their hands directly above or in the water. This activity could not possibly be controlled as hundreds of people were involved and staff were focussed in the petting area.

Killer whales have been known to cause injury or death to human caretakers.

The requirement that the public should be prevented from directly contacting dangerous animals by use of double fencing or other barriers is not being met at Marineland.

7) Natural or man-made barriers and signage should clearly identify areas in which the public is not admitted (e.g., animal housing and maintenance areas).

While some zoo visitors may choose to ignore warning signs, it is important that warning signs be posted outside of areas where the public is not allowed.

Both sides of the American black bear exhibit, as well as the service driveway leading to the rear of the exhibit, were not signposted.

Animal Nutrition

Section V.

2. Observation of feeding and records of feeding should be maintained on a daily basis.

The CAZA standards do not define “observation,” nor do they indicate what kinds of feeding records should be maintained, so the intent of this requirement with regard to specificity, frequency and quality of record keeping is unknown. Regardless, I did not have access to Marineland's records.

Daily observation of feeding behaviours and good record keeping are particularly important in maintaining the health and well-being of captive wildlife. They allow consumption trends to be identified and, when dietary changes are required, they facilitate a smooth changeover.

The number of American black bears in Marineland’s bear enclosure exceeded 25 individuals. Scaffolding at the back of the exhibit indicates that food is dumped into the exhibit over the fence for the bears to consume at their own convenience. This is consistent with witness accounts over a number of years. With so many bears in the enclosure, I find it improbable that anyone could keep track of individual food intake for record keeping purposes.

With the large numbers of animals in many of Marineland's other enclosures, such as the deer park, and the difficulty of keeping track of individual animals, I find it improbable that accurate records regarding individual food intake could be maintained.

As well, members of the public are allowed to purchase poor quality, junk food (sugar-coated cereal) to feed to the bears and pelleted food to feed to deer in the deer park. This kind of ad libitum feeding cannot be tracked.

4. Essential feed components should be offered to the animal collection by the animal keeper:

b) public feeding of animals should be monitored by the staff and the volume of feed offered controlled.

Because of the wording of this requirement, namely that it says public feeding of animals "should", rather than "must", be monitored by staff, it is difficult to determine whether or not this requirement was meant to be voluntary or mandatory. For the purposes of this report, and because this requirement should be mandatory in any appropriate husbandry scheme and is consistent with modern zoo practice, I will assume it is a mandatory CAZA requirement.

Marineland features two areas where members of the public are allowed to feed animals. The American black bear exhibit, where visitors are encouraged to throw sugar-coated cereal (purchased from a concession stand next to the exhibit), from an expansive, elevated viewing platform down to the bears below is one. Another is the deer park, where visitors may purchase ice cream cups full of pelleted food to hand-feed to large numbers of fallow deer.

In both cases, feeding is not monitored by staff and the volume of feed potentially available to individual animals is not controlled. Even if the total volume of feed sold to members of the public is limited to a particular quantity, there is no way to ensure an equitable distribution among the animals on exhibit. Dominant animals, or animals in preferred begging locations, may be securing large volumes of food, while others may receive little, if any.

The uncontrolled feeding of sugar-coated cereal to the bears is extremely problematic. Numerous bears were observed with missing teeth and what appeared to be severe tooth decay and abscesses. Because bears with serious dental problems don't usually exhibit signs of disease, such as loss of appetite, efforts should be made to regularly examine the condition of their teeth, and to address problematic situations. In serious cases tooth extraction and the application of antibiotics may be required. Considering the large number of animals, monitoring and administering to sick animals may be difficult, if not impossible.

Marineland does not satisfy the CAZA requirement that public feeding of animals be monitored by the staff and the volume of feed offered controlled.

Conclusions

The past fifteen years have seen a significant increase in public concern about animals in zoos and aquariums. A significant portion of the public now expect zoological facilities to make satisfying the biological and behavioural needs of captive animals their top priority. Since the display of wild animals is the foundation on which all zoos and aquariums are built, it should be.

The 11 page *C.A.Z.A. Standards Of Animal Care And Housing* are overly generic and subject to interpretation. Some key animal care and accommodation provisions are too brief and ambiguous, while a number of words and terms used throughout the standards are not defined or are not provided with an appropriate explanatory context. To a large extent, interpretation of the standards is contingent on the expertise, experience and bias of accreditation inspection team members.

While the CAZA standards make reference to "psychological and physical stress", "auditory, olfactory, light and visual sensitivities", and "normal physical movement and behaviour", it is not explicitly stated in the standards that the biological and behavioural needs of the animals must be satisfied.

To date, CAZA has not yet developed its own species-specific accommodation and care standards.

This paper has examined only a portion of the clauses contained in the CAZA standards and whether or not Marineland satisfies them. It appears that, more than seven months after being awarded accredited status and despite the weaknesses within the standards themselves, there were still many key requirements that were not being met.

While no zoological facility is expected to be "perfect," one has to question why, when Marineland does not appear to satisfy CAZA's standards in several key areas, it was awarded accredited status by the association. Unfortunately, this is a question that only CAZA itself can answer, since the accreditation inspection process and subsequent internal deliberations leading to the decision to accredit are not open to public scrutiny.

There is however, another important question that must be answered. If CAZA accredited facilities are not required to meet CAZA's own standards, what exactly does accreditation mean? Accreditation does not appear to mean that the biological and behavioural needs of animals in CAZA accredited facilities are being met.

The CAZA standards are too brief and too subjective to be used as a model by government agencies developing their own assessment protocols and husbandry standards. Other more comprehensive standards from other associations and jurisdictions around the world, such as the United Kingdom Zoo Licensing Act (1984) Standards of Modern Zoo Practice and the EEP Ursid Husbandry Guidelines, provide a better baseline to work from.

The CAZA accreditation process is an inherently flawed system of evaluation that needs to be reviewed and improved. The evaluation criteria, particularly the CAZA standards, that are used for accreditation need to be substantially expanded and made more objective. Until that is done, the CAZA accreditation process will continue to be viewed as suspect and be heavily criticized as a result.

Further Reading

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Appendix

C.A.Z.A. STANDARDS OF ANIMAL CARE AND HOUSING (1994)

I. Facilities

- A. Animal Facilities
- B. Staff & Public Facilities

II. Operations

- A. General
- B. Emergency Preparation
- C. Equipment and Chemicals
- D. Security
- E. Management

III. Staff

- A. Animal Care
- B. Animal Nutrition
- C. Veterinary Care

C.A.Z.A. STANDARDS OF ANIMAL CARE AND HOUSING

I. Facilities

A. Animal Facilities

1. Building materials and substrate to which animals have access should be:

- a) non-toxic*
- b) of a texture and design which does not predispose the animal to abrasion, laceration or other injury considering the behaviour and physical characteristics of the animal
- c) in good repair

*nontoxic in the method in which it is used, the material does not represent a toxic hazard to the animal species to which it is exposed

2) The environment in which the animals live should:

- a) be wholesome in terms of providing adequate ventilation/aeration with clean, acceptably toxic free air for respiration.
- b) not adversely affect the animals considering its auditory, olfactory and light or visual sensitivities

3) Where artificial environmental systems must be maintained to support the animals, these systems should be monitored either mechanically or manually to enable repair or substitution with alternate systems thereby preventing distress, injury or death of the specimen.

4) Animal enclosures in which animals are on public display should*:

a) be of a size which enables the animals to:

- i) exercise natural behaviours to facilitate public education and interpretation.
- ii) achieve a full range of body movements and physical movements** normally performed.

* Consideration should be given to the recommended enclosure standards designated under the current government regulations and established guidelines of professional groups.

** Animals may be physically altered to preclude certain physical activities (e.g., pinioning) only as a last resort and only if an environment can be provided in which the limitations of the altered state does not create predictable physical or psychological discomfort.

b) contain "furniture" and/or procedures to physically and psychologically enrich the environment and stimulate normal physical movement and behaviour of the specimen.

c) contain natural or man-made shelters enabling animals to protect themselves from natural conditions (e.g., sun, rain, snow).

5) Long-term or permanent animal enclosures for animals off public display;

a) should be of a size which enables the animal to:

- i) achieve a distance from the staff or other animals at which the animals are not psychologically stressed
- ii) achieve a full range of body movements and physical movements normally performed.

b) should be provided with "furniture" and or procedures to physically and psychologically enrich the environment and stimulate normal physical movement & behaviour.

c) contain natural or man-made shelters enabling animals to protect themselves from natural conditions (e.g., sun, rain, snow).

6) Temporary Animal Housing

a) must be of a size and design which minimizes the likelihood of physical and psychological trauma of the specimen while providing fundamental physical needs.

b) Temporary housing is required only in emergency situations or during animal movement. Provisions should be underway to move any animal in temporary housing to adequate long-term enclosures.

c) contain natural or man-made shelters enabling animals to protect themselves from natural conditions (e.g., sun, rain, snow).

7) Housing and care of animals to be used for feed should be according to established standards outlined in the Canadian Council on Animal Care, Guide to the care and use of experimental animals, Vol. 1 & 2.

8) Containers used for transportation of animals must conform to or exceed the current I.A.T.A. Standards

B. Staff & Public Facilities

1) Provision must be made to enable staff to change clothing if necessary upon arrival and leaving the work site, to wash and/or shower and to eat meals as required. These areas must be well maintained and kept clean and pest free.

2) Washrooms for both public and staff must be:

- a) adequate in number according to recommendations by public and occupational health guidelines.

b) maintained in a good state of repair and cleanliness.

Adequate numbers of toilet facilities should be accessible by physically disabled patrons and in accordance with applicable legislation. It is accepted that topography may limit handicapped accessibility to some areas and accessibility may also be limited to structures which were constructed prior to accessibility legislation.

4) All structures must meet the standards for construction and fire protection according to relevant codes.

5) Concessions distributing food for public consumption must meet the requirements of public health guidelines.

II. Operations

A. General

1) Buildings and substrate to which animals have access should be kept clean:

a) washable surfaces should be washed clean and disinfected as required to prevent dangerous accumulations of organic and inorganic materials and organisms.

b) substrate which cannot be washed should be cleaned of gross waste and dangerous contaminants and replaced as required to maintain a wholesome environment.

2) Animal identification and records must provide information to enable current and retrospective investigation of genealogy, life history and medical events;

a) Mammals and birds and any other animal readily identifiable should be identified individually by number and records maintained based upon this identification.

b) Animal records should include the date of acquisition, disposition, genealogy and/or source, record of movement of the animals within & outside the institution significant life-events, reproductive history, medical history and necropsies.

c) Records should be maintained on the basis of "animal groups" when animals cannot be reasonably or safely identified on an individual basis.

d) Records should be protected from fire and other predictable events which may result in loss or destruction (i.e., duplication and off-site storage).

3) All animal care staff must be monitored throughout the working day and confirm their departure upon leaving the institution.

4) Animal waste must be used or disposed of in a fashion which complies with all applicable regulations.

5) Sewage disposal from all facilities must comply with all applicable regulations.

6) Toxic or hazardous waste must be handled according to occupational and public health regulations.

7) The institution must be actively involved with objectives and action plans in at least one of the following programs: public or formal education, research, conservation and species preservation.

8) The institution should have access to applicable regulation concerning:

a) public health (ie: food concession requirements)

b) fire prevention and control

c) humane animals regulation

d) IATA regulations

e) CAZA standards, policies and Code of Ethics

f) Veterinary Act

g) Agriculture Canada regulation (as applicable)

h) Department of Fisheries and Oceans regulation (as applicable)

i) Zoo Regulations (as applicable)

9) The following written policies and procedures must be established and understood by all staff who are involved:

- a) animal acquisition and disposition (in accordance with C.A.Z.A. Policy)
- b) handling and disposal of hazardous goods where applicable.

10) Established policies and position statements of the C.A.Z.A. must be on file in the institution and the management must have a working knowledge of these policies.

11) Pest control programs must be effective so that the animal collection, the staff and the public is not threatened by pests or contamination resulting from pests.

B. Emergency Preparation

1) Plans to respond to predictable emergency scenarios must be clearly defined in writing and all staff must be aware of their responsibilities and the overall objectives.

2) At least one staff person with current Cardiopulmonary Resuscitation Certification and at least one person trained in First Aid should be on site when public are within the grounds of the institution.

3) Fire Control

a) All animal housing structures in which there is electrical service, an artificial source of temperature control, fuel service, or to which the public has access must have at least one appropriate class fire extinguisher as designated by local regulation.

b) All fire extinguishers must be charged and inspected at least annually and as required by local regulation.

c) Personnel regularly working in buildings in which fire extinguishers are maintained, should be knowledgeable in their use.

4) Firearms

a) Firearms must be maintained in operational condition, stored in a locked area when not in use and under conditions which comply with relevant regulations.

b) Only personnel who are certified in the use of firearms should have access to the firearms.

c) Personnel who are responsible for the use of firearms in emergency response protocols, should be aware of their responsibilities and the proper procedures as designated in the written protocol.

5) Emergency Response

a) Animal enclosures & housing should be constructed in locations and to standards which will minimize the risk of animal injury or escape in the event of predictable environmental or other threats.

b) Written Emergency Response Plans for the following situations should be implemented. These plans must be reviewed and updated at least annually and all personnel involved in such procedures should be aware of the plans and their responsibilities in the event of an emergency.

i) Animal Escape

ii) Fire

iii) Flood/Storm

iv) Human exposure to animal venom or poison (where applicable)

v) Human injury or distress (public, staff, volunteer)

vi) Utility failure (where applicable)

C. Equipment and Chemicals

- 1) Equipment and machinery must be in good repair and safe to operate.
- 2) Provisions must be available to sanitize equipment which may be used in more than one animal enclosure.
- 3) Where an item of machinery or equipment is critical to the maintenance of animal specimen, contingency plans must be in place in the event of dysfunction or loss of that item.
- 4) Equipment and machinery and its method of use must meet all standards imposed under regulation including environmental standards.
- 5) Chemicals used or stored on the property of the institution must be properly identified by label.
- 6) All chemical labelling and Material Data Safety Information must be in accordance with applicable regulation.
- 7) Containers of chemicals must provide for the safe storage of the material.
- 8) Containers of chemicals must be stored or maintained under appropriate security to minimize the opportunity of spillage or accidental human or animal exposure.
- 9) Containers of chemicals must be stored or maintained in a location where, in the event of spillage:
 - a) the environmental impact is minimized.
 - b) the clean-up operation is facilitated.
 - c) the opportunity for human or animal exposure is minimized.

D. Security

Security must be provide to safeguard the animal collection and the general public.

- 1) A complete barrier, natural or man-made perimeter fence, must exist around the animal enclosures which protects the animal collection from direct exposure to the non-visiting public and exposure to feral or domestic animals. The level of security required will vary according to the species in the collection and the proximity of the institution to populated areas, to agricultural land and to sensitive wildlife habitat. (Recommended minimum barrier should be the equivalent of a two meter high chain link fence.)
- 2) Reasonable facilities must be in place to enable containment of an escaped animal within the property. (Complete perimeter barrier as described in D. Security 1).
- 3) Some method of remote or manual monitoring of the security of the institution when not open to the public should be in place.
- 4) Animals on display should have access to structures, cover or adequate area to enable them to remove themselves from contact with the public.
- 5) Public should be prevented from directly contacting dangerous animals by use of double fencing or other barriers.
- 6) Animal food materials should be maintained in an area which is not accessible to the general public.
- 7) Natural or man-made barriers and signage should clearly identify areas in which the public is not admitted (e.g., animal housing and maintenance areas).

E. Management

- 1) The governing authority has the responsibility for policy matters and for oversight of the institution. The director/general manager must have the authority for the management of the animal collection, staff and programs.
- 2) The lines of communication between the governing authority and chief executive officer must be clearly defined.
- 3) An accredited institution that is without the services of a full-time, paid director for longer than one-year will be subject to loss of accreditation.
- 4) Significant administrative reorganization of the administration of an accredited institution must be reported to the Chairman of the Accreditation Commission.

III. Staff

- 1) Personnel involved in the management and maintenance of the animals should have the physical ability, the knowledge, the access to information, the training and the equipment necessary to:
 - a) adequately and humanely maintain the animals under the conditions provided
 - b) provide adequate nutrition
 - c) provide environmental enrichment for the behavioural needs of the animal
 - d) respond appropriately to predictable emergency scenarios.
- 2) Training programs must be established to enable staff to conduct their work duties safely and to respond appropriately to predictable emergency situations according to written protocols.

Training programs should include information regarding:

- a) animal husbandry
- b) emergency response procedures
- c) hazardous goods handling and management (where relevant)
- d) animal restraint
- e) hygiene and zoonoses.

IV. Animal Care

- 1) All animals or animal groups should be observed by animal keeping staff at least once daily and as often as required given the circumstances of the environment, animal condition and behaviour of the animal group. Hibernation and periods of particular sensitivity such as those associated with reproductive activity of some species may preclude daily observation. Consideration should be given to remote audio and/or video monitoring in such conditions.)
2. Standard references regarding the husbandry of wild animals should be available. (Recommended minimum reference list supplied by the CAZPA)
3. Animal keeping staff should be knowledgeable in the husbandry and biology of the animals in their care including reproductive behaviour.
4. The animal keeping staff should be knowledgeable in the safe use of equipment, chemicals and procedures which are utilized in the care of animals for which they are responsible.
5. Animal keepers must have knowledge of the physical capabilities of the animal with which he/she works to enable him/her to work safely.

6. Staff or management responsible for the housing, husbandry, nutrition and transport of animals within the collection should have access to enable them to perform these functions safely and humanely.

V. Animal Nutrition

1. References should be available for the nutritional requirements and feeding practices of the animals in the collection.

2. Observation of feeding and records of feeding should be maintained on a daily basis.

3. Food materials should be wholesome.

a) Food materials should not be contaminated with organic, inorganic or chemical materials which may adversely affect the recipient animal.

b) Food materials should be stored:

i) in a manner which preserves the nutritional integrity of the material until fed.

ii) so as to prevent contamination by organic, inorganic or chemical contaminants.

iii) to prevent access by pest species.

4. Essential feed components should be offered to the animal collection by the animal keeper:

a) only feed which is prepared by the institution may be fed by the public to animals which are clearly designated by the institution.

b) public feeding of animals should be monitored by the staff and the volume of feed offered controlled.

5. A potable source of water for animal maintenance must be available to all specimens.

6. Food and water should be offered in such a way that it is made accessible to each individual specimen.

VI. Veterinary Care

Veterinary services must be available for the animal collection and should comply with the Guidelines for Zoo/Aquarium Veterinary Medicine Programs and Veterinary Hospitals (J. Zoo and Wildlife Medicine, 21(3), 1990).

1) A contract providing consultation regarding preventative health care of the collection and describing clinical veterinary services including 24 hour emergency service should be in place.

2) Equipment required for the restraint, treatment and handling of the animal collection must be available.

3) Facilities should be available for the isolation and treatment of sick or injured animals and for the quarantine of newly arrived animals.

4) All pharmaceuticals on the premises must be maintained under conditions of temperature and security which comply with all regulations and meet pharmaceutical company recommendations.

5) All pharmaceuticals stored at the institution should be current.

6) Only licensed veterinarians are permitted to perform veterinary procedures in accordance with regulations of the provincial/territorial veterinary act.

7) The primary veterinary hospital or clinic serving the collection should comply with the criteria for animal hospitals established by the Provincial Veterinary Association.

8) Biomedical waste will be handled and disposed of in accordance with all relevant legislation.

