

Distorted Nature

Exposing the Myth of Marineland



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Foreword and Acknowledgments

Increasingly people believe if wild animals are to be kept in captivity, the main justification must be to advance legitimate conservation/education programs that substantially benefit wild species and the environments in which they live. Not surprisingly, most wildlife exhibitors make this claim despite little or no meaningful involvement. In truth, animals are often showcased as objects of amusement for mainly commercial purposes.

Whatever the motivation, the physical, psychological and social wellbeing of captive wild animals should always be the highest priority. Unfortunately, most zoological facilities fail to meet this objective.

When one combines the artificial, commercialized representation of nature in these places with the aberrant behaviours produced in the animals by inadequate care and housing, the result is a distortion of wild nature.

Marineland of Canada is one of the most widely publicized and controversial captive wildlife operations in Canada. Colourful ads depict playful orca whales, sea lions, bears and deer, creating utopian images of the facility as an animal paradise. But is this really the case?

Established more than three decades ago, Marineland has become the subject of intense criticism from animal protection organizations around the world. In an effort to inject informed expert opinion into the Marineland debate, Zoocheck Canada invited 13 recognized wildlife authorities to review Marineland's animal care, housing and management practices, as well as the conservation/education value of the facility. The result of that initiative is *Distorted Nature: Exposing the Myth of Marineland*.

The experts brought to their analysis, training and expertise in diverse disciplines, including veterinary science, marine mammal science, biology, zoology, ethology, zoo and aquarium animal husbandry, wildlife rehabilitation and conservation.

Distorted Nature follows in an approach established by Zoocheck Canada over the past decade for conducting assessments of captive wildlife facilities based on objective observation and sound scientific principles, as well as recognized conservation, ethical and educational practices.

Although these assessment reports often contain critical elements, they serve to stimulate thoughtful analysis and debate. They have led to the implementation of many tangible improvements often with the cooperation of the subject facility to address identified concerns. In this spirit, Zoocheck Canada extends to the owners and management of Marineland of Canada an offer to work cooperatively to achieve similar aims.

Even though contributors to Distorted Nature visited Marineland over a period spanning several years, the following conditions were repeatedly identified as concerns: the wellbeing of the animals; Marineland's failure to play a legitimate conservation role; the facility's negative educational value; inadequate public health and safety measures; and the absence of adequate legislation governing the capture, trade and maintenance of captive wildlife.

In 1998, Marineland of Canada will open a new orca tank, described in promotional literature as "the world's largest killer whale habitat." (From a leaflet entitled "Rate Card Marineland 98 Youth Program".) This development in no way addresses the criticisms contained in Distorted Nature. While the new tank is expected to be larger than the tanks viewed and criticized by the cetacea experts in this report, these specialists have also expressed, as have others from the broader scientific community, that a tank cannot be built big enough, or complex enough, to accommodate the sophisticated needs of oceanic orcas and dolphins. Quite simply, any tank is a tiny, sterile enclosure when compared to the diverse ocean ecosystem, with its algae, fish, storms, sand, rocks, ice and mud. Captivity of any sort compromises the wellbeing of these far-ranging, deep-diving mammals who are highly intelligent, extraordinarily social, and behaviourally complex.

An alternative model to the display of living whales and dolphins already exists in Canada. In 1995, the Biodôme de Montréal made a conscious decision not to display beluga whales, citing conservation issues, animal welfare concerns, and the desire to be sensitive to the opinions of environmental groups voicing opposition to keeping whales in captivity.

Instead the Biodôme implemented a thematic program on the white whales of the St. Lawrence called Belugas: The Next Wave featuring films, lectures, photo exhibitions, interactive modules, seasonal events, a day camp and other presentations on the life and history of beluga whales.

The editors of Distorted Nature would like to express sincere appreciation to the expert contributors who selflessly volunteered their valuable time to assess Marineland of Canada and to comment on captive wildlife issues generally. Thanks to Dr. John Hall, Dr. Naomi Rose, Doug Cartlidge, Dr. Paul Spong, Hugo Castello, Dr. Ronald Orenstein, Dr. Samantha Lindley, Dr. John Gripper, Brendan Price, Richard Farinato, Dr. Dragos Filoti, Mike McIntosh and Lloyd Brown.

Appreciation is also expressed to Lesli Bisgould, LL.B., Gary Gibbs, LL.B. and Jamie Brown, LL.B., who along with other members of the Zoocheck Canada Legal Advisory Council provided invaluable legal advice in the development of this report.

It is our hope that the debate generated by *Distorted Nature* will lead to positive change for the animals captive at Marineland, and contribute to the creation of a new respect for all living animals and the world in which they live.

Holly Penfound, B.A. & **Brian McHattie**, B.E.S., Editors

Executive Summary

Marineland of Canada in Niagara Falls, Ontario ("Marineland"), is an amusement park which displays the following species of animals: Bottlenose dolphins, Orca (killer) whales, Sea lions, Grey seals, Harbour seals, American black bears, deer (Fallow, Sika, Red and Wapiti, a.k.a. elk) and American bison. *Distorted Nature: Exposing the Myth of Marineland* is a critique by 13 wildlife experts regarding the conditions experienced by animals exhibited at Marineland, the conservation/education merits of the facility, and broader wildlife concerns.

The contributors to this report are Dr. John Hall, Dr. Naomi Rose, Doug Carlidge, Dr. Paul Spong, Hugo Castello, Dr. Ronald Orenstein, Dr. Samantha Lindley, Dr. John Gripper, Brendan Price, Richard Farinato, Dr. Dragos Filoti, Mike McIntosh and Lloyd Brown. Their opinions are primarily based on personal observations made during visits to Marineland. In some cases this was supplemented by the analysis of video, photographic and printed materials. As Dr. John Hall was unable to make a personal inspection, he restricted his comments to general issues regarding the keeping of cetacea in captivity in facilities like Marineland.

The experts in this report draw from their experience in diverse disciplines including veterinary science, marine mammal science, biology, zoology, ethology, zoo and aquarium animal husbandry, wildlife rehabilitation and conservation.

Five recurrent themes which emerge throughout this report about Marineland of Canada are concerns about: the wellbeing of the animals; Marineland's failure to play a legitimate conservation role; the facility's negative educational value; inadequate public health and safety measures; and the absence of adequate legislation governing the capture, trade and maintenance of captive wildlife.

In considering these problems, the reader should keep in mind what is increasingly believed to be the main justification for keeping wild animals in captivity, i.e., the advancement of legitimate conservation/education programs that substantially benefit wild species and the environments in which they live. In contrast, Zoocheck believes the artificial, commercialized representation of nature provided within an amusement park setting like Marineland is counter-productive to these aims.

Further, no captive wildlife facility should keep animals whose physical, psychological and social needs cannot be met. The aberrant behaviours produced in many captive animals by inadequate care and housing result in a distortion of wild nature.

This report closes by providing recommendations to Marineland of Canada and several levels of government flowing from those made by the experts in their individual submissions.

Recommendations to Marineland

1. Phase-out the marine mammal exhibits.
2. Improve the terrestrial animal exhibits, eventually moving them to a different part of the property away from the amusement park area.
3. Implement a humane wildlife population control program to reduce the overall numbers of animals at the facility.
4. Improve public health and safety.

Recommendations to Government

1. Implement federal legislation prohibiting the capture of marine mammals, and governing their trade, transport and maintenance in captivity, including the establishment of high standards of animal care, housing and husbandry.
2. Implement provincial legislation governing the operation of zoological facilities including the establishment of high standards of animal care, housing and husbandry.
3. Through provincial enabling legislation, clarify the powers of municipalities with respect to animal welfare and public safety.
4. Have the Ministry of the Solicitor-General through its agent, the Ontario Society for the Prevention of Cruelty to Animals, adopt a policy of proactive monitoring of zoological facilities and aggressive intervention to resolve problematic animal welfare situations.

Background

Marineland of Canada, Niagara Falls, Ontario is located at 7657 Portage Road, Niagara Falls, Ontario, Canada L2E 6X8. Phone and fax numbers are as follows: ph 905-356-9565 and fax 905-356-6305.

The following species of animals were displayed at Marineland during the preparation of this report:

- Bottlenose dolphins (*Tursiops* spp)
- Orca (killer) whales (*Orcinus orca*) (see Appendix A for an historical inventory of orcas at Marineland)
- Sea lions (believed to be California sea lions) (*Zalophus californianus*)
- Gray Seals (*Halichoerus grypus*)
- Harbour Seals (*Phoca vitulina concolor*)
- American Black Bears (*Ursus americanus*)
- Red Deer (*Cervus elaphus*), Fallow Deer (*Dama dama*), Sika Deer (*Cervus nippon*) and Wapiti, a.k.a. elk (*Cervus canadensis*)
- American Bison (*Bison bison*)

(It wasn't possible for the editors or contributing writers to obtain information about the births, deaths and transfers of animals at Marineland other than the cetacea.)

Marineland is not accredited by the Canadian Association of Zoos and Aquariums (CAZA), the national zoo association representing member facilities across the country. (The CAZA was, until recently, known as the Canadian Association of Zoological Parks and Aquariums (CAZPA). Noting that Marineland is not accredited by CAZA in no way reflects Zoocheck's opinion as to the adequacy of CAZA standards. The point being made here is that Marineland has not been accredited as having met the professional zoo industry's own standards.)

Legislation

There is no legislation in force, at either the federal or provincial level (Ontario), that specifically addresses the many issues raised by the capture, breeding and keeping of wild animals in zoological facilities or amusement parks. No legislative control is exercised by either level of government over who can own and run such facilities. Absent as well is any regulation establishing even minimum standards of care to address the complex physical, psychological and social requirements of these animals.

Requirements for Animal Exhibits

Like their wild conspecifics, captive animals need to engage in a variety of learned and instinctive behaviours, such as seeking shelter, nest sites, mates and food resources; avoiding predators and parasites; defending

territories; and exploring new spaces. Most captives are, to a large degree, denied the opportunity to engage in these activities. This denial can result in a variety of physical and psychological problems that have the ability to severely impact on the wellbeing of the animal.

Exhibits that are designed and constructed with no attention to the species-specific needs of the animals rarely, if ever, provide an appropriate quality of life. The provision of complex, variable environments which stimulate both physical and mental activity is extremely important. Most progressive zoological facilities recognize that containing animals in sterile, undersized, biologically irrelevant cages and enclosures is problematic. In situations where wild animals are currently kept in captivity, they must be provided with environments that satisfy their species-specific needs.

In captivity, animals experience a severe restriction or loss of natural activities which must be compensated for. If natural opportunities for activities in the wild cannot be replicated, substitutes must be found. The implementation of an environmental/behavioural enrichment program improves the quality of life of most captive wild animals and must be an essential part of daily zoo animal management.

Zoo Industry Standards for Keeping Wild Animals in Captivity

Following are examples of standards required by two professional zoo associations for a zoological facility to receive accreditation.

The 1994 *Canadian Association of Zoological Parks and Aquariums'* (now known as the Canadian Association of Zoos and Aquariums) *Standards for Animal Care and Housing* state that:

Animal enclosures in which animals are on public display should:

(a) Be of a size which enables the animals to:

1) Exercise natural behaviour to facilitate public education and interpretation;

2) Achieve a distance from the public and other specimens at which the animals are not psychologically or physically stressed;

3) Achieve a full range of body movements and physical movements normally performed;

(b) Contain furniture and/or procedures to physically and psychologically enrich the environment and stimulate normal physical movement and behaviour;

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

The European Association of Zoos and Aquaria standards for the care and accommodation of animals in zoos state that:

1. Animals [are] to be provided with an environment, space and furniture sufficient to allow such exercise as is needed for the welfare of the particular species. 2. Enclosures [are] to be of a sufficient size and animals to be so managed:

a) to avoid animals with herds or groups being unduly dominated by individuals;

b) to avoid the risk of persistent and unresolved conflict between herd or group members or between different species in mixed exhibits;

c) to ensure that the physical carrying capacity of the enclosure is not overburdened;

d) to prevent an unacceptable build-up of parasites and other pathogens.

These professional zoo industry standards should be kept in mind while reading the evaluations of Marineland made by the experts in this report.

Non-Animal Alternatives to Whale and Dolphin Exhibits

Many cetacea experts, including those in Distorted Nature as well as others from the broader scientific community, believe it is impossible to meet the physical, psychological and social needs of whales and dolphins in captivity. Further, keeping these animals fails to fulfill a legitimate conservation-education role.

Yet recognizing that many facilities such as Marineland have made cetacea, particularly orca whales, their foundation attractions, their removal would necessitate the creation of new "cornerstone" activities. Traditional amusement park attractions offer alternative fare, such as sophisticated roller coasters, slide rides, wave pools and other water park attractions. Alternatively, "higher-tech" nature-based features such as walk-through whale models, virtual reality nature trips, IMAX/ OMNIMAX theatres, or satellite video hook-ups to animals in the wild are worthy of consideration and may, if initiated, prove popular with the public.

A Canadian model for this approach exists in the Biodôme de Montréal's delivery of an entertaining and educational program on the life and history of the beluga whales of the St. Lawrence. In 1995 this facility made a conscious choice not to display live beluga whales, citing the following

reasons behind its decision (From a Biodome de Montreal media release dated March 28, 1995 entitled "The Biodome de Montreal won't acquire beluga whales in the near future."):

- The Biodôme's philosophy is to showcase nature using a systemic approach (hence the presentation of ecosystems) and not by displaying "star" species. The obvious attraction power of the beluga today would likely overshadow the systemic message of the St. Lawrence marine ecosystem for the public.
- Fisheries and Oceans Canada has given a mandate to the Canadian Association of Zoological Parks and Aquariums (CAZPA) to develop guidelines for keeping cetaceans in captivity. (The CAZPA is now known as the Canadian Association of Zoos and Aquariums (CAZA). The standards referred hereto were internal CAZA documents which were never finalized or made public to the best of Zoocheck's knowledge.) This document entitled "Baseline Standards for Captive Marine Mammals in Canada", produced by CAZPA, has made it clear that the Biodôme's current facilities are not suitable for keeping belugas permanently.... The Biodôme must be able to provide appropriate conditions to house a breeding pair.
- The Biodôme believes it is important to keep in mind the opinions voiced strongly and vigorously by groups whose environmental goals in the end match its own.

Instead of displaying living animals, the Biodôme implemented a thematic program on the white whales of the St. Lawrence called Belugas: The Next Wave featuring films, lectures, photo exhibitions, interactive modules, seasonal events, a day camp and other presentations on the life and history of beluga whales. (From a Biodome de Montreal media release dated May 5, 1997 entitled "Belugas: The Next Wave" and associated program brochure for 1997-1998).

Methodology

Distorted Nature: Exposing the Myth of Marineland is comprised of 13 expert critiques of the conditions experienced by animals at Marineland of Canada, as well as comments about the conservation/education value of the facility and broader wildlife concerns.

The submissions were provided voluntarily by animal scientists and wildlife experts with expertise relevant to the species of animals kept at the facility from disciplines including veterinary medicine, marine mammal science, biology, zoology, ethology, zoo and aquaria animal husbandry, wildlife rehabilitation and conservation.

The opinions of contributors were formed, in all but one case, through personal observation during visits to Marineland spanning a period of approximately five years, with most assessments occurring during 1996 and 1997. Contributors were given free reign as to form and content of their submissions. As Dr. John Hall was unable to make a personal inspection of Marineland, he restricted his comments to general issues regarding the keeping of cetacea in captivity in facilities like Marineland of Canada.

Generally, the reports can be divided into two categories: 1. Those focused on the marine mammals kept at Marineland (i.e., orca whales, bottlenose dolphins, seals and sea lions); and 2. Those focused on the terrestrial (land) mammals (bears, deer and bison). In some cases, experts commented on both categories of animals. Those reports focusing entirely on marine mammals are presented first, followed by those covering both categories, and finishing with submissions on the terrestrial animals at Marineland.

Expert Reports

- John Hall, Ph.D. Marine Mammal Scientist, Former Senior Research Scientist, Sea World
- Naomi Rose, Ph.D. Marine Mammal Scientist, Humane Society of the United States
- Doug Cartlidge Former Dolphin Trainer
- Paul Spong, Ph.D. Physiological Psychologist, Orca Scientist
- Hugo Castello, B.B.S. Chief, Marine Mammal Laboratory, Argentine Museum of Natural Sciences, CITES Scientific Authority
- Ronald Orenstein, Ph.D., LL.B. Zoologist, Lawyer, Science writer, CITES Specialist
- Samantha Lindley, M.R.C.V.S. Veterinarian, Animal Behaviourist
- John Gripper, M.R.C.V.S. Veterinarian, Zoo Inspector
- Brendan Price, M. Biol., Inst. Iri. Biologist, Former Zoo Keeper, Director, Irish Seal Sanctuary
- Richard Farinato Director, Captive Wildlife Protection Program, Humane Society of the United States, Former Zoo Keeper/Director
- Dragos G. Filoti, D.V.M. Former Veterinarian, Bucharest Zoo
- Mike McIntosh Bear Rehabilitation Specialist, Founder, Bear With Us Sanctuary
- Lloyd Brown Wildlife/Dolphin Rehabilitation Specialist

JOHN HALL, Ph.D.

John Hall began his marine biology career in 1967 when, after finishing his master's degree at Humboldt State University, he began working for the U.S. Navy as a civilian marine biologist. At the Navy's Pt. Mugu and San Diego marine laboratories he participated in the Man-In-The-Sea program (Sea Lab III) by training Pacific white-sided dolphins to work with divers at depths up to 700 feet; conducted research on the hearing and sonar abilities of dolphins and killer whales; and participated in the development of harbour security systems using dolphins in Vietnam.

In 1972, Hall returned to graduate school at the University of California at Santa Cruz. His doctoral dissertation work involved the distribution and natural history of the cetaceans of Prince William Sound, Alaska. After graduate school, Hall worked for the U.S. Fish and Wildlife Service as the senior marine mammal biologist in Alaska where he studied the impacts of offshore energy development on stocks of whales and dolphins.

In 1986 Dr. Hall joined Sea World in San Diego as senior research scientist. During his tenure with Sea World and the Sea World Research Institute, he directed the development of a remote camp and research facilities for conducting studies on narwhals in the eastern Canadian Arctic. He developed a computerized dolphin behavior recording system to record the behavior of newborn dolphins and their mothers. He also developed a computerized tone code generating system using parts of wild killer whale calls to use in training killer whales at the Sea World parks.

From 1990 until the present Dr. Hall has directed the development of underwater acoustic monitoring techniques in the Alaskan Beaufort Sea as part of the effort to understand the environmental impact of Arctic offshore oil exploration operations and the sounds associated with offshore exploration on marine organisms.

In addition, Dr. Hall was scientific director on two dolphin rehabilitation and reintroduction projects in Florida and Colombia. These projects involved rehabilitating and reintroducing captive bottlenose and tucuxi dolphins into their native habitats.

In my opinion, based on something over thirty years of working with cetaceans in captivity and the wild, there should be no place for a discussion of the "value" of keeping small cetaceans in captivity. To a very great degree it is done only for the profits displaying cetaceans for entertainment produces.

As a result, a discussion of captive environments and how captive environments meet the needs of these highly complex social mammals is

oxymoronic. Clearly the ocean (and in a few cases, flowing rivers) are the natural habitats of these organisms and anything less, especially for animals adapted to being on the go almost constantly, is unsatisfactory. This does not mean that we cannot build concrete tanks where these animals can be housed, and in some cases even reproduce. But the point here is that some people (another group of highly complex social mammals) live in highly confined habitats for many years, and sometimes reproduce while in those habitats (we call them prisons), but I can't imagine anyone who would suggest that people in prison live anything like a normal life.

In the case of killer whales, especially considering all we have learned in the last 20 years about how complex, structured and well defined their social organization is, I find it impossible to believe that housing a male and female captured from separate pods in the Atlantic Ocean with a female from the Pacific Ocean could be thought to have taken any of the known social structure into account. Those actions are simply warehousing the animals wherever convenient. So it should be no surprise when we read of aggression and injuries, even death, occurring when animals from different pods or oceans are housed together in small, noisy concrete habitats.

We know quite clearly that most killer whales in the wild stay with their natal pod for essentially their entire life. This means that calves are born into a family group (a subpod) and spend, at the least, many, many years, if not their entire lives in that pod. Yet in captivity it has become a normal procedure to remove a calf from its mother when the calf is only a couple of years old. In some cases calves have been removed from their mothers when they were only 6 months old. That some of these calves might physically survive the separation is not the point.

The point is that in the wild, and we need to remember that these are wild organisms, not in any way domesticated animals, these animals live to be 30 to 50 years old, on average, and have developed a remarkably complex social structure. When we separate calves from their mothers we are ensuring that the normal social structure will never be developed. In my opinion, meeting the basic physiological needs of complex social mammals such as killer whales does not meet our responsibilities to these animals. If we are unable, or unwilling, to meet both the physiological and well documented social needs of these animals we should not hold them in captivity. To do so substantially shortens the life expectancy of the animal in captivity as compared with the same species in the wild.

Many aquaria have put forth the argument that by keeping cetaceans in captivity, and breeding them there, the aquaria are meeting some sort of perceived need to provide a gene pool for the future. Yet in the case of all the cetaceans commonly held in captivity there is not one species in a single

aquaria that is considered threatened or endangered. There are, to my knowledge, no Species Survival Plans for captive cetacea and no recognized studbooks being kept by aquaria in order to avoid inbreeding. As a matter of fact, by the late 1980s all the bottlenose dolphin calves born at one aquaria in southern California had apparently been fathered by only two males.

So the only reason for continuing to breed cetaceans in captivity, since none are endangered or threatened, is to produce the next generation for entertainment purposes. Since killer whales are reported to be responsible for at least 70% of all the revenue generated by large aquaria, it seems clear that breeding killer whales in captivity is being done only for continued profits and has nothing whatsoever to do with maintaining populations suitable for reintroduction. This is especially true because the large aquaria have made it clear that reintroduction of killer whales into the wild is a program they are opposed to.

There are three species of highly endangered small cetaceans (vaquita, beiji and Ganges susu) whose populations are in terrible condition, yet I have not read of a single plan by any aquaria to work with any of these rapidly disappearing species in order to attempt to develop sufficient knowledge and provide an adequate gene pool so that the species might be maintained until such time as habitat again becomes available to support their populations in the wild.

Perhaps it is because all three species are small, cryptic and not very enduring or visually distinct, and would probably not draw large crowds eager to pay to see endangered cetaceans in a well designed recovery program. In the meantime the aquaria continue to crank out endearing bottlenose dolphins with their perpetual "smile" and killer whales with their fearsome teeth and reputations while the truly endangered species of small cetaceans slide ever closer to the pit of extinction.

NAOMI ROSE, Ph.D.

Dr. Naomi A. Rose is Marine Mammal Scientist for The Humane Society of the United States (HSUS) where she coordinates all marine mammal programs, including protection of marine mammals in the wild and in captive situations.

Dr. Rose has led a campaign to enlighten the general public regarding the plight of captive marine mammals, testifying at federal and state hearings and preparing several documents analyzing the conditions of captive marine mammals. She is a member of a federally convened panel negotiating revisions to the current United States Department of Agriculture standards for the care and maintenance of captive marine mammals. She has appeared on CBS This Morning, A Current Affair, CBS Up to the Minute, The Crusaders, the Discovery Channel and various radio programs.

Dr. Rose has managed campaigns to enforce anti-harassment provisions of the (American) Marine Mammal Protection Act (MMPA); to prevent the importation of sport-hunted polar bear trophies; to eliminate the culling of wild seals and sea lions; to oversee implementation of the 1994 Amendments to the Marine Mammal Protection Act establishing a marine mammals/fisheries interaction regulatory regime; and to protect gray whales on the West Coast from new whaling proposals and habitat destruction.

Dr. Rose has also provided technical advice for The HSUS' campaign to protect dolphins who are caught in nets in some tuna fishing operations.

Before joining The HSUS, Dr. Rose conducted intensive study into the behaviour of wild marine mammals. She led a five-year research project in British Columbia to study the behaviour of male killer whales, or orcas. Dr. Rose has also studied the behaviour of northern elephant seals, Australian sea lions and Hawaiian spinner dolphins, and has participated in studies on coral reef ecology. She received her Ph.D. in biology in 1992 from the University of California at Santa Cruz.

This memo serves to summarize my impressions of Marineland of Niagara Falls, Ontario based on a visit to the facility on June 1, 1996. I arrived shortly after noon and was on the grounds for a little over three hours. I attended both marine mammal performances: the dolphin show and the killer whale show, and observed the elk, fallow deer, and black bear enclosures. My comments will be limited to the marine mammals held by this facility and their accommodations.

Physical Description of Dolphin Theater

The dolphin theater was indoors (the roof was high and dark; lighting appeared inadequate and was most certainly not equivalent to daylight). The entire complex consisted of an almost circular primary enclosure, which was flattened at the far side because of a stage overhang (the three dolphins in this enclosure could swim under this overhang; thus, below the surface, the enclosure was circular). On the right, there was a smaller circular secondary enclosure connected by a gate that was open the entire time we observed the animals in the underwater viewing area (see below), approximately 8-10 minutes.

A second secondary enclosure on the opposite side of the primary enclosure (the arrangement had something of a "Mickey Mouse" silhouette with a flattened head) was also connected by a gate. This barred gate was closed the entire time, and at least two sea lions, and possibly a gray seal, were held in this enclosure. Thus, all animals shared the same water.

The near side of the primary enclosure was made entirely of Plexiglas. There was an underwater viewing area below the grandstands. This consisted of a walkway in front of the tank

windows and a koi (carp) pool behind the observers with a waterfall. From this underwater viewing area, it was possible to observe two large areas of flaking paint at the bottom of the pool, a large pipe protruding from under the overhang, and a considerable amount of rust accumulated around the bolts of the Plexiglas panels and around an opening in the back wall. Large rust areas were also visible in the right-hand secondary enclosure when viewed from above. The water appeared clear and there was minimal detritus suspended in the water column.

The primary enclosure was approximately 40 ft in diameter (the overhang cut into this space at the surface) and about 15-20 ft deep. The secondary enclosures appeared to have diameters of about 20 ft (approximately half the dimension of the primary enclosure) and the same depth, although they were partly obscured from my line of vision. From the above-ground grandstands, one could see the behind-the-stage back area when a pull-up door was briefly opened to allow the pinnipeds to come out on the stage (the entire area of the stage was, at a guess, no more than 200 sq. ft). One could observe some of the "dry resting area" (DRA) provided to the pinnipeds in this back area; the spatial dimensions of the DRA seemed quite limited.

In my opinion and based on my knowledge of USDA Animal and Plant Health Inspection Service regulations, promulgated under the (American) Animal Welfare Act (AWA), and my experience with U.S. facilities, these facilities would not meet the AWA regulations. Without precise dimensions of the enclosures, it is difficult to say if the enclosures would meet minimum space

requirements for three dolphins; however, at best they probably barely exceeded them (if the secondary enclosure was closed off with the gate, I am uncertain if the minimum space requirements would have been met). If other dolphins were added to this enclosure, I doubt minimum space requirements would be met. The rust and flaking paint would be violations of the American AWA. Lighting was arguably inadequate. The DRA for the three pinnipeds was probably inadequate. Water quality seemed adequate, but I suspect an over-application of chlorine was responsible for the clarity of the water (see below).

Dolphin and Pinniped Behavior and Appearance

When I first observed the dolphins underground, two dolphins were in the secondary enclosure. Almost immediately, these two joined the third in the primary enclosure and the three began swimming in highly coordinated fashion in a counter-clockwise pattern. The entire time we observed the dolphins underwater (approximately 8-10 minutes), the dolphins swam in this manner, in physical contact with one another, holding the same positions side-by-side. They were not swimming in a strictly stereotyped manner; they varied their depth and the synchronicity of their breathing.

Their eyes appeared to be closed the entire time (it was difficult to see their left eyes at any time or either eye on the far side of the tank). The leading edges of their extremities (the dorsal fins, the pectoral fins, and the tail flukes) all had the same type of skin condition—flaky and blotchy. The trailing edges of the dorsal fins and tail flukes were ragged and tattered. The rest of their skin seemed in normal condition. Their dorsal fins leaned slightly. Their girths were robust (that is, they seemed overweight). The skin condition of their extremities and their closed eyes are consistent with water that is over-treated chemically, but this could not be confirmed.

The pinnipeds were only partially observed underwater and for a few minutes on stage. The swimming pattern observed by the one or two sea lions who could be seen seemed repetitive but again, not strictly stereotyped.

Dolphin and Pinniped Performance Notes

The gray seal was trained to perform rudimentary behaviors. An attempt was made to place these behaviors in the context of the differences between true seals and sea lions (e.g., a gray seal

cannot balance a ball on its nose like a sea lion because its whiskers are shorter). The two sea lions began by performing typical "circus" seal behaviors (e.g., balancing on their foreflippers, balancing a ball), but one of the animals ("Thunder") almost immediately refused to station properly (he twice ignored trainer requests to station and walked over to the other sea

lion's platform) and was taken into the back. The audience was told that he was "sleepy." The show monologue did contain some basic anatomical information about sea lions.

The dolphin show was almost devoid of biological information. About three or four pieces of factual information were imparted (e.g., a dolphin has 88 teeth; demonstrating fluke presentation, a medical behavior), but the show was accompanied primarily by background music and non-informational exhortations to the audience (e.g., "Clap your hands!"). Behaviors included high jumps, a basketball game, the trainers swimming with the dolphins and being propelled by them through the water, and other common "tricks." It was very obvious that the animals made special accommodations to the limited surface space when they performed the high jumps, particularly when all three animals jumped together.

In my opinion, this performance would not meet the minimum professional educational standards required under the (American) Marine Mammal Protection Act. Those professional standards that I considered unsatisfied include: 1) educational programs should be evaluated for current scientific information provided (the information provided was minimal); 2) animal demonstrations must include an educational/conservation message (no such message was included) and 3) presentations must include information on marine mammal biology, ecosystem ecology, and conservation that is based on the best current scientific knowledge (information of this kind was largely absent).

A pair of wall-mounted sign graphics was found outside of the theater; both were in fairly poor condition (the print was rubbing off at the edges and in several places could not be read). These signs described some anatomical and evolutionary facts about dolphins and whales (I recall no mention of pinnipeds, which again seemed to violate the above educational requirements), in dense, small, non-user friendly text. Very little behavioral or ecological information was given. Of the approximately 150 people who watched that performance, only three stopped to read these graphics on their way out.

Physical Description of Killer Whale Theater

The killer whale enclosure was outdoors. This enclosure consisted of a primary enclosure that measured approximately 75 ft long and 25 ft wide, was roughly kidney-shaped, and had a sloping bottom that was approximately 25 ft at its deepest point. At each end of this enclosure, two circular secondary enclosures, measuring approximately 25 ft in diameter and about the same depth as the primary enclosure, were connected to the primary enclosure by gates. The primary enclosure does not appear to meet the minimum American AWA space requirements for killer whale

enclosures—such an enclosure must have a minimum horizontal dimension of 48 ft (a circle with a diameter of no less than 48 ft must be able to be circumscribed within the narrowest part of the enclosure). No authority in Canada could legitimately certify this enclosure as meeting the minimum American AWA space requirements for this species.

The near side of the primary enclosure was also made of Plexiglas. As with the dolphin enclosure, there were visible rust spots on the enclosure walls (above water—I did not get a good look at the underwater conditions) and chipping paint. Water quality appeared good.

The grandstands had an overhang providing full shade. The whale enclosures had a sail-shaped overhang that would have provided partial shade during morning hours. However, judging by the size and orientation of this overhang, the animals would probably have been fully exposed to the sun for several hours during summer afternoons. The stage area, which was larger than the primary enclosure surface area, was covered by a porous material (it looked like indoor-outdoor carpeting, but this was not confirmed). The stage was used primarily for a sea lion show that was part of the total performance. A small bridge arched over the gate leading into the right-hand secondary enclosure; a slide led down into the primary enclosure from the right-hand side of the stage. A small rectangular wading pool (about 9 ft x 6 ft) occupied the same position on the other side of the stage.

Apparently there is another whale enclosure in the back of the stage area that mirrors in size and shape the outdoor primary enclosure. Two young male whales are reported to be held in this indoor enclosure. Running along the outside of this indoor facility is a video arcade. No mention was made of this "hidden" enclosure or these whales by the park staff; their existence was brought to my attention by Zoocheck volunteers.

Once again, I believe the outdoor primary enclosure would not comply with American AWA regulations. If my estimation of its minimum horizontal dimension is correct (approximately 25 ft), then it would not be in compliance for size; the rust and chipping paint are also not in compliance and I believe the stage covering (as it is porous) is in non-compliance as well.

Another killer whale enclosure is under construction (at a location between the elk enclosure and the amusement park rides). This enclosure is intended as a breeding facility and it appears that it would meet American AWA size standards (at the moment, it is still basically just a hole in the ground). However, the performance enclosure will still be used and no renovations appear to be planned for it, so the situation of size non-compliance there will continue.

Killer Whale (and Sea Lion) Behavior and Appearance

There were four whales in this enclosure complex. All the adult whales had markedly collapsed fins. The male whale (Kandu) had markedly distorted tail flukes (one side severely curled under). Otherwise, their external appearance appeared normal (no skin lesions or other abnormalities visible from the grandstands). I did not get a close look at their eyes.

The primary enclosure held three killer whales; two adult females, Nootka and Kiska, and Nootka's new-born calf (two months old, still with a yellowish-orange tinge to its white markings). The calf appeared to nurse once or twice after the performance was over, which was an interesting feat to observe, given Nootka's lack of glide time down the short length of the pool.

There was at least one adult male sea lion involved in the performance, and several young females. All of these animals, unlike in the dolphin show, entered the water several times during the performance; whenever the sea lions were "officially" in the water, the three whales in the primary enclosure were sequestered in the left-hand secondary enclosure. Several times during the sea lions' performance, one female repeatedly entered the water in the primary enclosure with the killer whales, apparently spontaneously. No attempt appeared to be made to discipline or prevent these brief excursions. Each time she did this (at least 2-3 times), the whales would rapidly pursue her, until she slid back out onto the stage and regained her platform.

Kandu, the male whale, was held in the right-hand secondary enclosure. Almost the entire time we were present (approximately 40 minutes), Kandu floated motionlessly at the surface of the water, hovering near the same rust spot on the wall of the pool. He was asked to leave his enclosure once during the performance; he refused to station and was immediately returned to the secondary enclosure (again, the audience was told he was "sleepy"). Later, after the performance, we observed the trainers working to bring Kandu out of the secondary enclosure and station him; eventually, after at least one more false start, they succeeded and put him through his behavioral regime.

The two adult female whales were the mainstay of the performance. The male sea lion performed first, then the female sea lions, and then the killer whales. The two female whales performed readily and exhibited no unusual behaviors, other than being slow in a general sense in the execution of their more high energy behaviors, in my opinion due to the small size of the enclosure and lack of room to develop speed.

Killer Whale (and Sea Lion) Performance Notes

Both performances at this theater were almost completely devoid of informational content—the difference from even the limited amount provided in the dolphin show was marked. I recall the announcer stating two or three facts about these whales, such as their size, weight, and birth date of the calf. However, no information about general anatomy, social, foraging, or other natural behaviors, general ecology, or even husbandry was imparted. The sea lion show was clownish (at one point, a trainer "boxed" with the male sea lion, complete with comical sound effects) and high energy. One part of the whale performance emphasized splashing the audience; another had a trainer in the water with Kiska performing a "whale ballet." The announcer's primary function was clearly to excite and energize the audience.

This performance most certainly did not satisfy recognized professional educational standards. The killer whale theater did not have any graphics of any kind that I could see posted inside or outside.

Conclusion

In my opinion, Marineland of Canada is a sub-standard facility, not only due to what would be minor violations of American AWA regulations (e.g., rust, chipping paint), but because of major, inherent characteristics (e.g., the size of the whale enclosure; the quality of the "educational" content of the performances).

DOUG CARTLIDGE

From the years 1968 to 1978 Doug Cartlidge was employed with the commercial zoo industry in England, Europe, and Australia as a trainer with dolphins and killer whales, and as a Manager, Curator and Director of Animal Training. Mr. Cartlidge's work included training of both staff and animals; establishing new facilities; collection and transportation of animals; water quality and plant maintenance; and consultancy work at other facilities within Europe.

From 1978 to the present, Mr. Cartlidge has served as a consultant and advocate for animals in zoos and aquaria. He has been involved in the rescue, rehabilitation or release of former captive marine mammals in Egypt and the U.K. where he organised the "Into the Blue" project. In this initiative, Mr. Cartlidge successfully negotiated with the owners at 2 of the 4 last remaining UK dolphinariums to donate their dolphins who were then rehabilitated and released under his supervision. He was responsible for the detrainning of the dolphins, transportation and rehabilitation protocol.

Mr. Cartlidge has had extensive involvement in the development and monitoring of captive wildlife legislation, including the United Kingdom government review of captive cetacean facilities that led to the establishment of stringent regulations under the UK Zoo Licensing Act. Mr. Cartlidge has researched and published numerous reports on captive wildlife facilities that have been submitted to both government and animal welfare organisations to improve the standard of inspections and conditions for zoo and aquarium animals.

Mr. Cartlidge now serves as Executive Director for the European Cetacean Organisation which supplies specialists to other conservation and animal welfare groups. He has been employed as an operational officer with a county Fire & Rescue service in the United Kingdom since 1978.

Two visits were undertaken (Friday 30th August & Sunday 1st September 1996) to document conditions, comment on the facility and animals held by this company. Eight mm Pal VHS video and 35mm slides were used to record certain areas and conditions. The video is time coded simply to record time lapse or the length of specific incidents and is not set to local time. It is set on British Standard Time.

During the formulation of this report, the following reference material has been utilized: specific standards contained within *the British Zoo Licensing Act 1981 (ZLA)*; requirements within the *Secretary of States Standards for Modern Zoo Practice—Section 9 (SSS)*; UK Department of the Environment circular WLF (P18) TG5; and the Department of the Environment inspectors

report form WLF (P66) TG10 which is additional to the SSS and more specific for dolphinariums. All requirements contained within the existing SSS apply to dolphinariums. References to Fire Precautions and public safety are also specific to British standards and from personal experience as a qualified fire officer with 18 years service.

Orca

The main show tank housing 2 adult females, 1 calf and an adult male was clearly not adequate for the number of animals being held. The adult male, Kandu, was maintained in isolation and was clearly exhibiting prolonged and severe stereotypical behaviour. On both visits, he was held and filmed for prolonged periods in the right hand pool that was only slightly larger than he is. While in there, he remained in the same location for most of the time. Lethargy and lack of normal movement was clear to see. He lay in the exact same position virtually all of the time. His head was rubbing in the same position, and there appeared to be a mark on the pool wall from his constant rubbing. He was not observed to swim or engage in any normal movement.

Kandu moved only when encouraged or fed by staff. At all other times he simply rested his head in the same area of the holding pen. This must be viewed with deep concern and would constitute a contravention of regulations in the UK which state: "...each species must be held in social groups typical of that species". The regulations continue: "Holding pens, if provided, may only be used briefly, except on direct veterinary advice. Animals should have access to as much water space as possible at all times."

The UK regulations also clearly state that "animals must be given access to other compatible animals". The pool complex is clearly not large enough to enable animals that are not compatible to be held with others who may not elicit problems. As Marineland of Canada has been breeding Orca for a number of years, their failure to provide adequate holding facilities must be viewed with deep concern, especially when the behaviour of Kandu is clearly abnormal and may have been produced as a direct result of isolation and or continued domination by another animal.

Sterile and barren conditions within all cetacean pools in this facility are a major area of concern. Failure to provide an environment which mirrors an animal's normal living conditions demonstrates either a lack of understanding or a total lack of concern for that animal's needs. Regulations within the UK clearly require zoos to ensure all animals are maintained in as near natural conditions as possible for each species held. Paragraph 11 of the SSS states: "Animal enclosures to be equipped, in accordance with the needs of the species in question...in the case of aquatic animals, materials such as weed, shingle etc., to aid and encourage normal behaviour patterns among them." Even if there are no regulations in force within Canada there

is no excuse for failing to keep ANY animals in as near natural conditions as is possible; barren concrete cages went out with Victorian zoos.

I was very concerned over the lack of shade available throughout the Orca pool, but especially for Kandou. With air temperatures in the eighties and direct sunlight on the whale, I feel this is an area that could be described as inflicting unnecessary suffering. Given the lack of shade, especially as Kandou appears to spend so long in one position and rarely dives, the sun must cause problems. Direct sunlight on water washing over the body, even if refrigeration is used, can elicit strong sunburn. In the UK, regulations specifically require shade for animals exposed to sunlight; in the wild orcas would spend most of their time underwater, not lying on the pool surface.

With two adult Orca regularly jumping in such a confined area as the main show pool, I am also concerned the Orca calf may be injured or killed by the much heavier animals. Incidents at other facilities have been documented in which trainers have been seriously injured after collisions with Orca.

During the first visit the shows contained NO educational content whatsoever. It was simply a 1960s circus performance. However on Sept. 1, 1996 the show commentary was changed completely and did include some educational information. Failure to provide the public with information, other than rousing cheers, applause and an impression that the animals are simply circus clowns, is unforgivable. It demonstrates a lack of concern for the species being displayed. It also suggests the visiting public is not interested or educated enough to receive information, other than theatrics.

The Orca held inside the "training area" (an indoor warehouse pool not accessible to zoo visitors, located behind the main show tank) were described by a staff member as being growing calves. After experiencing the severe noise pollution levels within the adjoining amusement arcade, I am concerned such constant exposure may be detrimental to them.

Another area of concern with the indoor training complex is air exchange. Good quality air exchange is required by UK regulations for all indoor facilities. From my observations I feel Marineland would not meet these standards. While similar regulations may not be in force in Canada, the provision of good care must surely require adequate ventilation for all indoor pools, especially where toxic chemicals are used for water disinfection.

Post show supervision was recorded as being extremely poor. Visitors were filmed banging on windows, something that must be viewed as disturbing and detrimental to the animals. Again, this would breach UK standards that do not allow visitors to disturb or provoke captive animals.

The video clearly shows evidence of what could be structural defects on the rear public exit ramp of the whale stadium. Consequently that ramp should be checked by a qualified structural engineer. Reinforced concrete supports are showing what appear to be signs of "spalling" and degeneration with exposed metal strengthening bars visible and rusting. Metal support beams appeared to be rusting through with visible holes. This might suggest the integrity of the beams may be compromised and dangerous conditions may apply to other parts of the beams not visible. As the external ramp carries large volumes of visitors during peak season, the potential failure of this structure and the disaster that could ensue must be viewed with concern and may require both urgent and major rebuilding work. I raise this issue because I know of a failure of a ramp with apparently similar problems at a UK facility.

Dolphin Pool

Stereotypic swimming patterns were filmed in all the bottlenose dolphins within this pool. The dolphins as observed in the underwater viewing area were swimming anti-clockwise all of the time, like robots with no variation in pattern whatsoever. They even breathed in the same location virtually every time. It was also very disturbing to note that while the pool was barren and sterile, containing NOTHING to stimulate the animals, a rock pool with vegetation, waterfalls etc. had been constructed just a few feet away from the dolphins, simply for the benefit and aesthetic amusement of visitors. I viewed this with deep concern.

The pool is clearly too small and restrictive for the dolphins by failing to allow adequate exercise. Supervision within the pool area is poor and children were filmed hanging over the water. The supposed safety barrier is totally unsuitable and is an accident just waiting to happen. Children were able to, and were observed to, lean over it and were thus at risk of falling into the pool. A stand-off barrier should be such that it prevents people, especially unsupervised children, from falling into an enclosure. A number of accidents have been recorded in the UK when inadequate barriers have allowed children to fall into the exhibit. At Marineland, staff clearly did not attempt to remove the children from their precarious positions. This also presents an extra hazard to the dolphins as anything can easily be dropped into the water.

Dolphin shows were performed simply as circus shows with virtually no attempt to educate or explain anything about the dolphins. Noise pollution from the screams and cheering must have had some detrimental effect on the animals and it certainly does not benefit their performance. Allowing visiting children to feed the dolphins must also be viewed with concern.

Infection or disease can be transferred and this is why it is prohibited in the UK.

I have one further concern with respect to the overall maintenance of this facility. While fire safety regulations may vary from country to country, I felt the upper rear emergency exits might not have been adequate, especially due to the large numbers of people allowed into the pool area. Two double exits were provided at the upper rear of the complex; however, these were restricted upon descending the stairs by a fence. The actual exits to open air were only single doors, so this technically reduced the first double exits to single means of escape. I was concerned to see locks on the fire exits themselves. If the means of escape were compromised in any way, say because of a locked door, then the public would move under the dolphinarium and potentially back into danger.

PAUL SPONG, Ph.D.

Dr. Paul Spong is the founder and director of Orcalab. Originally from New Zealand, he began his career as a physiological psychologist with a special interest in brain-behaviour relations and acquired his Ph.D. from U.C.L.A. in 1966. In 1967 he moved to Vancouver, B.C. and began working with captive dolphins and orca, studying vision and other aspects of sensory system function.

He soon became convinced that it is inappropriate to keep large-brained acoustic and spatial animals in tanks, and moved his work to the field in 1970, establishing the beginnings of Orcalab as a summer campsite on Hanson Island. Soon, his insights into the life of orca and his experiences with them (e.g., being led through dense fog whilst lost in a kayak in 1971) convinced Dr. Spong that orca and other dolphins and whales are special animals that deserve human respect and protection, not the ruthless slaughter and abuse that was common at the time. This conviction led to his becoming one of the founders of the save-the-whales movement. During much of the 1970s he helped lead Greenpeace campaigns against commercial whaling. This work culminated in the worldwide moratorium that is still in effect under the International Whaling Commission.

In the 1980s Dr. Spong returned to full time research, and today his work focuses on the long-term life-history of the "northern resident community" of British Columbia orca and on the protection of the orca habitat. In recent years he has lent his voice to the cause of returning captive cetaceans to the ocean and has devised a plan (the Free Corky Project) to return one of Sea World's captive orca to her home and family in British Columbia. For many years Dr. Spong has been joined, in all aspects of his work, by his research partner and wife, Helena Symonds.

I have been asked to provide my opinion about the captive animal facility known as Marineland in Niagara Falls, Canada. I offer these remarks freely and without inducement, as a scientist and person with many years (30) of experience and background knowledge that relates to cetaceans kept in captivity and living in the wild.

General

Concrete enclosures (tanks) are inappropriate for use as facilities in which to keep cetaceans captive. There are numerous reasons for this conclusion, especially those related to the acoustic and social aspects of the physiology and lives of these animals.

All cetaceans are acoustic animals. This means that the primary sensory information needed to make them functional within the environments they

inhabit comes from sound. When cetaceans are confined in concrete enclosures they are shut off from the natural world of sound that they have evolved to expect, and which is certainly an essential part of the sensory world they rely on. Such confinement imposes severe levels of perceptual and sensory deprivation on whales and dolphins. It is well known that even mild levels of deprivation of sensory input to the central nervous system has deleterious effects on brain function and behaviour in a wide variety of animals. Hence the obvious conclusion that keeping cetaceans confined in concrete tanks is extremely stressful, and harmful.

All cetaceans are social animals. The details of the cetacean social world vary among species, but it is of vital importance to all of them. In the case of certain species, notably *Orcinus orca* (orcas), family members remain with each other for life. The loss of individuals within an orca family has demonstrable long term effects on the survivors. It is certain that loss of the family for captive orcas is a source of huge stress.

There are numerous specific reasons for the shortened lives of captive cetaceans, perhaps especially orcas. Paramount among them is stress. Because of the above, it is my opinion that concrete tanks should not be permitted or used for the confinement of cetaceans, except on a short term emergency basis related to the rescue, recovery, and rehabilitation of individuals that need human assistance.

It has been argued that the educational benefits flowing from keeping cetaceans captive outweigh the detrimental effects on the "few" individuals involved. I reject this line of thinking. In my opinion the education component of captive cetacean exhibits is far less important than the entertainment component. Moreover, the "education" offered the public is typically inaccurate, incomplete, and misleading. The principal messages conveyed by captive displays of cetaceans come from "shows" which demean the nature of the animals, turning them into circus performers and objects of amusement and ridicule. It is a disservice to the public, and to cetaceans, to present the captives in such a manner. We do not need to, indeed we must not, teach our children that it is proper to treat animals in this way... it can only lead to perpetuation of an unfortunate cycle of abuse.

Specific

Marineland Niagara Falls is, in my opinion, one of the worst captive facilities in the world, and not just for cetaceans. However, I will confine my remarks to the cetacean side of this shameful enterprise.

I visited Marineland several years ago, some months after the birth of an orca calf. I was astounded to observe the conditions in which the animals were kept. The mother and her baby had the larger show pool to themselves.

Two other orcas were being kept together in a tiny circular enclosure adjacent to the main tank. It was barely larger in diameter than the length of their bodies. Questioning of a staff member indicated that such treatment was routine at Marineland when calves were born. I find such treatment of a normally free ranging animal unconscionable and exploitative. In my opinion this is indicative of the broader approach to the care of animals at Marineland.

A few cases in point:

1. **Junior.** A young male orca believed to have been held in virtual isolation in a "warehouse" at Marineland, apparently for sale but without buyers, for several years...until death.
2. **Duke.** When I saw him this male bottlenose dolphin was swimming endless circles around and around a tank of inadequate size that had paint peeling off surfaces and rust apparent at pipe joints and bolt heads. There was a heavy smell of chlorine in the air around the tank, and Duke's eyes were almost closed. His appearance was ragged and tattered, his demeanor weary.
3. **Dolphin deaths.** Duke, and numerous other dolphins kept at Marineland have died. Marineland's record is certainly among the worst of other North American facilities that keep dolphins captive.
4. **Treatment of orca mothers and calves.** There have been several births of orca calves at Marineland. The surviving calves are routinely separated from their mothers at an early age. This is certain to create severe stress in both mothers and offspring. Generally, in the wild, orca females stay together with their offspring for life.

It is my conviction that the animals in the care of the Marineland of Canada have suffered for many years. This facility is an embarrassment to the natural wonder and beauty of Niagara, and of Canada. The animals it holds should be relocated to facilities that provide better care of captive animals, or rehabilitated to a life in the wild.

HUGO CASTELLO, B.B.S.

Hugo P. Castello is the Chief of the Marine Mammal Laboratory at the Argentine Museum of Natural Sciences in Buenos Aires. He received his Bachelor in Biological Sciences from Buenos Aires University in 1969 and has been involved in conservation and research for the past 15 years.

Mr. Castello was the officer in charge of the Marine Mammal Action Plan of the United Nations Environment Program in 1991-92. He is author of two books and more than 70 papers on freshwater and marine fishes and southwest Atlantic seals, dolphins and whales. Mr. Castello is the CITES Scientific Authority for the country of Argentina.

Based on my visit to Marineland of Canada in Niagara Falls, Ontario in September, 1996, and from viewing videotapes of the facility, and from reviewing background materials, I believe that the King Waldorf show tank and the indoor dolphin show tank cetacean facilities at Marineland of Canada are old and badly kept (i.e., flaking paint, rust on the walls, inadequate lighting, what appeared to be too much chlorine, and a noisy environment).

The type of pools and tanks that I visited were probably built during the early 1960s. I could not establish if they were filled with real filtered and recycled sea water, artificial sea water (very expensive and improbable), or fresh water with added NaCl (unknown salinity, but not the real sea water formula—the most probable). The use of real seawater filtration is fundamental together with excellent veterinary care for diminishing the mortality rate of marine mammals in captivity. When chlorine is over-used in fresh water treatment with added NaCl, numerous skin, eye and occasionally lung infections are developed by dolphins.

What really surprised me during my visit was the large number of orcas housed in such small enclosures in the King Waldorf show tank. Moreover, two young orcas were apparently being kept in the indoor warehouse pool (according to Zoocheck Canada information) and did not participate in the show, suggesting to me that they were kept only for trade, sale or other purposes. Based on Zoocheck Canada's information stating that ten bottlenose dolphins were present in 1990, I was also surprised to find only three bottlenose dolphins in the indoor dolphin tank. Recently, Zoocheck Canada informed me that only one or two of the original ten dolphins remain. Even with only two dolphins, the tank space in the indoor dolphin tank is insufficient. One wonders what may have become of the other eight dolphins.

Killer Whales in the King Waldorf Show Tank

During my September 1996 visit, there were three adult orcas and one baby orca in the main King Waldorf show tank (volume according to Marineland of

Canada in their submission to the Department of Fisheries and Oceans Committee on Marine Mammals, August, 1992 = 641,575 U.S. gallons). According to the report *A Review of Dolphinarium* (Klinowska and Brown, 1986), the total volume of the Orlando, Sea World orca complex was five million U.S. gallons. The Hong Kong Aquarium has an estimated volume of 935,055 U.S. gallons, and the Vancouver Aquarium (with the new extension) has one million gallons. Klinowska and Brown (1986) recommend at least 20,000 m³, or 4.4 million U.K. gallons (5.2 million U.S. gallons) for a base minimum of up to five orcas with each additional orca needing an additional 4,000 m³, or 880,000 U.K. gallons (one million U.S. gallons). In addition, according to Klinowska and Brown (p.209), no orca pool should be narrower than 15 metres, or shallower than 7.5 metres, and a reasonable portion of the tank must be at least 15 metres deep. An isolation pool must be provided and a treatment area as well as a means for separation of animals is required.

It should be noted that while the Klinowska and Brown information provides the captive cetacean industry with minimum standards, in my scientific opinion, no tank is sufficient habitat for cetaceans such as orcas and bottlenose dolphins who are used to travelling tens of kilometres per day in the ocean within tight family units.

With this information in mind, it is evident that in keeping with the industry standards the space available for orcas in the King Waldorf show tank is insufficient, and this factor may have been the main reason for the high mortality rate of orcas at the facility over the years (six orcas have died at Marineland since 1973 according to Hoyt, 1990). Marineland states that their new four million-gallon tank will be used for orca breeding. Even though the new Marineland pool may meet Klinowska and Brown specifications, in my opinion, cetacean breeding should not be allowed, unless there is a very serious conservation problem for the species, which is not the case for orcas or bottlenose dolphins.

If we look at mortality records for orcas at Marineland, six orcas have died out of the estimated 20 orcas displayed there since the early 1970s (Hoyt, 1990). This is significant out of the one hundred and thirty orcas that have been taken for captivity around the world. This reinforces my concern about the poor standards at Marineland with respect to marine mammal care.

I have been informed that there is no agency in Canada responsible for overseeing the care and condition of Marineland's marine mammals. In Argentina, there are oceanaria regulations being applied to Mundo Marine and Mar del Plata Aquarium in order to improve their performance and reduce mortality of marine mammals in captivity. Moreover, because the Mar del Plata Aquarium has requested permission to capture one orca for

exhibition purposes, one National Representative in the National Congress for Chubut Province has prepared legislation (presently approved by one chamber) to stop orca captures in Argentinian waters with a one million dollar penalty for infractions.

The Province of Ontario should have legislation to protect animals in zoos and aquaria. A number of aspects should be taken into consideration when drafting legislation including: finances; construction (indoor and outdoor accommodations); water; power, fuel supply and emergency measures; drainage; storage; waste disposal; staff facilities; space requirements for orcas, bottlenose dolphins, belugas etc.; isolation areas; medical facilities; operating policies; training; testing; veterinary care; transportation of marine mammals; capture and acquisition of animals; publicly accessible record keeping and publication; release; disposal; education; research; and breeding.

A review of Klinowska and Brown's dolphinarium report should be undertaken when preparing legislation for Ontario aquaria. Moreover, because Canada is a signatory to the NAFTA Treaty, the government should prepare similar legislation to that applied by the United States in the form of the Animal Welfare Act and the Marine Mammal Protection Act.

RONALD ORENSTEIN, Ph.D., LL.B.

Ronald Orenstein holds B.Sc. and M.Sc. degrees from the University of Toronto, a Ph.D. in Zoology (Ornithology) from the University of Michigan and a LL.B. from the University of Toronto. Dr. Orenstein is the editor of Elephants: the Deciding Decade (1991/1996), and author of How on Earth, a two-volume series about nature for children (1994/1995), and Songbirds (1997).

Dr. Orenstein is currently Project Director for the International Wildlife Coalition (IWC). He has represented IWC at the last three meetings of the Convention on International Trade in Endangered Species (CITES). At the 1987 meeting he acted as advisor to the delegation of Malaysia. At the 1989 meeting he was one of the engineers of the compromise amendment that led to an international ivory ban. Dr. Orenstein is a member of the board of the Elephant Research Foundation, and is Chairman of the Scientific Advisory Council of Zoocheck Canada.

At the request of Zoocheck Canada, I visited Marineland on the afternoon of Friday, August 8, 1997. I was asked to pay particular attention to signs and other information posted at the site, in order to assess the attention given by the facility to public education. I did not, however, attend the dolphin or killer whale shows, so I am unable to comment on information that might have been presented through such displays.

General Comments

Before turning to the question of signs and education, I must make some general comments on the facility. Although the property on which Marineland is situated is very extensive and appears to contain many trees, enclosures for terrestrial animals do not take advantage of this situation. There are three main exhibit areas for terrestrial mammals: a large petting area for fallow deer, a series of adjoining pens holding red deer, wapiti and American bison, and a bear enclosure.

The enclosures for deer and bison are totally devoid of any kind of vegetation. Shelter is either extremely limited or, for the petting area, absent altogether. During my visit, which was on a hot and sunny day, the animals tended to cluster as closely as possible to the fence areas in these enclosures in order to take advantage of what shade they provided. I did not see any provision for water in these enclosures.

All of these enclosures contain large numbers of animals. In the case of the petting area, I was told by the woman working at the food kiosk that there were 800 deer present. I could not verify this number. Many of these, including all antlered stags, were kept in a pen sealed off from the general

public, but there were nonetheless still large numbers of animals in the area that visitors could enter. I noticed several animals with torn or mutilated ears in this area. I was told by a staff member that these were the results of fighting among the deer, a result that is probably not too surprising given the extremely large numbers of animals present.

It struck me that the petting area, which is extremely large, might present a risk to small children. There is no way that a single staff person could keep an eye on the whole of this area. In fact, there appeared during my visit to be no attempt to supervise visitors to the enclosure. Instead, a sign at the entrance warns parents to "please supervise children to avoid injury".

Feeding by the Public

Both the petting area and the area near the red deer and bison enclosures contain kiosks selling what is described as "animal feed". In the petting area, this consists of ice cream cones filled with what appeared to be food pellets of some kind. The red deer kiosk, however, only sells packets of Rye-Krisp crackers.

The third kiosk, identical to the others, is located at the bear enclosure. Again, the sign at the kiosk advertises the sale of "animal feed", but in this case the only food available consists of marshmallows. As the bear pit is fronted by a broad moat, with only a few concrete "islands", most of the bears in the enclosure (I counted 24, but there may have been more) beg for these "treats" while standing in the water with only their heads and shoulders above the water line. At least one bear had a torn ear, possibly the result of a fight—again, not surprising as the begging behaviour forces the animals into close proximity.

I think it goes without saying that exhibits of this type do not meet the standards of modern zoo keeping. They also convey, I believe, a negative message about animals to the public. This is not only because the inappropriate diet may affect the animals' health (certainly so in the case of the marshmallows provided for the bears), but because it alters the animals' behaviour, replacing natural activity with prolonged bouts of begging. This in turn affects the public's perception as to what these animals are like, but may actually encourage some misguided visitors to feed them much more dangerous objects. Signs stating "Please do not feed wrappers to the animals", posted outside some enclosures, do not in my view do much to prevent such acts.

Most modern accredited zoos forbid feeding by the public except under highly controlled circumstances. The standards set by the Canadian Association of Zoos and Aquariums (CAZA) require that "public feeding of animals should be monitored by the staff and the volumes of feed offered

controlled". The European Association of Zoos and Aquariums (EAZA) standards state: "Uncontrolled feeding by visitors is not permitted. Where feeding is permitted to be on a selective basis only with suitable food provided and approved by the management." Marineland appears to meet neither of these standards.

In fact Marineland, far from scaling back public animal feeding, appears to be about to increase it. A new exhibit area is being prepared for killer whales. Although a billboard posted at the site describes the area as a "Breeding and Research Facility", the brochure handed out to visitors on entering Marineland labels it as "Friendship Cove" where they will be able to "pet and feed" the animals—hardly activities consistent with a research and breeding program. One wonders what sort of food the public will be allowed to offer.

It appears that the management is aware, at least to some degree, of the inappropriateness□ or at least the perceived inappropriateness□ of feeding marshmallows to bears. The only interpretative sign on any of the terrestrial animal exhibits is posted at the bear enclosure. It reads as follows:

American Black Bear
(*Ursus Americanus Pallas*)

Black Bears are Native to North America. They vary in size; this depends on their sex, age, and time of the year. Adult Black Bears can weigh as much as 500 lbs. Black Bears vary in colour from a solid jet black to a light brown to chocolate or bluish grey. Black Bears are omnivorous animals. At Marineland their main diet consists of fish, meat, vegetables and fruits. Black Bears have been known to love sweets such as honey and marshmallows.

Aside from minor inaccuracies (the specific name "*americanus*" should not be capitalized, and there are white morphs of black bear as well as the colours listed), and of course noting how much more information could have been included, the striking thing about this sign is the implication that marshmallows are part of a bear's normal diet. This is not so much public "education" as an attempt to justify selling marshmallows to visitors to feed the animals on display, a practice that in fact should not be tolerated at any zoo.

Interpretative Signs

There are no interpretative signs for any of the other terrestrial animals. The deer and bison paddocks are labelled simply "Red Deer", "Elk" and "Bison". I did not see any identifying signs in the petting area or at the killer whale pool.

There are some signs in the aquarium building (the one housing the bottlenose dolphins and freshwater fish tanks). These include two quite acceptable billboards giving details of whale biology and relationships and explaining the difference between whales and fishes. In my opinion these two signs are the only ones in Marineland giving any really useful educational information. There are short legends to the fish tanks but these are very basic in content; the sturgeons are not identified to species, and no scientific names are given. For example, the Tilapia tank bears the following sign:

Tilapia

This freshwater fish is native to Africa and Syria. Growing to 20", this species is very voracious and greedy, but are [*sic*] largely herbivorous.

Although the sign refers to a "species" there is no indication which Tilapia is involved; there are in fact thirty species of the genus *Tilapia*, though the fish on exhibit probably belong to the genus *Oreochromis* (33 species), which are also called "tilapias". *O. mossambicus* is the most widespread species in captivity. Referring to any animal as "greedy" is anthropomorphism and should be discouraged. Further, the account leaves out some of the most interesting information about these fishes, including the fact that female *Oreochromis* spp. carry their eggs in their mouths until they hatch, a habit responsible for their alternate name of "mouthbrooder".

The standards for these interpretative signs seem, therefore, to be well below that of, for example, Metro Toronto Zoo or other large zoos I have visited. In my opinion this is far less excusable at Marineland than it would be at many small, poorly-funded zoos as Marineland is, overall, a large, highly-publicized and presumably highly-profitable facility that could certainly afford to erect higher-quality signs and information if its management chose to do so.

Educational Value

In fact it is the contrast between the animal exhibits, with their limited space, poor design and inadequate signage, and the general appearance of the entire site that is most striking. As mentioned earlier, Marineland boasts extensive landscaped grounds. Obviously considerable investment has gone into the building of expensive rides (including a roller coaster with an artificial mountain), restaurants and gift shops. The animals have received what could be kindly called secondary treatment; in fact it is difficult to see what the terrestrial animals add to Marineland even from an economic point of view. I believe that this treatment reinforces a message, given quite clearly by the way the terrestrial exhibits at least are set up, that the

animals at Marineland are there purely to amuse visitors, and require no more care and attention than the minimum required to deliver that amusement. Even the gift shops, which include wall-mounted bear skins and bison heads, reinforce the image of the animals on exhibit as mere commodities.

This is precisely the opposite message that a modern animal display facility should convey. For these reasons, I consider the "educational" message of Marineland to be not merely negligible, but actively negative. I could certainly not recommend it as a place for children (or anyone else) to learn about animals, either in order to understand their biology or to respect their place in nature.

Recommendations

It is difficult for me, given this conclusion, to formulate specific recommendations. I cannot imagine that Marineland would meet modern accreditation standards for animal exhibits, and judging by the relative amounts being spent on these exhibits compared to other attractions on the site I see little evidence (with the possible exception of the new killer whale pool) that improvements have a high priority with the site's owners. My preference would be for Marineland to phase out its animal exhibits—particularly the terrestrial ones, which do not form in any event one of its major drawing cards. Failing this, I would at least like to see the following:

1. Considerable reduction in the density of animals within terrestrial exhibits, to reduce fighting and to promote normal social behaviour;
2. Provision of adequate water and shelter for all animals;
3. An immediate halt to public feeding, particularly of the bears;
4. Veterinary examination of the bears in particular to determine if their unnatural diet has harmed them in any way;
5. Development and mounting of proper signs, giving such basic information as full scientific name, geographic range and conservation status for all animals on exhibit.

SAMANTHA LINDLEY, M.R.C.V.S. (veterinarian)

Dr. Samantha Lindley has been a qualified veterinarian in the United Kingdom for nine years. She has worked in mixed practice with experience with farm and companion animals, as well as exotic animals. Dr. Lindley has worked with behaviourist Roger Mugford in the field of animal behaviour. She is also a lecturer to veterinarian students at British universities.

In 1994, Dr. Lindley was involved in a successful international rescue operation removing a tiger family, two baboons and a Canadian black bear (repatriated to a Canadian sanctuary) from a small holding in Eire.

She has also carried out numerous welfare audits on zoos and circuses for the Born Free Foundation, the Irish Society for the Prevention of Cruelty to Animals, the International Animal Welfare Alliance, the Alliance for Animal Rights and the Captive Animal Protection Society.

Report on Marineland, Marineland Parkway, Niagara Falls, Canada.

Visit date August 18, 1997

My first impression of Marineland is that this is a park which cannot decide whether to be an amusement centre, an animal feedlot or marine circus.

Of particular note are the vast walkways, trimmed by not inexpensive paving. Yet, to look at the impoverished state of the deer, elk and bison enclosures, one might assume that this is a park on the brink of insolvency.

There are areas of what appears to be landfill; there is grass and woodland—all of which would provide a more suitable habitat for the animals than that which they occupy at this time. The irony on leaving the deer park was to encounter the grass verges being mown, whilst the deer and other ruminants grazed dirt.

Provisions for public health and safety raise serious concerns. The risk of injury, zoonotic disease transmission and risk to animal health is high in every area of the park. The spectacle of children leaning over to be "kissed" by an orca or to hug a dolphin is irresponsible from a public safety perspective, and no longer considered an appropriate conservation message.

The **general theme** of Marineland gives a sense of the medieval. Sadly, this is in keeping with the attitude it fosters regarding our relationship with animals. Not only are they reliant on the keepers for their food and shelter (such as it is) but they must beg for both food and attention. In the case of the deer and elk, they have to relinquish shade and shelter and overcome their natural flight responses to obtain it.

The marine mammals must perform tricks and be seen to have been "vanquished" by humans for the sake of entertainment, before they are "rewarded". Such is the educational message available to the public at Marineland, in particular the children.

These are the general impressions of the author, perhaps formed more strongly because, in the UK, there is now nothing equivalent to Marineland. Dolphinariums used to be common in Britain, but latterly the public regarded such institutions with more distaste than interest. Seals and sea lions continue to be kept in UK zoos and some are still made to perform tricks, but there continue to be problems with their husbandry and criticisms of such a spectacle.

The more specific comments on the husbandry and welfare of the animals are set out below:

THE DEER PARK

The does and bucks appear to alternate in their occupation of the two available paddocks. The term is used loosely for they are dirt and shale enclosures, one with concrete walkways for the public.

There are signs warning that children be supervised, but no official supervision operates

and consequently the public behaves as they wish. Indeed, I observed members of the public feeding the deer Marineland brochures. The deer crowd around the public, pulling cartons of food from their hands with children shrieking and running amok amongst them.

It is questionable as to what else the deer are fed; there are empty hayracks in the rear enclosure but no evidence of provision of roughage. These are animals adapted to spending long periods of the day grazing and browsing. High levels of concentrate-type food disrupt the acid-base balance of the digestion, leading to ill thrift and occasional acute abdominal problems. Behaviourally, denying access to grazing and/or other types of roughage deprives the deer of any oral occupation. This can lead to abnormal behaviours such as displacement activities, but more commonly many of the deer are attempting to graze the dirt. The ingestion of soil irritates the intestinal lining and contributes to digestive problems.

Many of the deer are listless, pruritic (itchy) and badly bothered by flies. There is almost no shade and only one automatic drinker was seen, despite there being upwards of one hundred animals. Many of the females are scarred; this may be as a result of self-trauma, lice or old myiasis (fly

strike/maggot infestation) wounds, but some sores are still fresh and attracting the flies.

The males are confined behind a double gate. They too have no shade or shelter and apparently only one automatic drinker. Most were shedding their velvet when the author was present, but there was no provision of any natural substrate against which they could rub.

The result was a most unhealthy looking shed, with flies surrounding the bloody antlers and dried blood all over the gates and the drinker.

These enclosures do not mimic the natural habitat of the deer in any way. The substrate is entirely unsuitable; the dry gravelled dirt will irritate the delicate interdigital skin and predispose the deer to acute lameness from Fusiformis type infections, particularly in damp conditions.

The paddocks will be muddy at times and there is no evidence of any shelters. The deer are overcrowded, which may predispose them to carrying a heavy parasite burden—one hopes that worm control is more efficient than fly control in the husbandry of these animals.

From a **public health** point of view, there are no warnings regarding the washing of hands after handling the deer. Infections from bacteria such as E.coli, Campylobacter and Salmonella spp could be easily passed on.

The Red Deer, the Elk and the Bison

The red deer have an inadequately sized shelter and no evidence of hay fed throughout the day. Again, the handouts from the public draw them away from what little shade there is to lie in groups against the fence. The ground is far flintier than in the deer park and more damaging to the feet. The problems of dirt grazing apply to all three species.

The fencing between the deer and the elk is poor and has been shoddily repaired with mesh that is buckled and twisted. It poses a threat to youngsters when they force their heads through and is a source of injury from rubbing.

The older elk are well grown, but the younger ones are thin and appear possibly to be undernourished, either because there is too much competition for food or because of a heavy endoparasite burden. Scarring and open wounds are commonplace and the distress caused by flies as acute here as elsewhere.

The bison exhibit attracts the same criticisms; it is an overcrowded and barren enclosure and an utterly pointless source of miseducation for the public.

THE BLACK BEARS

Here we discover the only sign in the park and it tells us about the variation in colour of the black bears, that they are fed on meat, fish, fruit and vegetables but that they have been known to like sweets and honey.

Such is the reasoning behind selling vast quantities of marshmallows to the public to spend the day **feeding the bears**. This in turn encourages them to beg and precipitates much aggression between competing individuals. There are many bears with torn ears and scars which is evidence of frequent fighting. The author counted twenty-nine bears which is far too high a number to have in such an enclosure.

There are only three den entrances visible and no areas of get-away or shelter either from the public or from other bears.

The enclosure is barren and the pool from which the bears beg is filthy, despite the fact that it appears to be their only source of drinking water.

In common with many such exhibits, the public look down on the bears which, due to their inability to escape scrutiny, is universally considered unacceptable by experts in bear husbandry.

Many of the bears are displaying **stereotypic behaviours**; those functionless, repetitive movements that initially arise from conflict and eventually signal the development of a psychosis. These behaviours are seen commonly in bears (and other species) in captivity and, far from being a sign of "coping" as is sometimes claimed, they can be more accurately described as a failure to cope and a reflection of mental suffering.

In terms of **physical health**, the feeding of sweets by the public is irresponsible and will lead to a high incidence of caries, dental abscessation with consequent pain and possible systemic infection. Who would regularly feed a child a diet of sweets and not expect to pay a high price in dental disease and obesity?

Public safety at this enclosure is abysmal. The likelihood of a child taking a tumble over the edge of the pool is high, since there is no standoff. The wooden posts that line the sides of the pen have 4-6inch gaps between them and, in places, are no higher than five feet and could be easily breached from either side.

In short, this is essentially an overcrowded pit that does nothing for either the welfare of the bears or the understanding and safety of the public.

THE MARINE SHOW

It seems inconceivable to have to comment on the inadequate size of the orca pool. There can be no possible excuse for keeping these animals in such a confined and barren environment, where they can perform none of their natural range of behaviours and where they are isolated from their family groups.

Training and Behaviour

The insistence that only "100% total positive reinforcement" training is used with the animals is misleading. No training can be 100% positive, i.e., only desired behaviours are rewarded.

Such a training would be protracted and limited since one would have to wait for the animal to perform spontaneously a given behaviour, match a command signal to it and simultaneously reward it. This is called "instrumental learning" and is a useful technique for many species. It is, by its nature, limited to those behaviours that would normally be performed.

It may well be that much of the training has been achieved in this way, but where the trainers make a virtue of their methods they then go on to demonstrate the "**time out**" technique. It is my opinion that this is a very powerful punishment for intelligent animals who rely on humans for food and affection/attention. The "time out" technique relies on withdrawing attention and affection in the hope that the animal will then work harder to obtain these considerations.

It is a punishment used widely in training dogs and indeed children (a child having a tantrum in public will soon stop if no one takes any notice and the parent pretends to walk away). It removes the need for confrontation and physical punishment and in these respects is more humane and often less confusing than other forms of reprimand.

However, it is open to exploitation; a child who appears to be misbehaving may be genuinely distressed; a dog who is growling may be suffering pain— withdrawing attention repeatedly in these circumstances will create further distress and psychological problems.

Using this technique with the whales in order to get them to perform tricks for the umpteenth time in a day is likely an exploitation of this punishment and should not be described as "positive reinforcement".

It was noticed that one of the sea lions mistimed the juggling trick and was not rewarded even when he repeated it correctly. Not only is this poor

training but also is a good example of how the whims of the trainer can randomly and confusingly punish the animal.

Physical Health

The painting of pools blue/green is solely to facilitate spectator viewing. However, the consequently high reflectivity of the pool base in sunlight increases the risk of photophobia developing in the pinnipeds.

The intensity of the reflected light causes a reactive blepharospasm (spasm of the eyelids) which, if it occurs frequently, can lead to a secondary keratitis (inflammation of the surface of the eye). Even without a keratitis there is discomfort; the equivalent of humans having to constantly squint and blink in bright sunlight.

Splash, one of the sea lions being used in the dolphin show, presented with what appeared to be blepharospasm. Whether this was due to the bright spotlights being used or a more chronic condition is not possible to say since there was no public access to the holding pools for the seal and sea lions.

The Dolphins

It would appear that, not only do the two dolphins have an extremely small pool in which to live out their lives, but they also have no access to the open air as the pool is entirely indoors.

The downstairs viewing means that the dolphins have to confine themselves to the back pool for privacy. The noise created by the acoustics of the auditorium above and the shouting children at the poolside may be distressing to the dolphins and interfere with echolocation and communication.

The arguments that the dolphins "appear happy" or that they would not perform if they did not want to, have no basis. First of all they are easy to train and there is after all, precious little else to occupy their intelligence and interrupt the tedium of their barren environment. Secondly, the dolphins are constantly rewarded with food for doing "tricks". However, the measure of the enjoyment of an activity, is whether or not the behaviour would be performed for its own sake. Thirdly, there is no choice for the dolphin. Performing an activity when it is the only available option is not a measure of the desirability of the behaviour.

Mental and physical disease is the result of failing to adapt to stressful situations, even when there are no outward signs of distress. Anecdotal stories of dolphin "suicides" in captivity abound and could be dismissed on the grounds of anthropomorphism, although psychotic behaviour can lead to self trauma and death. But in attempting to provide care for an animal,

humans must give that individual the benefit of the doubt that removal of its normal environment, social structure and behavioural repertoire will have a detrimental effect on its health and wellbeing, whether or not that reflects in its physical appearance.

RECOMMENDATIONS

Bears:

1. Use the earth from the new aquarium site to build up and landscape the bear enclosure to provide get-away areas.
2. Stop the public feeding of the bears. Erect stand-off barriers to discourage their now habituated begging behaviour and vary the husbandry. For example, disperse food at irregular (both spatial and temporal) intervals throughout the enclosure thereby reducing competition and providing forage; place logs and fresh branches in varying positions throughout the enclosure and provide boomer balls etc.
3. Provide fresh drinking water and clean up the pool in the bear exhibit, providing filtration.
4. Use contraceptives to stop any further breeding by the bears.

Ungulates:

5. Use existing grass and woodland to disperse the deer population throughout the park.
6. Stop any further ungulate breeding by instituting management changes.
7. Stop feeding by the public and provide hay where there is reduced grazing.
8. Rotate existing paddocks; plough and seed. Provide more shelters for the short term.

Marine Mammals:

9. Immediately cease breeding marine mammals at Marineland.
10. Stop the marine performances. Use the existing stadia for presentations regarding the difficulties of keeping marine mammals in captivity.
11. Retire the existing orcas and dolphins to an ocean pen, and discuss the rehabilitation and release possibilities with cetacean biologists.

General:

12. In the short term, disperse the entire animal collection to more spacious accommodation.

13. Next, expand the amusement side of the park and diminish and eventually dissolve the animal collection.

JOHN GRIPPER, M.R.C.V.S. (veterinarian)

Dr. John Gripper is a veterinarian who has spent over 30 years in general practice in the United Kingdom. During this time he was a wildlife vet at the Cotswold Wildlife Park, Burford, Oxfordshire. He has been an appointed zoo inspector in the U.K. since the Zoo Licensing Act came into operation in 1984.

Dr. Gripper is an Advisory Director of the World Society for the Protection of Animals (WSPA) and a member of its Zoo Task Force. He has advised WSPA on the construction of bear sanctuaries in Greece and Turkey. On behalf of WSPA and the Born Free Foundation he has visited zoos in many countries around the world including Canada, Belgium, Croatia, Greece, Hong Kong, Lithuania, Romania, Russia, Siberia, Slovakia, Sweden, Taiwan, Tanzania, Turkey, Ukraine, the United States and Zimbabwe.

He is Chairman and founder of the Sebakwe Black Rhino Trust that supports a free-range black rhino conservancy in Zimbabwe.

Editors Note: The following assessment by Dr. Gripper of Marineland of Canada is taken from a report previously published by Zoocheck Canada Inc. and the World Society for the Protection of Animals. The report is entitled: Zoos in Ontario: An Investigative Report (1995:A.1).

Date of Assessment: 30 July 1995

Species

- Dolphins 3+
- Orca Whales 5+
- California Sea Lions 2+
- Grey Seal 1+
- Elk 40+
- Fallow & Sika Deer 500+
- Black Bears 50+
- North American Bison
- Red Deer
- Fish Pond with Carp

Accommodation

The marine mammals are currently housed in pools designed for public display which are very limited in space. I was informed by zoo staff that a larger pool would soon be constructed for the Orcas and the dolphins would be moved into the existing Orca pools.

The elk, deer, bears and bison are overcrowded and have virtually no shade or shelter to protect them from the sun. The enclosures are barren (no grass, bushes or trees) and have a soil-based floor. No attempt has been made to environmentally enrich these enclosures.

Food & Drink

Feeding by the public is actively encouraged and food is on sale for the bears, deer and fish. Marshmallows are sold as feed for the bears. I was told by zoo staff that the marshmallows "build up the bears fat layers". This feeding by the public encourages the bears to spend most of their time standing or swimming in their water area, begging for food.

Abnormal Behaviour

The marine mammals are trained to perform tricks for public entertainment. The dolphins and seals perform eight times daily and the Orca Whales and sea lions, six times daily. I believe this to be an excessive and stressful number of daily performances.

The bears constantly beg for food which results in aggression and fighting. The deer in the petting park are very tame and continuously crowd around the public seeking food.

Animal Health

The animals appeared to be in good physical health, except for one bear with injuries to its nose, probably a result of fighting. I also observed a number of bears with scars. I am concerned about the very close contact between the public and the deer herd due to the potential for the spread of human tuberculosis infection to the deer.

Education

Minimal attempt is made to educate the public about the animals on display. Some of the animal exhibits have only the name of the animals, but no more than that. Others, such as the bear enclosure and fish feeding lake, do not even have the species name. The exception is some good educational plaques for the dolphins.

Conservation

There appears to be no conservation justification for this collection.

Conclusions

This appears to be a very successful commercial enterprise which attracts large crowds to the amusement rides and marine mammal shows. The main objective seems to be public entertainment.

The other animal exhibits are not as popular. The animals are very overcrowded in barren enclosures with no attempt at any environmental enrichment. The bear enclosure is particularly bad. The bears are overcrowded; have no enrichment, such as tree trunks to encourage climbing; and exhibit aggression and abnormal behaviour caused by feeding by the public.

It would appear as though there is no financial excuse for Marineland to keep and display animals in such poor enclosures without any apparent care given to animal welfare.

This zoo would fail an inspection under the standards of the U.K. Zoo Licensing Act.

Recommendations

1. In my opinion large marine mammals, like Orcas and dolphins, are unsuitable for captivity. However if they are to be kept in a captive environment, then the pool size should be increased to at least the proposed CAZPA minimum standards. (Dr. Gripper is referring to draft standards being considered at the time - but never made public to the best of Zoocheck's knowledge - by the Canadian Association of Zoological Parks and Aquariums, since renamed the Canadian Association of Zoos and Aquariums (CAZA).

2. The number of daily marine mammal performances should be reduced. Performances should be based on more naturalistic behaviours, rather than circus-type tricks.

3. The bear enclosure:

- Should be improved with a more natural environment and the introduction of modern enrichment to encourage the bears to climb, play and forage for their food;
- The number of bears should be reduced to no more than ten;
- Feeding of the bears by the public should cease;
- The enclosure and the water should be kept clean.

4. New enclosures should be constructed for the Elk, American Bison and Red Deer. The enclosures should be more akin to their natural habitat and

should contain grazing areas and shade for protection from the heat. The number of animals should be drastically reduced in accord with the enclosure space available.

5. The deer petting park should be reconstructed on a more natural site. A smaller herd should be kept and public feeding carefully controlled.

6. If these recommendations are not carried out, then the zoo and aquarium sections of this theme park should be closed.

BRENDAN PRICE, M.Biol. Inst. Irl.

Brendan Price is a founder of the Irish Whale and Dolphin Group, which secured the Irish Whale and Dolphin Sanctuary. He is now the Director of the Irish Seal Sanctuary, Ireland's only full time, professionally run Wildlife Hospital, Rescue and Rehabilitation Facility. The Irish Seal Sanctuary is Ireland's highest profile wildlife organisation.

Mr. Price's pioneering work for the welfare of captive wildlife was early recognised by the British Council, who sent him to the world-renowned Jersey Wildlife Preservation Trust. He worked at Ireland's national zoological facility, the Dublin Zoo, for 9 years. Since that time, he has secured two government enquiries into the Dublin Zoo, and continued to work with seals and other creatures, specialising in release projects.

Mr. Price is a member of the Institute of Biology of Ireland. He is also qualified in Wild Animal Management (1st Distinction). He and his wife, Mary, have won all Ireland's major independent environment, conservation and animal welfare awards.

I visited Marineland of Canada in Niagara Falls on two occasions: October 7, 1995, and again on August 29/30, 1996 to inspect the facility. (Unless I note specifically findings pertaining to a particular visit, my comments are common to both visits). My findings are as follows:

Orca Facilities and Show

The facilities comprised three pools shared by three resident orcas: two adult females (Kiska and Knootka) and one adult male (Kandu). Kandu, the male orca, was confined to one of two holding pools on each side of the main show pool. These circular side pools (approximately 25 feet in diameter) merely allowed Kandu to circle in a space less than one and a half times his own length.

During my October 7, 1995 visit, when not performing, Kandu merely rested against the side of the pool, rarely moving. He demonstrated evidence of a sunburn in that he had a blistered head, his head was dressed with a cream, and he was lying in one particular area with his head above the surface and without access to shade. The filtered water was gin clear and the side pool was painted a bright reflective colour of blue and white with a pane of Plexiglas in front of the show pool. This apparently intensified the heat and burning action for the animals whose natural defence would be turbid water, rich in suspended matter, which gently filters all dangerous light. The colour scheme, which is reflective and throws back heat and light, is generally disapproved of in the industry.

Kandu's underlip was also abraded. This abrasion appears to have developed through chafing at the walls and edge of the pool.

The show pool was kidney shaped and approximately 75 ft long x 25 ft wide x 20 ft deep. Either Kandu or Kiska and Knootka occupied the show pool, but were not seen together during my visit. The performance was a lacklustre show of mediocre leaps (no other sort possible in small confines), tail lobbing and splashing with foreflippers, rewarded by minuscule portions of herring. All three orcas displayed drooping dorsal fins. Kiska and Knootka, when returning to the holding position, were almost as lethargic as Kandu.

A new facility under construction, identified as the "Research and Breeding Pool", was viewed and video-recorded by Zoocheck Canada, as were all exhibits. The entire facility could only be considered satisfactory if taken as a first step to training these animals for release, obviously not the intention of the owner.

On August 29 and 30, 1996, to my horror, I found that the facility had deteriorated even further. It appeared, based on water clarity and the amount of stored chemicals in a work area which I observed, that sodium hypochlorite was being used to maintain water clarity in the main show pool in a quantity that may have been a potential risk to the health of the animals. Kandu was more lethargic than on my previous visit and was only barely stimulated to even eat, and appeared to be no longer participating in shows. A calf had been born and was swimming in the main show pool. The new pool ("Research and Breeding Pool") had still not come on stream.

Bottlenose Dolphin Facilities and Show

Three female bottlenose dolphins occupied two internal enclosures with access to what could only be described as a crude, small theatre/stage pool, sized approximately 40 feet in diameter, and 15 to 20 feet deep. The internal enclosures appeared to have diameters of about 20 feet. I noted skin problems and a degree of aggression between one dolphin and the two others. In conclusion, I would have to condemn the form and content of the dolphin show at Marineland.

Bear Exhibit

Due to time constraints, I was not able to view the bear exhibit at length. However, I noted that the enclosure was large; there were numerous bears; and water in a moat from which bears begged for marshmallows appeared to be putrid. During my visit on August 30, 1996, one of the bears was killed by another bear in full view of the public. I arrived as the bear was being removed. There was still blood in the enclosure. I heard first-hand accounts from others who witnessed the incident.

Elk Exhibit

I visited during elk rutting season, and there were clearly too many male elk, some obviously intimidated and nervous, exemplified by their desire to stay away from the main group. There were no signs of mineral licks, and the paddock was bare without protective cover, and overcrowded.

Fallow Deer Exhibit

Some hundreds of these deer were contained in a mock-walled garden/deer park. All the hinds were together with the public allowed to circulate freely through them. Only two drinking basins and no feed or mineral licks were visible. Although there were no clinical signs of disease on a grand scale, the deer appeared thin and in poor condition for the time of the year. A few deer were afflicted with lameness and diarrhea.

The stags were not present in the main enclosure, but I witnessed the most incompetent display I've ever seen of corralling and catching deer in an adjacent enclosure. Autumn is the commencement of rutting season and half a dozen workers were observed roving through the stags swinging totally unnecessary lariats (one attempt in 6 was successful) to catch them, drag them back and saw off their antlers. The damage done to the deer who were constantly stampeding due to insufficient confinement was incalculable. This damage was brought on directly by the methods of the workers who were totally inefficient and wrongly equipped for the job. It was a tragic scene and could easily have been misunderstood for slapstick comedy. If this misadventure (away from the display enclosure and fortuitously spotted and filmed) reflects the levels of skills and management of this "wildlife facility", the wildlife displays should be shut down promptly.

Overall Conclusions

This report can at best be considered kind to the proprietors. Had I been allowed to examine conditions at greater length as well as behind the scenes, with access to records, it likely would have been all the more damning. I believe that any informed observer, upon viewing the facilities at Marineland, could not fail to be repulsed, or struck by pity. The reluctance of the owners to correspond back with me, having left my requests and cards, does not indicate to me a willingness to discuss the problems at this facility.

RICHARD FARINATO

Richard Farinato directs the Captive Wildlife Protection Program for The Humane Society of the United States (HSUS). This program deals with any and all situations where wild animals are kept in captivity. Farinato has extensive professional training and experience in the management of native and exotic wild animals, including 15 years in zoos.

He has worked directly with numerous species of fish, amphibians, reptiles, mammals, and birds; and has managed two zoological facilities with staffs of 12-20 animal keepers. He has also taught domestic and wild animal husbandry starting with a Peace Corps assignment in Ecuador in 1968, and continuing in Latin America while in the zoo profession and after joining HSUS in 1993.

On the Friday of Labor Day weekend (August 30, 1996), I visited the facilities of Marineland of Canada in Niagara Falls, Ontario. During this visit, I focused on the exhibit areas for the terrestrial mammals (bears, deer, elk, bison), specifically in light of the standards under which such exhibits are examined by United States Department of Agriculture (USDA) inspectors as promulgated under the federal (American) Animal Welfare Act (AWA). The following observations are my opinions based on more than 15 years of zoo experience, and on undergoing at least 15 years of inspection by the USDA of facilities I managed.

Bison, Elk and Deer Enclosures

Exhibits for bison, elk and deer consisted of three fenced paddocks in a row, viewed from the front fence of the enclosures at what appeared to be the end of the developed area of the park. The paddocks consisted entirely of level bare earth; no trees or grass existed in these areas due to the large number of animals housed in each. In each paddock, there was a shelter consisting of an open-sided shed. The only water available for groups of up to 50 animals was from a small round automatic water dispenser. The only shade for these animals came from the small shelter and the solid portions of the fence line that made up less than 25% of the enclosures, and thus depended on the angle of the sun.

In my opinion these enclosures would not meet minimum American AWA standards for zoo animals because there was insufficient shade and shelter from the elements for the animals in them, as well as watering facilities appropriate for the number of animals displayed. It would be impossible for even a quarter of the animals housed in these enclosures to find shade or shelter. In addition, there was no public barrier to keep visitors away from the actual wire fence of the paddocks, and the capability of the fencing

material to contain the animals exhibited was questionable in my opinion. These points are also potential violations of the American AWA.

Fallow Deer Petting Area

The entrance to the fallow deer contact area is an elaborate structure designed like a medieval castle. Once through this structure, the visitor enters an outdoor courtyard leading to a double set of tall metal gates into the deer enclosure. This paddock was very large; at a guess, it was about the size of a football field. The terrain was level, with a broad concrete oval track that encircled the base of a small hill in the middle of the paddock. Two small kiosks at the far end of the paddock sold deer pellets.

Once again, aside from the concrete oval track, the entire paddock consisted of bare dirt, no trees, no grass, no vegetation of any kind inside the fence, as well as no shelters for animals. There were approximately 300 deer in this paddock. People were allowed to roam amongst this herd freely. Several of the approximately 30-40 people who were in the paddock when I visited were feeding the deer.

I was able to ascertain the presence of only two staff people, neither of whom appeared to have any responsibility for supervision of activity within the contact area. One person was inside the kiosk dispensing pellets; if an emergency had occurred somewhere in the paddock, this person would have been delayed in acting by having to exit the kiosk. The second staff person was operating a street sweeper along the oval track, to clean up the deer droppings. Given the number of deer and the number of young children, including toddlers and infants in strollers, in the area; the lack of staff supervision; and the indiscriminate feeding of the animals which produces mobs of deer around individuals with food, I would assess the situation as dangerous. I observed two instances where adult deer clambered up onto the people trying to feed them pellets.

Several animals appeared heat-stressed, but the lack of shade left them no choice but to sit in the full sun. Only two small water dispensers appeared to serve all 300 or so deer.

This exhibit would likely be cited in violation of American AWA regulations for zoo animals in the following areas: inadequate watering facilities, shade, and shelter. In addition, the fact that supervision of both animals and people was non-existent or inadequate could also be cited as a violation.

Black Bear Enclosure

The exhibit is typical of moated naturalistic bear enclosures in many zoos across North America. Artificial rockwork forms the majority of the rear of

the exhibit, and provides dens for the bears. The sides were made up of palisades of utility poles with electrified wire along the top. The entire front of the exhibit is a water moat of sloping concrete abutting a vertical wall.

The terrestrial portion of the enclosure was upward sloping, rocky dirt with some grass. This land area was, at a guess, about 150 ft long and 50-60 ft wide. The moat was quite large and had at least one island in it; it ran the entire length of the near wall in an arcing sweep and was approximately 30 ft wide. It was 5-6 ft deep, as several bears were standing in it; several bears were also standing on the island. The water was green-tinged and had zero visibility. The moat appeared to be the source of drinking water as well as a swimming area.

There were at least 30 bears visible in this enclosure. They ranged in size from one small animal to a very large cinnamon-phase animal. Most were in various stages of molt and some had bald patches of skin showing. About 20 of them were in the moat, begging persistently for food. The public was able to lean over directly above the moat. A kiosk dispensed small marshmallows in sugar cones and the public fed both of these to the bears at a constant rate. There was no other type of food visible in the enclosure.

The outer perimeter of the entire exhibit was accessible to the public. From the side to the back, there was no security at all – no staff, no secondary barrier. In the back, two scaffolds allowed easy access to the top of the fence. The top of the "caves" was easily accessed by a sloping bank covered in vegetation that led directly up to this area in the back. A chain-link gate led into the exhibit; a fairly large gap between the gate and the fence would have easily allowed a child to reach into the enclosure, where a bear could come in contact with him/her. I observed a bear at the gate; I could easily have reached in and touched the animal, and at one point it stuck its snout well out through the gap. At the bear exhibit it became clear that the entire back side of the park had no perimeter barrier; the public can enter from the back at will (and if animals escaped, they could easily leave the park).

In my judgement, this exhibit is an example of poor bear management in captivity. The water quality in the moat, the visible lack of available clean drinking water, and the totally inadequate security arrangements would be cited as violations of American AWA standards for zoo animals. Indeed, the entire park would not meet AWA standards, as the lack of perimeter fencing means the public cannot be kept out and the animals cannot be kept in.

On the day of my visit, I also observed a situation at the bear exhibit that was professionally inappropriate; the time was roughly 11:00 am. The dead body of a large bear was sprawled across an island of rocks in the moat. Dried pools of blood were evident on the rocks around the body. From the position of the body and its overall appearance, I would guess that the bear

had climbed out onto the rocks and died there sometime during the early morning hours.

As I watched, two zoo staff persons arrived at the exhibit and asked visitors to move away from the moat railing. Then, a small front-end loader with three men on it appeared in the exhibit and drove down to the edge of the moat. One man waded out into the moat with a rope to attach to the body of the bear, which then was eventually pulled to the front-end loader, and placed in the bucket of the machine to remove it from the yard.

During this entire procedure, which lasted about 20-25 minutes, the bears in the exhibit proceeded to move about, showing interest in the men, the machine, and the body. The three men in the exhibit had no visible means of protecting themselves from the bears around them. The two staffers in the public area simply shouted at the bears to stay away as the process went on. Neither of them had any means with which they could prevent or control or terminate any attack on the workers in the yard by the bears, or with which they could prevent the bears from attacking each other in a situation made tense by the presence of the men, the machine, and the dead body. I watched in amazement as the man assigned to retrieve the body waded out into water as deep as his shoulders in the moat, with bears in the water within 20 feet of him. In all, it was merely luck that no other animals or people were injured or killed.

Professional practices would dictate other methods. First of all, if the body was discovered in the exhibit at the start of the workday, it should have been removed before the zoo was opened to the public; the presence of the public always complicates such an operation, and provides one more unpredictable entity that might affect the operation. Second, other animals in the exhibit should have been confined to night quarters or holding areas for the removal of the body; to work in with that number of bears is courting disaster. Third, some means of preventing or controlling the interaction between bears and staff should have been on hand during the operation; tank trucks with high pressure hoses, or fire extinguishers, or pellet guns, or other tools, weapons and staff capable of controlling or killing a problem or escaped bear should have been present. In all, the performance of this operation put staff, bears, and public at risk.

Conclusion

Based on my observations of terrestrial mammal facilities on the day I visited, those exhibit areas of Marineland of Canada would not have met the standards of the American AWA.

DRAGOS G. FILOTI, D.V.M.

Dr. Dragos Filoti is a Doctor of Veterinary Medicine. He received his degree from the Veterinary University of Bucharest, Romania in 1992. He has technical experience in surgical procedures, anesthesiology, animal care, nursing and laboratory procedures. He is experienced with exotic species, including captive wild animals. He has a good knowledge of livestock biology and ethology.

Dr. Filoti's zoo experience is derived from being a Staff Veterinarian at the Bucharest Zoo from 1992 to 1996. At the zoo, Dr. Filoti and his colleagues emphasized prophylactic care, including general hygiene, parasite control and nutrition. As well, his responsibilities included diagnostic work-ups, surgical and obstetrical procedures, ethology and pathology. He was also involved in research activities, which included collection of physiological data, information on clinical pathology and sex determination. While still a veterinarian student, Dr. Dragos volunteered as a keeper at the Bucharest Zoo from 1988-1992. In that capacity, he was responsible for maintenance, feeding and general care of both healthy and sick animals.

While holding the position of Staff Veterinarian, Dr. Filoti collaborated with the British Born Free foundation in improving conditions at the Bucharest Zoo and with assessing zoos in Romania. He worked with BBC Television and BBC Wildlife Magazine on their feature State of the Ark, which showed the conditions in Eastern European zoos. He also collaborated with Munchen Television in Germany on their features on zoos and stray animals in Romania. In addition, Dr. Filoti spent six months assessing zoos in England on an invitation from zoo consultant Stefan Ormrod of the Zoo Task Force. Dr. Dragos speaks four languages: English, Romanian, French and Italian.

Date: July 31, 1997

BEARS

Family: URSIDAE

Species: AMERICAN BLACK BEAR (*Ursus americanus*)

Subspecies: EASTERN BLACK BEAR (*Ursus americanus americanus*),
CINNAMMON BEAR (*Ursus americanus cinnamomum*)

I visited Marineland on Thursday, July 31, 1997 where I observed 24 bears visible to public viewing. The bear enclosure was divided into two areas: a land area and a water area that for the purpose of this report I will call a pool.

The land area was an estimated 90m by 40m with no furnishings present that the bears could scratch, climb on or play with. Some of the bears were lying in the sun; others were occupying the pool area. However, before entering the water they would walk for 5-10 minutes along the edge of the pool while displaying stereotypic movements. This pattern was repeated when they were leaving the pool. A number of the other bears were trying to engage themselves in activity (e.g., digging, scratching, rubbing, etc.)—in accordance with their opportunistic nature—but would soon give up and lie down in the sun, go into the cave, walk along the edge of the pool, or go into the water.

The pool was an estimated 90m long and 15m wide, although at times its shape would be such that the width was less than 8m. The water was not deep enough to allow swimming and instead the animals walked on the bottom of the pool. There were five platforms made from a conglomerate of rocks, none of which exceeded 12 m².

A number of objects were seen floating in the water such as plastic straws, and paper and plastic bags. Marshmallows in wafer ice-cream cones were sold to the public as bear "treats" and when these were not eaten by the bears they were picked by gulls and a duck with four ducklings that were roaming the area.

There were twenty-four bears visible in the enclosure (6 black, 1 blond, and 17 reddish-brown), sixteen of which were in the pool and sometimes fighting over marshmallows.

Most of the bears had numerous scars; one of them had an open wound behind the ear and another one had half of an ear missing.

The animals appeared in adequate physical condition but there was a high risk of injury due to aggression from the stress created by the bleak environment, overcrowding and the provision of inappropriate treats (i.e., marshmallows in wafer cones). There was also the potential for the ingestion of foreign bodies and/or toxic substances that could cause mortality (e.g., plastic).

I suspect that injured or sick (diseased) bears have no separate enclosure for isolation or treatment if the need were to arise. There was no way that an outbreak of infectious disease could be prevented in this overcrowded and bleak enclosure.

All the bears evidenced acute, abnormal behaviors—from stereotypies to intense apathetic and sensory deprived behaviors.

This enclosure serves no purpose in education or conservation; it is actually a bear-pit that originally had been developed from pit-traps used by early Neanderthal people.

RECOMMENDATIONS: BEARS

A. Exhibit Enrichment

1. The enclosure should be furnished with appropriate timbers for scratching, climbing and rubbing. Platforms should be installed in the short term for climbing. The entire enclosure should be extended into the wooded area to allow the bears access to already established trees. With a smaller bear population [see recommendation C (1) below], the trees would be able to withstand the activity of the bears.
2. Shallow pits containing leaves, sand, wood chips and even peat soil should be installed in the bear enclosure to stimulate the bears' natural digging and rubbing behaviour. These must be raked over and enriched (for e.g., by adding leaf mould to the peat soil). This will provide olfactory, tactile and visual stimulus, greatly enriching the animals' lives.
3. Shade should be provided in the front of the bear exhibit where the animals are encouraged to congregate waiting for marshmallows.
4. Toys in the form of traffic cones, floatable containers, wooden balls and logs should be made available as soon as possible. Branches, grass, tussocks, and other materials should be provided daily.

B. Diet

1. Public feeding of marshmallow treats should be discontinued immediately. It is inappropriate for tourists to feed animals at all. A zoo animal's diet should be strictly controlled by zoo personnel.

C. Number of Bears

1. The number of bears should be reduced at Marineland relative to the size of the enclosure. Some of the bears could be transferred to other adequate facilities. Euthanasia should be considered in some situations where poor mental health of the animal is an issue, or where the bear population cannot be reduced through other measures. The latter would be

preferable to having the bears continue to live in the current inadequate conditions.

UNGULATES (HOOFED ANIMALS)

DEER

Family: CERVIDAE

Species: FALLOW DEER (*Dama dama*)

SIKA DEER (*Cervus nippon*)

The deer enclosure is a petting exhibit for adults and children. The fact that the public enters the exhibit influences some of the negative husbandry practices that I will discuss below.

I was told by a Marineland staff person that there were four hundred deer in the exhibit: 250 males and 150 females with young. Males were contained in a separate paddock from the females with young.

The male paddock was an estimated 180m by 80m with a concrete walkway that went around a small hill in the centre of the enclosure. There were no plants, nor trees on which the deer could rub their velvet off. Nor was there any shelter or shade in the whole enclosure.

At this time of the year, fallow and sika deer are mainly grazers and they need to take a great deal of energy and protein from the food they consume. Protein is used to grow antlers and strengthen neck muscles in the males and used in lactation in females. However, I could not find any fresh grass or hay anywhere. This is probably to encourage interaction with the visitors who purchase food pellets. In fact, the pellets were the only source of food I saw in the enclosure. The deer constantly congregate in the area where the pellets are sold. This means that the deer consume pellets during the day, to the exclusion of a healthier diet of grass and hay. I noticed some deer eating their own feces or that of other deer probably because of the lack of a complex diet.

There was one visible automatic source of water, but no shade in the male deer enclosure that resulted in the animals crowding next to the wall of the paddock where they would find some refuge from the sun.

Some of the male deer had problems in the development of the antlers that at this time had grown approximately 3.5-4 months. Some antlers were crooked; some deer were missing one or both antlers. I have reason to believe based on appearance this was not due to injuries but due to a recessive gene that might be transmitted within the herd. Possibly, there

were no attempts made to conduct systematic breeding or even put a halt to breeding altogether. There is a high likelihood that inbreeding has taken place.

Because of the close contact between deer and the public, metal objects such as keys, glass and plastic are a constant presence and could be ingested by the deer. The consumption of metal could cause "hardware disease" which is basically a perforation of the forestomach. Plastic could block the intestines and interfere with normal digestion.

The size and furnishings of the male deer enclosure were far from meeting with the demands of the natural behavior of this particular species.

I was told that the males would soon be moved into the back enclosure (where the females and young were), but I did not notice any trees for scratching the velvet off their antlers. The inability of the male deer to do so would encourage aggression that could lead to injuries.

Approximately four out of five males were tagged. Tagging was less prevalent in the yearlings. The scats in the male paddock were picked up every 15 minutes but only from the concrete walking path. This appears to have been done so that visitors would not step on them rather than being a hygienic concern.

The female deer enclosure was an estimated 60m by 50m, with no apparent water source and a shed approximately 8m x 4m x 4m. This shed was obviously not big enough for 150 females and young. There was only a little bit of hay present, and no trace of fresh grass. This supports my previous belief that the lack of hay and grass in the public paddock is to encourage interaction between visitors and animals through feeding.

In all, there was too much stock in both the male and female paddocks which were both bleak and uninspired environments.

DEER

Family: CERVIDAE

Species: RED DEER (*Cervus elaphus*)

I counted approximately 120 red deer. The paddock was an estimated 100m by 120m. There was virtually no vegetation with only two buckets of water provided, about 8 litres capacity each, which were half full with dirty water. Two sheds stood next to each other and measured approximately 10m x 4m x 4m each, neither of which was sufficient for 120 deer.

There was no hay, grass or any other food in the paddock. At this time of the year, males grow antlers and will eat for up to twelve hours a day, making the lack of food even more alarming. This pattern of food consumption is required both for its nutritional value, and to fulfill the behavioural requirements of the species.

About 30% of the deer were adult males; 65% were adult females, and the remaining 5% were young. With the arrival of keepers who picked up the scats, the red deer (as well as the elk and bison) would run over from the other side of the enclosure, probably in the hope of obtaining food and water.

No trees were seen that could be used to scratch the antlers and far too many males were put together with the females. This would lead to aggression among the males who are accustomed to protecting harems of females.

DEER

Family: CERVIDAE

Species: WAPITI (*Cervus canadensis*) (commonly known as elk)

I counted approximately 50 animals in this exhibit. Most of the herd consisted of females, except for two adult males (one without antlers) and three male yearlings. The paddock measured an estimated 100m by 50-70m. Again, no vegetation or trees were present which could be used as velvet scratching areas or to provide shade and/or hiding regions for the animals. Even with the small number of males in the enclosure, once again, the inability to remove velvet may increase aggressive behaviour. As well, there was a lack of water and food, such as hay or preferably, plants. At this time of year, Wapiti graze for 8 or 9 hours a day for energy production and for the normal development of antlers. I observed that the scats of the Wapiti were in the form of pellets that, at this time of year, should instead be soft, resembling the excrement of cows. In terms of shelter, one single shed I observed measured approximately 6m x 4m x 4m. Many of the points I made in the Red Deer, Fallow Deer and Sika Deer sections apply to the Wapiti.

BISON

Subfamily: BOVINAE

Family: BOVIDAE

Wild cattle/ Tribe: BOVINI

Species: AMERICAN BISON (*Bison bison*)

I observed an estimated 85-100 bison. This paddock was approximately 120m by 120m and was quite arid (as were the Wapiti, Red Deer, Fallow/Sika Deer paddocks). There was no food present. There appeared to be only two 8-litre buckets of water. Similar to the deer enclosures, the bison exhibit was bleak and devoid of behavioural enrichment.

In a small population of bison such as the Marineland herd, inbreeding and gene loss, through random failures in the transmission of some genes (genetic drift), are a real possibility and can have very harmful consequences (e.g., premature mortality and inherited diseases).

RECOMMENDATIONS: UNGULATES (i.e., DEER AND BISON)

A. Exhibit Furnishings

1. The paddocks must be restored and furnished with tree and grass plantings. Trees for scratching and for the provision of hiding spots from visitors should be introduced into the enclosures.
2. The hard standing (concrete) walk paths can be kept since they are used by the animals (Fallow Deer and Sika Deer) to keep their hooves trimmed.
3. Large sheds should be built and the size and shape should be particular to the demands of the animals' natural behaviors.
4. Water and food according to the seasonal and other needs of each species should be available at any time of the day. For example, there should be a drastic reduction made in the quantity of pellets provided to the animals. This could be partially addressed by eliminating all public feeding.
5. Marineland has enough space to build other paddocks in the surrounding area. This would be helpful because they would serve as new and more appropriate environments for the animals' needs while the old paddocks could be used for replanting grass and trees.

B. Balanced Groupings

1. It is very important for gregarious animals like deer to be placed in balanced groups in order to ensure their wellbeing. Male deer in the wild live a solitary life seasonally. In captivity, the males should be separated from females possibly using so-called "rutting fences" which are wooden posts with spaces. These allow only females and young to pass through but make passage difficult for males with antlers.

C. Public Access to the Fallow and Sika Deer Enclosures

1. Public access to the Fallow and Sika deer should immediately cease. All captive wildlife should be protected from hazard and disease that could result from exposure to people. This would also eliminate a human health and safety risk in exposure to transmissible disease from animals. Exhibit enrichment through the provision of trees, for example, would reduce human/animal contact by providing hiding places for the animals, and provide shade as well.

2. Until direct public access to the Fallow and Sika Deer enclosures is eliminated, and as a general warning at all exhibits, signs should be erected. These signs should warn visitors against feeding and touching the animals, and advise them to avoid introducing dangerous objects such as plastic or metal into the enclosures.

C. Population Size

1. The stock must be reduced to address overcrowding concerns. A population control program should be conducted for all deer species, and especially for bison, to eliminate the breeding of animals with physical abnormalities, and as well, overcrowding; and to create balanced groupings of males and females, appropriate to the species. Humane euthanasia should be considered where there are no other avenues for population reduction.

RECOMMENDATIONS REGARDING VETERINARY CARE FOR THE BEAR, DEER AND BISON

1. It is very important to prevent outbreak of disease, especially in these types of situations where there are large herds and where large numbers of bears are confined in small enclosures. The animals should be protected from diseases introduced by visitors, keepers and birds. The latter can pick up parasite eggs left by raccoons and foxes outside the mammal enclosures, and then transfer them into the enclosures, or between enclosures (i.e., gulls in the case of bear enclosures and rock doves in the case of deer and bison).

2. If not already in place, Marineland should establish adequate procedures for systematic fecal examinations and record-keeping thereof. Appropriate deworming treatments for animals should be conducted 2 to 3 times a year.

3. The records of vaccination (especially for rabies) should be kept for every individual. This is particularly important with the increasing risk of new rabies strains entering the province from south of the border.

4. Nutritional requirements for the animals at Marineland need to be improved. Optimal nutrition is the best prophylaxis against disease in wild animals.

5. Buildings for quarantined, sick or injured animals must be built within their familiar environment in order to protect them from adverse conditions such as stress.

CONCLUSION

From my general assessment, it is my opinion that there is not one terrestrial mammal exhibit in Marineland that could be deemed acceptable by modern zoo/biological standards. At a minimum, the standards for the unsatisfactory enclosures and inadequate level of care for the animals should be improved. As well, a progressive system of stock rationalization must be implemented.

Finally, although I haven't made detailed comments in the body of this report, the educational merits of the terrestrial mammal exhibits at Marineland were nil. Whereas the signs at the bear, deer and bison exhibits displayed little more than the species name, an accepted practice in a modern zoological facility is to provide information such as the common and Latin name of the species, geographical distribution (maps), normal behaviour, reproductive patterns, unusual facts about the species presented in a "Did you know..." format, status in the wild (e.g., endangered), etc. Further, because of the type of animal exhibits at Marineland, the visitors would learn nothing about the natural environmental or behaviour of the species exhibited.

In closing, I would be pleased to assist in the implementation of the recommendations I have outlined in this report.

MIKE McINTOSH

Mike McIntosh established Bear With Us near Huntsville, Ontario in 1992, an organization dedicated to educating people about bears and their behaviour, and to promoting coexistence between people and bears by reducing conflict. Bear With Us provides a "problem" bear complaint response and translocation service; rehabilitates orphaned cubs and injured bears; and offers permanent sanctuary for four non-releasable adult bears.

Mr. McIntosh has resolved many bear complaints directly through on-site prevention and intervention techniques. He has personally rehabilitated and released 53 bears, and translocated 81 bears to date. In fulfilling the educational mandate of Bear With Us, Mr. McIntosh delivers lectures to the public and prepares written materials on bears.

He is also a director of, and responsible for, the bear program, at the Aspen Valley Wildlife Sanctuary in Rosseau, Ontario. There he has been involved with the rehabilitation of an additional 24 bear cubs.

Bear With Us responds to complaints or receives bear cubs from the United States Fish and Wildlife Service; rehabilitation centres and zoos in Texas, Michigan and Massachusetts; the Manitoba Department of Natural Resource; the Ontario Ministry of Natural Resources (OMNR); and from many districts in Ontario including Thunder Bay and Kenora. Mr. McIntosh works closely with the local branch of the OMNR in dealing with wild bear problems, as well as the Huntsville and Burks Falls Ontario Provincial Police.

Mr. McIntosh is a member of the International Wildlife Rehabilitation Council and a member of the International Association for Bear Research and Management (IBA).

Editors Note: Mr. McIntosh attached photo exhibits to his submission which are not reproduced here; however, the photographs are referenced throughout the report.

July 20, 1997. I visited Marineland for the sole purpose of observing the bears on two occasions, September 18, 1994 and a follow-up on July 19, 1997. A brochure produced by Marineland advertises "up to 70 bears" in a single enclosure. I counted 45 during the 1994 visit and 30 during the 1997 visit. There may have been some bears that I couldn't see at the back of the enclosure in the cave area.

The bears at Marineland are subjected to overcrowding which causes extreme stress to these animals, generally solitary by nature. Overcrowding commonly results in fighting. Probable evidence of such fighting can be seen in the bears at Marineland in the form of major injuries such as deep gashes,

cuts and broken jaws. I have been informed of at least two occasions, although I did not personally observe them, where bears have killed each other in front of the general public. *Editors Note: Mr. McIntosh references photos 1,3,4 and 5 in support of these opinions.*

There is no shade area from the sun that the bears are encouraged to occupy. Instead, the bears are encouraged to come to the front part of the enclosure, without protection from the sun, by the tourists feeding the bears marshmallows that are purchased in an ice-cream cone for one dollar each.

The absence of shade near the front of the enclosure, in addition to the glare off the water from the hot sun, is a threat to the bears' vision, and in fact, may have caused or contributed to vision problems including blindness which I observed in three bears during the 1994 visit.

A continuous diet of marshmallows can be expected to cause severe tooth decay and gum disease. In some cases that I observed at Marineland, the bears' teeth have fallen out and the gums are extremely swollen and very sore looking. In my professional experience handling over 200 bears, I have never seen bears, either in the wild or in captivity, with teeth in such poor shape. *Editors Note: Mr. McIntosh references photos 1 and 2 at this point.*

The bears appear to be in very poor condition as can be expected from what seems to be a substantially tourist-fed marshmallow and wafer cone diet. This is indicated by the very dull appearance of their fur, their shaggy look and by the very slow molt as noticed in September 1994. Bears were still losing their fur from the previous winter. In contrast a healthy bear would molt in June or July with their fur being shiny within a few weeks after the molt begins.

I was able to observe and recognize four bears during the July 1997 visit from the September 1994 visit. Missing was the bear with the severe gum disease and the broken jaw and the bear that was totally blind. I also counted fifteen fewer bears.

This raises other questions. Where does Marineland get their bears? What happens to the severely injured and diseased? Why does Marineland have an excessive number of poorly cared for animals rather than caring for fewer properly? Why does Marineland feel the need to advertise 70 bears, 500 deer? There are excessive numbers of elk, red deer, fallow deer and bears for the enclosures they are kept in.

The bear enclosure at Marineland is large. If bears are to be displayed there, a maximum of ten individuals could reside in this enclosure if an effort was made to ensure an adequate quality of life. Means of behavioural enrichment such as trees, logs, grass would be an asset to captive bears. If Marineland

continues to allow tourists to feed the bears (a practice which should be discouraged), healthy foods should be made available such as grapes.

There is an opportunity for education about bears at Marineland. The bears could have a reasonable existence and people could learn about the intelligent, individualistic animal they are; however, the Marineland of today represents the poorest of animal menageries that I have ever seen.

Editors Note: The following are captions to additional photographs taken of the animals at Marineland on July 20, 1997 by Mr. McIntosh.

#1 The bears as they are typically attracted to the crowd of people who feed them marshmallows purchased for one dollar.

#2 Older bears such as this one are scruffy looking with torn ears and other injuries sustained from the overcrowding and stress caused by their captive situation.

#3 The bears beg in and out of the water for marshmallows in the extreme heat, direct sunlight, and the glare on the water causing problems such as blindness.

#4 Note the lack of behavioral enrichment supplied for the bears.

#3 and #4 show the lack of shade and vegetation in the Marineland bear enclosure. Bored bears are unhappy leading to increased aggression and other behaviors.

#5 This bear has lost a portion of his left ear.

#6 and #7 this bear is suffering from diseased gums, torn ears and his nostrils have been ripped out. The pain would have to be acute.

Editors Note: This refers to the photograph used on the cover of this report.

LLOYD BROWN

Lloyd Brown is a licensed wildlife rehabilitator. He has permits from the United States Department of the Interior, the United States Fish and Wildlife Service and the Florida Game and Freshwater Fish Commission to rescue and rehabilitate injured wildlife. Mr. Brown is also the director and rehabilitator at Wildlife Rescue of Dade County in Miami, Florida, U.S.A., an organization that he founded in 1995. He regularly delivers educational programs on wildlife to school and civic audiences.

Mr. Brown began his work in the wildlife rehabilitation field in 1993 with the Wild Bird Center in the Florida Keys. In 1994 he became involved in a project to rehabilitate and release dolphins at a sanctuary in Florida. In 1996, Mr. Brown was involved in successful negotiations with the Chilean government to arrange the export of a dolphin named Menique from a substandard facility in that country (a process which, from a practical perspective, took seven months due to the near-death condition of the animal at the time of intervention). Mr. Brown flew Menique from Chile to Cuba in April of 1997 where the animal is currently participating in a rehabilitation program with the hope of releasing him to the wild.

Mr. Brown is a member of the Florida Wildlife Rehabilitation Association, the National Wildlife Rehabilitators Association and the International Wildlife Rehabilitation Council at whose 1997 conference he presented a paper on dolphin rescue and rehabilitation of formerly captive dolphins. Mr. Brown has been appointed by the State of Florida as its representative to the International Wildlife Rehabilitators Council.

While observing the bears at Marineland, Niagara Falls, on September 2, 1996, I noticed that two of them were demonstrating symptoms of an upper respiratory infection (coughing, hoarse clearing of lungs and nasal discharge).

I also observed that Marineland sold marshmallows for visitors to feed to the bears. The volume of marshmallows being eaten by the animals was such that it appeared to constitute a major (if not the total) part of their diet. It was curious to me that on the day of my visit all the bears remained in the moat (a pool of water where visitors threw marshmallows from an overhead deck to the bears). Under normal circumstances, a healthy bear would get bored with this activity and search for something else to do, whereas all the bears at Marineland during my visit, continued to stay in the moat and beg for marshmallows. This makes me suspicious that the bears are underfed at other times.

Also at Marineland I observed more deer than I was able to keep count of that had open sores and abscesses on the side of their necks. One of the animals that I saw had what appeared to be hemorrhoids so badly that the animal's walk was affected.

The area in which these animals are being kept is too small for the number of animals enclosed.

It appeared to me that the deer were underfed as they constantly begged visitors for food that of course Marineland was selling. I don't recall having seen any fat deer. In captivity, with nothing to do (no predators to run from and not having to expend energy to find more food), a well fed animal will start to get fat. I also observed, and my partners videotaped, a deer eating a brochure from Marineland.

On September 2nd, 1996 a bright, sunny, cloudless day, the only shade for the animals was a few trees along the fence. I saw no provisions for drinking water anywhere in the deer area.

All of these things are easy to fix (with the exception of hemorrhoids which might require minor surgery), yet all of these conditions could progress into life threatening conditions.

Conclusions and Recommendations

Distorted Nature: Exposing the Myth of Marineland contains assessments of the conditions for captive wildlife at Marineland of Canada and the conservation/education merits of the facility, as well as broader wildlife concerns. This analysis has been conducted by 13 wildlife experts, primarily based on personal observations made during visits to the facility, supplemented by review of video, photographic and printed materials, some of which were published by Marineland itself.

These experts draw from their experience in diverse disciplines including veterinary science, marine mammal science, biology, zoology, ethology, zoo and aquaria animal husbandry, wildlife rehabilitation and conservation. The contributors to this report are Dr. John Hall, Dr. Naomi Rose, Doug Cartlidge, Dr. Paul Spong, Hugo Castello, Dr. Ronald Orenstein, Dr. Samantha Lindley, Dr. John Gripper, Brendan Price, Richard Farinato, Dr. Dragos Filoti, Mike McIntosh and Lloyd Brown.

Five recurrent themes which emerge throughout this report about Marineland are:

1. **Animal Welfare Concerns** ... Serious concerns are expressed about the wellbeing of animals at Marineland of Canada.
2. **Lack of a Legitimate Conservation Role** ... Marineland plays no role in the conservation of endangered species through captive breeding.
3. **Negative Education Value** ... The lack of organized educational programming and the display of wild animals in biologically irrelevant, behaviourally impoverished conditions are counter-productive.
4. **Public health and safety concerns** ... Unhealthy or unsafe conditions for the visiting public or zoo staff were identified.
5. **Absence of adequate legislation** ... To govern the capture, trade and transport of marine mammals, and the maintenance of all wild animals in captivity including the establishment of high standards for their care and housing.

Zoocheck believes amusement parks are inappropriate venues for the display of living, wild animals. For the most part, they are designed for commercial purposes to provide visitors with a carefully controlled, sanitized version of nature that is not controversial, unpleasant or offensive. This type of presentation format can be misleading, and may be counter-educational, by presenting an incorrect impression of animals and the natural ecosystems in which they live. Amusement parks exist primarily to entertain human

visitors and rarely involve themselves in the more legitimate conservation/education initiatives found in progressive zoos.

As the experts in this report have pointed out, Marineland of Canada has little relevance to endangered species preservation or conservation-education. The experts have also highlighted the fact that many of Marineland's animal displays fail to provide adequately for the physical, psychological and social needs of the animals they contain.

For these reasons, Zoocheck is making a number of recommendations aimed at the phase-out of some animal displays and improvement of others. Wherever possible, animals at Marineland should be moved to sanctuaries or other zoological facilities with better exhibit conditions, more suitable to the needs of each species.

The point has been made by cetacea experts throughout *Distorted Nature*, as well as by others from the broader scientific community, that it is impossible to meet the physical, psychological and social needs of whales and dolphins in captivity, nor do such facilities fulfill a legitimate conservation-education role; therefore, Zoocheck calls for a phase-out of the cetacea exhibits at Marineland.

Zoocheck recognizes that orca whales have been the foundation on which Marineland of Canada was built, and that their removal will necessitate the creation of new "cornerstone" attractions. Traditional amusement park attractions, such as roller coasters, slide rides, wave pools, and other water park attractions; or "higher-tech" nature-based features such as walk-through whale models, virtual reality nature trips, IMAX/ OMNIMAX theatres, or satellite video hook-ups to animals in the wild are worthy of consideration and may, if initiated, prove popular with the public.

A Canadian model for this approach was a 1995 decision by the Biodôme de Montréal not to display live beluga whales, citing conservation issues, animal welfare concerns, and the desire to be sensitive to the opinions of environmental groups voicing opposition to keeping whales in captivity. Instead the Biodôme has installed a thematic display on the white whales of the St. Lawrence called *Belugas: The Next Wave* featuring a variety of innovative presentation techniques.

Numerous recommendations flow from the expert submissions contained in *Distorted Nature*. Each submission should be reviewed carefully for specific criticisms and corresponding recommendations.

Recommendations to Marineland of Canada:

Following are the recommendations to Marineland made by Zoocheck Canada on the basis of concerns identified by contributors to Distorted Nature:

1. Phase-out of the marine mammal exhibits. In the short term, breeding opportunities for the orcas and dolphins should be eliminated. The marine mammal shows should be modified, replacing circus-style tricks and narration with biologically and behaviourally relevant routines and factual commentary (as is done by the Vancouver Public Aquarium). All plans by the facility to have programs whereby the public can touch or swim with orcas and dolphins should be abandoned.

In the long term, Marineland should examine all available options for the dispersal of their entire marine mammal collection. Options for consideration should include the possibility of retirement to an ocean pen, and/or the rehabilitation and release of qualified individuals back to the wild.

2. Improvement of terrestrial animal exhibits. Animal housing and husbandry should be upgraded to a level consistent with the physical, psychological and social needs of the species being displayed. Upgrades should include, but not be limited to: expansion in the size of exhibits; species appropriate exhibit design; interior landscaping in all exhibits to increase ground surface variability; utilization of vertical space; addition of visual baffles and shade/shelter areas; environmental enrichment through the addition of a variety of fixed and moveable objects; an aggressive program of behavioural enrichment aimed at encouraging natural activity; termination of public feeding; halting public access to the deer exhibits; and species appropriate nutrition and food presentation.

If terrestrial animal species are retained at Marineland, their exhibits should be completely removed from the amusement park section of the property (of particular concern is the bear exhibit which should be relocated away from the roller coaster as soon as possible) creating the effect of a separate zoo on Marineland's property.

3. Wildlife population reduction. Marineland should develop and implement a humane population control program as soon as possible to stabilize the numbers of each species; to prevent further production of surplus stock; and to gradually reduce the overall number of animals at the facility. Options for consideration should include sterilization, immuno-contraception, segregation by gender, and dispersal of animals to suitable wildlife facilities.

4. Improvement of public health and safety. A number of measures should be taken to improve public health and safety at Marineland including the

installation of standoff barriers separating the public from direct access to the animal cages, signposting of service walkways and off-exhibit areas, and the erection of a perimeter fence around the facility.

Recommendations to Government:

Each of the federal and provincial governments has a critical role to play in eliminating abusive practices and in regulating permitted practices in order to protect the wellbeing of captive animals, and to address the different species' varied physical, psychological and social needs.

1. Federal legislation re: capture, trade and maintenance of marine mammals. The federal government, in conjunction with the provinces, should develop and pass legislation prohibiting the capture of marine mammals for public display; regulating the domestic and international trade and transport of marine mammals; and regulating the maintenance of these animals in captivity, including the establishment of high standards of animal care, housing and husbandry.
2. Provincial legislation re: zoological facility operations. Legislation should be developed and passed controlling who may own and/or operate zoological facilities and the conditions under which animals may be kept, including, but not limited to, the establishment of high standards of animal care, housing and husbandry.
3. Provincial enabling legislation clarifying the powers of municipalities with respect to animal welfare. The Ontario Municipal Act, R.S.O. 1990, c. M.45 should be amended to clarify the authority of municipalities to create bylaws based on animal welfare concerns as well as public safety.
4. (Provincial) Ontario Society for the Prevention of Cruelty to Animals Act, R.S.O. 1990, c. O.36. As the agent of the Ministry of the Solicitor-General authorized to oversee the Ontario Society for the Prevention of Cruelty to Animals Act (OSPCA Act), the Ontario SPCA should adopt a policy of proactive monitoring of zoological facilities and aggressive intervention to resolve problematic animal welfare situations.

