

September 9, 1974

Dr. Jesse R. White  
Marine Mammal Commission  
1625 eye Street, N. W.  
Washington, D. C. 20006

Dear Dr. White:

Thanks for your letter and for the Marine Mammal Maintenance criteria outline. Enclosed we are sending our point-by-point comments on the outline.

We have in addition to the enclosed a few general comments to make concerning the reporting by exhibitors and the records to be kept by them. We are sure that it is the aim of the Commission to make these records and reports a source of real information and help to the Commission and to all those responsible for these animals. Today we are all required to keep large numbers of records and file various reports--from taxes, to surveys, to insurance forms, etc. With this in mind it seems that any forms or records which the exhibitors are asked to keep be made as simple and clear-cut as possible. In order also to keep the accuracy maximized and the good-will of the exhibitors toward the Commission at a high and cooperative level, we feel caution should be exercised by those in authority who review and process the records and reports so that the latter are not used in any punitive fashion. We all know that from time to time marine animals, like people, do die from various causes. Certainly from time to time serious conditions will come to the Commission's attention which warrant special inquiries. But it would seem to make sense to avoid undue difficulties both for the commission and the exhibitors, especially at the outset of the program, to treat routine cases as routine. It would certainly reduce the new Commission's administrative load as well as allay any fears that exhibitors might have about undue restrictions on their businesses.

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We will be most interested in learning the results of the Subcommittee's action and will welcome any further reports.

Very truly yours,

Marian Breland  
President

Robert E. Bailey  
Chief Biologist

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September 9, 1974

## COMMENTS ON MARINE MAMMAL MAINTENANCE CRITERIA OUTLINE

### 1. Physical Facilities.

A. Safety. Our recommendations concerning the safety of the animals, attendants, and the public could be quite detailed and quite lengthy because we have worked in so many environments (including open ocean). I am sure others could add even more specific factors concerning the design construction, and state of repair of physical facilities. Perhaps it is best that a generalized statement expressing the spirit of the law be adopted in this case. If the Commission would like, however, Animal Behavior Enterprises would submit detailed recommendations.

B. Temperature. In our experience when water temperatures have exceeded 90<sup>0</sup> F. dolphins seem prone to skin infections, and their skin abrades more readily than at lower temperatures. Oftentimes, too, a dolphin will slow down and act listless, possibly indicating that any undue activity increases the internal body temperature to an abnormally high level. While we do not have concrete data available to support this suspected thermoregulation problem, I might point out that

we have had considerable experience working with dolphins under high temperature and high salinity conditions in the shallow waters around Key West, Florida. We have had little experience and no firm data working with marine mammals under extreme cold conditions (water temperatures below 45 degrees). We would recommend, however, that an upper limit of 90° F. be established for Atlantic and Pacific bottle-nose dolphins. We would suggest that the recommended optimum limits of water temperature be 55° F. as a low and 80° F. as a high.

Concerning power and ventilation it is perhaps best that regulations be not too specific since conditions and requirements vary so widely from place to place. A large oceanarium fabricated of concrete and located hundreds of miles inland has a totally different power requirement than a relatively small oceanarium constructed at the ocean's edge where water circulation and filtration are provided by natural sources.

Concerning Light: if some research has been conducted establishing the visual capabilities of certain marine mammals, it might be worthwhile to be specific on the regulations. Otherwise it may be best to keep the subject generalized. One factor to be considered for some marine mammals is the dark-light cycle. This may be an important factor for certain marine mammals and as such should be considered in the regulations.

- C. Space. We would suggest that allowances be made for special enclosures for marine mammals in quarantine or isolation. Oftentimes it is desirable that aquatic animals be readily available for treatment. Pens or enclosures should be shallow enough for a person to stand while capturing, restraining, or treating the animal. Also, the pen size might be smaller than would normally be the case. Otherwise the pen size and depth requirements seem reasonable. Consideration should be given if an animal is quartered in a small pen or enclosure but has daily access to a larger area for exercise or other activity.
- D. Shelter. No comment.
- E. Waste Disposal. No comment.
- F. Treatment. We would recommend, as we mentioned previously (see C above) that isolation and quarantine tanks be kept reasonably small and shallow compatible with the health and well-being of the animal to facilitate handling and treatment.
- G. Food Storage. We would suggest that long term storage facilities on the site be capable of keeping a minimum of one or two weeks supply of fish for all marine mammals at that facility.
- H. Drainage. No comment.
- I. Design and Finish. Non-porous, non-toxic paint (or surfaces) should be used on all portions of the facility accessible to the animals.

## 2. Personnel.

- A. Supervisory. No comment.
- B. Medical Care. A veterinarian must supervise all therapeutic and prophylactic treatment or programs.
- C. Handlers. No comment.
- D. Sanitation. No comment.

## 3. Water Quality.

- A. Coliforms. No comment.
- B. Salinity and Density. Salinity for dolphins should not drop below 1.4‰ for more than short periods of time, in our experience. Below this point skin infections occur more frequently than normally. We do not know of an established maximum salinity but we would suggest that salt concentration not exceed 3‰ or so. If salt is added, it must be pure salt and must not contain harmful impurities or additives. Pinnipeds should have salt water available at least in small quantities to prevent eye troubles, etc.  
  
pH. pH is not mentioned but should be considered an important factor especially while chemicals are being added to a closed or semi-closed filtration system. We suggest that pH be maintained near neutral or slightly basic--7.0 to 8.0.
- C. Chemical Treatment. Many large facilities have highly automated filtration and chemical control systems. The automated systems should be designed to be as reliable as

possible. Recognizing that all mechanical and electrical devices are subject to failure--possibly catastrophic failure--there should be separate devices to warn that a failure has occurred and that chemical or other water treatment is no longer under control. Human control of water quality is essential.

- D. Records. We would suggest sampling and testing of water at least once daily.

#### 4. Food Quality and Nutrition.

- A. Quantity. No comment.
- B. Quality. Very few prepared or processed pet foods are certified as meeting standards for human consumption. If certification will be required of the marine mammal exhibitors, the latter should be informed about the extremely stiff regulations governing the handling and processing of the food, assuming that such regulations will govern not only the care of the food at the packing plant, but also up to and including the exhibitor's own facility, where the food goes through the final handling stages prior to feeding.
- C. Storage. Will dating of storage cartons be required? What additional paperwork, (inventory, etc.) will be mandated?
- D. Thawing and subsequent storage. We recommend that fish be thoroughly thawed (no ice crystals inside the food) before being fed to marine mammals.
- E. Supplements. The supplements used should be approved by the attending veterinarian.

5. Sanitation and Disease Prophylaxis.

- A. Programs. Such programs of health care, etc., should be approved by a veterinarian.
- B. Supervision. Rather than the word "knowledgeable" we suggest that the phrase "preferably with a background" in marine mammal husbandry and care be substituted.
- C. Sanitation. No comment.
- D. Quarantine and Isolation. No comment.

6. General Animal Care.

- A. Compatability. No comment.
- B. Special Facilities. No comment.
- C. Contact with the Public. No comment.
- D. Sociability. No comment.
- E. Non-adaptability. No comment.

7. Show Requirements and Training Methods.

- A. Stress. No comment.
- B. Work Time. From the first show, or working or training session, to the last, a work day should not exceed 10 hours, with not more than 30 minutes of each hour devoted to work.  
  
We have not found that a properly designed and executed training program is traumatic to most individuals of the various species with which we have worked.

8. Capture Techniques and Transportation.

- A. Methods and Supervision. No comment.
- B. Capture, Holding and Transportation. It might be added that



pinnipeds can suffer from heat "prostration" if they are dry and hyperactive. We require that our pinnipeds be kept at least moist during transport.

C. Sanitation. No comment.

9. Data-Processing and Specimen Disposition.

A. Animal Identification. No comment.

B. Records. No comment.

C. Data Center. No comment.

D. Specimen Disposition. No comment.

E. Registry of Needs. No comment.

10. Certification of Facilities.

A. Certification. No comment.