

**Supplementary Appendix S1**—Questionnaire sent to pinniped housing facilities around the world in January 2010 to help identify factors that could contribute to keratopathy in captive pinnipeds.

Facility	<b>FACILITY</b>
Name of animal	n/a
1A. Latitude, Longitude and altitude	<b>LATITUDE</b>
2A. Feeder pool? If yes, for how long and when.	<b>FEEDER POOL Y/N</b>
3. Sea lion/seal/walrus	<b>TYPE OF ANIMAL</b>
3A. Specific species	<b>SPECIES</b>
4. Male/Female	<b>SEX</b>
5. Neutered yes/no	<b>5. Neutered yes/no</b>
5A. If so, at what age?	<b>5A. If so, at what age?</b>
6A. Birthdate	<b>DOB</b>
6B. If deceased, Date of Death	<b>DOD</b>
6C. If deceased, cause of death	<b>CAUSE OF DEATH</b>
7. Weight (lbs.)	<b>7. Weight (lbs.)</b>
8. Location/ Facility born	<b>WHERE BORN</b>
9. Number of other locations/facilities pinniped housed	<b># OF OTHER FACILITIES HOUSED</b>
10. Other locations/facility pinniped housed	<b>WHAT OTHERS?</b>
11. Was mother or father blind	<b>BLIND PARENT? Y/N</b>
12. If yes, which one and from what underlying cause	<b>DETAILS OF BLIND PARENT</b>
13. Animal housed in fresh/salt water	<b>FRESH OR SALT WATER</b>
13A. Specifics on water filtration system(s)	<b>FILTRATION SYSTEM</b>
14. Is there shade?	<b>SHADE? Y/N</b>
15. Indoor/outdoor exhibit	<b>INDOOR/OUTDOOR/BOTH</b>
16. What does his/her daily diet consist of? Please be as specific as possible.	<b>DIET</b>

16A. Has he/she been on oral steroids of any kind? If so, please elaborate.	<b>ORAL STEROIDS?</b>
17. Do you supplement the diet with vitamins/nutraceuticals/minerals? (yes/no)	<b>VITAMINS/ETC</b>
18. If so, please specify what and doses.	<b>WHICH ONES</b>
19. Do you supplement the diet with sodium chloride (salt)?	<b>SUPPLEMENT WITH NACL?</b>
20. Behavior: aggressive or not aggressive?	<b>AGGRESSIVE OR NOT</b>
21. Has pinniped had parasite control? (yes/no)	<b>PARASITE CONTROL?</b>
22. With what?	<b>WHAT PRODUCT?</b>
23. Is there a history of previous ocular disease? (yes/no)	<b>PREVIOUS EYE DZ</b>
23A. If so, please explain. Please use detail on separate sheet if necessary	<b>DETAILS</b>
24. Were other pinnipeds/animals affected?	<b>OTHERS AFFECTED?</b>
25. Is there a history of systemic disease?(yes/no)	<b>HX OF SYSTEMIC DZ</b>
26. History of traumatic injury/fighting/etc. (yes/no) describe.	<b>HZ OF TRAUMA/INJURY?</b>
27. Please describe in detail and were other pinnipeds/animals involved?	<b>DETAILS</b>
28. Does this pinniped have (had) cataracts and/or lens luxation in the left eye?(yes/no)	<b>CATARACT/LUX OS?</b>
29. When was this first noticed?	<b>WHEN NOTICED</b>
30. Does this pinniped have (had) cataracts and/or lens luxation in the right eye?(yes/no)	<b>CATARACT/LUX OD?</b>
31. When was this first noticed?	<b>WHEN NOTICED</b>
31A. Glaucoma OD? Details?	<b>GLAUCOMA OD?</b>
31B. Glaucoma OS? Details?	<b>31B. Glaucoma OS? Details?</b>
33. What is the depth of the pool?	<b>DEPTH OF POOL</b>
34. Show animal vs display only?	<b>SHOW/DISPLAY</b>

35. Is this animal offered live prey? (yes/no)	<b>OFFERED LIVE PREY</b>
35A. if so, what?	<b>DESCRIBE</b>
36. Can this animal hunt for live prey? (yes/no)	<b>HUNT FOR LIVE PREY?</b>
37. What is the shape of the pool? Please include if corners are rounded, straight, angled, etc.	<b>SHAPE OF POOL</b>
38. Any unusual diet issues over his/her life?	<b>DIETARY PROBLEMS?</b>
39. Was animal beached or raised in aquarium?	<b>BEACHED/RAISED IN AQ?</b>
40. Weight chart covering first few years (or whole life) OPTIONAL	<b>WEIGHT</b>
41. Type of shade used since animal was acquired/born and when/if changed and to what?	<b>SHADE?</b>
42. Color of paint used on walls ?	<b>PAINT COLOR WALLS</b>
42A. Was paint changed, if so, when?	<b>CHANGE IN PAINT COLOR?</b>
42B. If so, to what color?	<b>WHAT COLOR IF CHANGED</b>
43. Color of paint on pool?	<b>POOL PAINT COLOR</b>
43A. Was paint changed, if so, when?	<b>CHANGE IN PAINT COLOR?</b>
43B. If so, to what color?	<b>WHAT COLOR IF CHANGED</b>
44A. Sun exposure in exhibits?	<b>EXHIBIT SUN EXPOSURE?</b>
44B. Sun exposure in show area?	<b>SHOW SUN EXPOSURE?</b>
44Ba. Color paint in show area?	<b>PAINT COLOR SHOW AREA</b>
45. Are there behavioral or clinical changes apparent depending on time of year? Y/N	<b>BEHAVIORAL CHANGES SEASONAL?</b>
45A. If so, when?	<b>DESCRIBE CHANGES</b>
<b>46. WATER QUALITY</b>	
46a. Source of salt water?	<b>SYNTHETIC OR NATURAL SALT WATER?</b>
46b. Describe method of making salt water if not natural	<b>HOW IS SALT WATER MADE?</b>
46c. Filtration system details	<b>46c. Filtration system details</b>
46d. Trihalomethane levels	<b>THM LEVELS</b>
	<b>CHLORINE/OZONE/BOTH?</b>
<b>48. CORNEAL DETAILS</b>	<b>48. CORNEAL DETAILS</b>
48A. Describe any corneal problems right eye with progression if any over the time of this project (use other sheet if necessary)	<b>CORNEAL DZ OD</b>

48B.. Describe any corneal problems left eye with progressio, if any, over the time of this project (use other sheet if necessary)	CORNEAL DZ OS
DOES ANIMAL HAVE CORNEAL DISEASE? Y/N	CORNEAL DISEASE?
49. Has animal had a Lepto test? Y or N	LEPTO TEST Y/N
49a. If yes, then what specific test?	LEPTO TEST
50a. Has animal had dental issues	DENTAL DZ?
50b. Please explain	DETAILS OF DENTAL DZ