

Scabby molt or not?

The term scabby molt can mean different things to different people. This paper will attempt to explain why this is true and to identify the implications of this skin disease in order to bring clarity to our observations on the bluff.

There is one paper in the scientific literature on skin diseases in NES by The Marine Mammal Center (TMMC) in 1997. It describes a condition found in 207 cases from 1984-1992 called NESSD (Northern Elephant seal skin disease). It is quite different from the scabby molt that we see at the rookery in Piedras Blancas. We identify scabby molt as a scabby looking coat seen during a yearling's first fall haul-out. This condition is distinct from what was described in the article as potentially a more serious skin condition, ranging from patchy hair loss to massive skin death. NESSD is found in juveniles less than 2 years of age. All NESSD seals in the TMMC study also suffered from emaciation, depression, and dehydration.

Burney Le Beouf originally coined the term scabby molt and he cited it in his 1994 book on NES "Elephant Seals: Population Ecology, Behavior and Physiology." Scabby molt is a term he used in the field to describe the unusual skin and hair condition of some elephant seal yearlings. He said that they turned up early in the breeding season, perhaps other times as well. The animals looked like they were in bad shape. The condition was graded in severity. The frequency was on the order of less than 5% of the yearlings.

Dr. Bill Van Bonn, the Director of Veterinary Services at TMMC in Sausalito, in a recent private communication, indicated that scabby molt was not a term he was familiar with. He stated that NESSD certainly was a diagnosis used fairly often although the definition varied among clinical veterinarians. There were actually very few cases that he suspected would fit the definition of NESSD as he understood it; nothing like the cluster described in the 1997 paper.

Dr. Pam Yochem, a Marine biologist/veterinarian at the Hubbs Sea World Research Institute in San Diego did her PhD Dissertation on NESSD with TMMC in Sausalito. She indicated that most cases occur in northern California, which may explain why we don't see many cases at Piedras Blancas rookery. The peak admission of mild cases occurs during the birthing and breeding season with severe cases seen in March, not in the fall haul-out. The annual frequency has been as high as 30 to 35 cases (1992) but much lower numbers are more typical and, in some years, no cases are seen. Moderate to severe cases coincided with the molting season yet the epidermis was consistent with a non-molting state. Histopathology can differentiate between NESSD, non-molting and molting states. NESSD destroys the sebaceous glands (glands which secrete a material that lubricates and waterproofs the skin and hair) but in scabby molt the sebaceous glands are normal. During molting, sebaceous glands increase in size and proliferate. Dr. Yochem says that scabby molt is not mild NESSD but a delayed and diffuse molt in young of the year elephant seals (9-11 month old seals that haul out in the fall) with poor body condition/pelage from poor nutrition. She said it is very common in young mammals to have poor quality hair coats with poor nutrition. It may look worse in elephant seals because their coats are so sparse - a single guard hair only.

Dr. Yochem provided the following pictures to illustrate the visual difference between molting, mild NESSD, and severe NESSD.

Northern elephant seal yearlings with normal skin. The seal in the foreground is in early molt, with small patches of hair loss visible on the left side of the neck and on the flippers (arrows). Normal skin is visible underneath.



Northern elephant seal yearling with mild Northern Elephant Seal Skin Disease. The animal's head is to the left. The skin on the left thorax and axilla is reddened and several small ulcers are visible (arrows).



Northern elephant seal yearling with severe Northern Elephant Seal Skin Disease. The animal's head is to the right. Multiple, large, necrotic ulcers are present on the dorsal surface.



Summary:

It is clear that if you observe a seal molting outside the molting season period (April-August) that this cannot be considered a normal molt. Certainly an animal losing its skin/hair during the fall haul-out beginning in September and going through October is not normal. For a seal born that year, the condition is likely scabby molt as a result of malnutrition. Quoting Phil Adams "The malnutrition observed is, I think, pretty much a common condition because most of the young e-seals have such a hard time simply surviving foraging challenges that first year."

If you observe a seal during the birthing and breeding season losing its skin, this could be a mild case of NESSD and during March it may be severe. The timing difference for different degrees of severity of this disease may be related to exposure to ocean contaminants like PCB's, currently considered the most likely cause of NESSD. Histopathology assists scientists in making a disease diagnosis by monitoring the sebaceous glands; but it is clear, as Bill Van Bonn said, that case definition varies among veterinarians as they visually examine a suspected seal. So, when we see a seal molting out of season or appearing to have more skin damage than a normal molt, what do we say to visitors or report to the office if the veterinarians can't

even agree on a case definition? Pam Yochem says it is tough to do at a distance particularly with mild NESSD. But NESSD looks more active/inflammatory than the “blown coat” or worn/abraded/faded effect of scabby molt.

During the molting season, if the seal appears relatively normal in body condition and the molt appears to be just the superficial portion of the skin/hair without the deep ulcerative lesions seen with moderate to severe NESSD, it is probably a normal molt. If seals appear to be “molting” outside of molting season, the condition is likely either mild NESSD or scabby molt. Mild NESSD usually is seen late in the breeding season and it can develop into moderate or severe NESSD in March. If a young of the year (9-11 months old) is losing skin/hair during the fall haul out and appears not to have normal body condition then you are likely observing scabby molt. With improved ability to forage, that condition will improve.

These disease stages may not always fit the periods of time given above, just as the seals don’t always follow the yearly schedules we discuss with visitors.

References

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