

How and when does an elephant seal urinate?

The elephant seal is anatomically constructed to urinate through its penis. The urethra passes from its kidney through the penis, where the urine produced by the kidney exits the body. The penial opening/passage can be thought of as the 'foreskin' of the penis. Urine does not exit the body via the anus.

Elephant seals capture and accumulate the water they need via the foods they eat, the salt water ingested while capturing food, and the 'recycling' process during metabolism of their body fats during periods of fasting.

While at sea feeding, the elephant seal kidneys process the salt water ingested to remove and discard the salts via the urine stream. Very little urine waste, if any, is generated via metabolism while the animal is at sea. Processing by the kidneys results in the vast majority of the water being retained by the body and only that water necessary for the removal of salts are lost via the urine stream.

During periods of fasting, namely the breeding and molting seasons, very, very little urine is produced. This is due to the fact that source materials being metabolized are the body fats that had already gone through the metabolism process during their conversion from food into stored fats. The fats are basically free of salt contamination.

An interesting observation about urination: The seal does in fact urinate within the first day or so after returning to land and then does not urinate again until just before leaving to go back to the sea. This long period without urinating gives us some idea of how salt-free the fats are that they have been metabolizing to stay alive during the fasting periods.