

Figure 3.0 Daily Behavior-based Husbandry Routine for Polar Bears in Temperate Zone Captive Facilities ©Else Poulsen 2015

Time	Wild Behavior	Captive Requirements
Sunrise	Bear wakes, stretches.	Bears require constant indoor/outdoor access except for enclosure maintenance and provision of food and enrichment.
	Bear checks status of companion animals i.e. cubs, mate, companions.	Bears must live in appropriate social groups befitting their age, sex, and reproductive status. It is generally recognized that 1:2 animals results in a peaceable living group if the females establish a copacetic bond with each other and the male negotiates with the females as opposed to dominating them.
	Bear cleans in water or substrate.	Bears must have access to pools, woodchips, soil, growing grasses and other substrates in significant amounts to accommodate personal hygiene.
	Bear drinks.	Bears must have access to clean potable water.
Early AM	Bear begins to seek out known food resources.	Early morning is a critical time for a bear since he is usually hungry (depending on the time of year). His food search often begins before the keeper arrives. A hungry bear in a food-deficient enclosure often resorts to expressing anticipatory or entrenched stereotypies. Therefore food must be available via i/ early keeper shift who can scatter feed at sunrise, or ii/ at pre-existing feeding sites via puzzle feeders with left over foods to allow the bear to express appetitive/seeking behaviors. Automated feeders can cause serious behavioral issues if used throughout the day at variable intervals. However, an automated feeder set to scatter chow (processed food pellets) 10 minutes after sunrise each day will allow to bear to stave off his hunger before the keeper arrives thus preventing the onset of stereotypies. Early morning food resources must be available to all bears in the enclosure.
Early-Mid AM	Bear's seeking behavior for food resources continues.	Keepers must have the ability to recall and shift the bear into another area using either personal relationship or operant conditioning to accommodate morning maintenance. While the caregiver is cleaning and enriching exhibit areas, the bear must be kept stimulated for the entire duration that he is confined in the back areas with food enrichment until he can be released into the exhibit area. This can be a good time to do an operant conditioning session provided that the bear has had a chance to at least partially satiate himself. It is imperative that the keepers use a quantitative method to assess satiation such as the bear leaving food, since a bear that eats all of his food

		<p>does not indicate satiation, it often indicates hunger. The objective of the AM feed is to satiate the bear, thus enrichment offered should be interesting but not so challenging as to be frustrating, the challenge of food extraction in enrichment events can be increased in the afternoon when the bear is interested in the activity and less concerned about satiation. The enclosure should include multiple permanent feeding stations that the bear knows will contain food resources. Each station should have a form of puzzle feeder so that food extraction requires manipulation. Each puzzle feeder must be loaded everyday so the bear can rely on it as he would in the wild. Other enrichment brought into the enclosure can introduce variability and encompass other senses such a smell, touch, problem solving, and play.</p>
Mid AM- Early Aft	<p>Polar bears on the tundra behave similarly to brown bears in that they have biphasic sleep patterns. The bears choose and prepare a daybed site and take a nap from 1-3 hours</p>	<p>Bears will take an early afternoon nap for which each bear requires; a choice of private daybed sites, nesting material (straw, woodchips, excelsior [wood wool] etc.), ability to adjust body temperature (shade, sun), undisturbed down time (no training sessions or required public appearances). If possible bears will dig pots into the ground as they would on the tundra and line it with nesting material. The enclosure should also contain furniture that allows for relaxation such as ground hammocks. These are particularly important for older bears.</p>
Mid Aft - Early eve	<p>Bears rise, stretch, check on companions, groom, drink, check enclosure.</p>	<p>Bears require constant indoor/outdoor access. Bears must live in appropriate social group. Bears must have access to pools, woodchips, soil, growing grasses and other substrates in significant amounts to accommodate personal hygiene. Bears must have access to clean potable water.</p>
	<p>Bears continue seeking behavior.</p>	<p>Keepers lock bear into enriched back area to place enrichment into main outdoor enclosures. Main feeding stations are loaded as well as enrichment events are refreshed. Keeper can do operant conditioning or relationship building sessions with bear in back area. At this time enrichment can offer greater mental challenge, novel items, foodless enrichment, and scent enrichment. Enrichment that offers group activity such as wobble tree-type structures work well at this time since satiated bears are i/ less likely to take personal ownership of event, ii/ more likely to tolerate group efforts to solve problem, and iii/ be disinclined to exhibit aggressive or disagreeable behavior. Jungle gyms that allow hanging items or climbing opportunities provide bears with exercise if enrichment is used to entice bears into activity. ©ElsePoulsen2015</p>

Early evening	Bears alternate between seeking behavior and nest preparation for the night.	Keepers can either bring bears into enriched back area to accommodate reloading feeding sites and refreshing enrichment events, or they can throw enrichment items over fencing and/or send it down threw delivery pipes. Automated feeders must be loaded for early morning feed. The enclosure must provide enough bedding and private areas for each bear to comfortably bed down for the evening.
Night	Bears rest. Polar bears are known for their nocturnal activity in the winter. As this is often when they hunt seals that are feeding on fish that have risen to surface waters. Some also become nocturnal in the summer months to take advantage of food resources utilized during the day by competitors.	Bears should be monitored to assess if any group members habitually become nocturnal feeders, as this can indicate that that bear is not competing well with more dominant members of the group.