

Figure 2 Seasonal Behavior-based Husbandry Routine and Diets for Polar Bears Living in Temperate Zone Zoos ©ElsePoulsen2015

Season	Wild Behavior	Husbandry and Diet Requirements
Fall Oct-Dec	Bears that have been waiting on the tundra along the coast line and further inland migrate north onto the pack ice when the ocean freezes to begin the hunt for seals. Typically they are at their lowest annual weight. Bears begin to turn nocturnal since the photoperiod is changing to fewer daylight hours.	<p>Weight: Bears should be at their annual lowest weight at the onset of fall.</p> <p>Diet: Captive diet should focus more on meats, fish and oils and less on vegetative matter. Vegetative matter can be used for occupational feeds, enrichment, and training sessions.</p> <p>Activity: Activity levels should increase as the temperatures drop locally. Bears will need a comprehensive enrichment programme that encourages physical activity and lean body mass maintenance. Bears often become nocturnal and will require enriching events that encourages such activity such as floating islands in pools, and slanted jungle gyms that require work to climb.</p>
Winter Jan-Mar	Bears hunting seals on pack ice. Hunting seal pups in subnivean dens begins in March. Breeding can begin in March, although males have been competing prior to that.	<p>Weight: Bears should be gaining weight.</p> <p>Diet: Captive diet should focus more on meats, fish and oils and less on vegetative matter. Vegetative matter can be used for occupational feeds, enrichment, and training sessions.</p> <p>Activity: Captive bears can begin breeding season in January and it can continue for months depending on the social structure of the group as polar bears are polygamous and breed with more than one mate per season. Activity levels should increase as the temperatures drop locally. Bears will need a comprehensive enrichment programme that encourages physical activity and lean body mass maintenance. Bears often become nocturnal and will require enriching events that encourages such activity such as floating islands in pools, and slanted jungle gyms that require work to climb.</p>
Spring Apr-Jun	Bears are actively courting and breeding. They continue to hunt adult, subadult, and seal pups when not encumbered by courtship or breeding behaviors.	<p>Weight: Bears in breeding mode frequently lose their appetite and focus exclusively on courtship and breeding. At this time they can be losing small or large amounts of weight, gaining weight, or are in maintenance. Males in particular are known for weight loss at this time, sometimes up to 100 lbs depending on age, size, and weight prior to the onset of breeding season.</p> <p>Diet: At the onset of spring captive diet should focus more on meats, fish</p>

		<p>and oils and less on vegetative matter. Moving into spring the diet should be slowly transitioned to focus more on vegetative matter. During breeding season, activity levels are high. Care should be taken to offer bears foods that they are interested in to prime the appetites. When individual bears move out of breeding mode amounts of foods should be sufficient to satiate hungry bears until the onset of summer.</p> <p>Activity: Bears are typically active during breeding season. A comprehensive enrichment programme that allows bears to be express physical activity tends to reduce the stress and anxiety associated with breeding season.</p>
<p>Summer Jul-Sep</p>	<p>Bears are now landlocked on the tundra waiting for the return of the pack ice. Bears become either omnivorous or they fast. This is called 'walking hibernation' as the bears do not actively den up but can spend a large part of their time budget resting. Some bears seek out islands in the Hudson Bay and hunt geese, eat goose eggs and chicks, and the berries that attracted the birds. In addition, bears become opportunistic and feed off of carrion of whales, walruses and other animals. These bears generally lose the weight over the summer that they had gained in preparation for being landlocked.</p>	<p>Weight: Bears lose weight in the warm/not summer months.</p> <p>Diet: Diet successfully transitioned to focus more on vegetative matter with addition of meats and fish. The fact that polar bears become omnivores in warmer months works well for the captive bears as vegetative matter can be used for enrichment programming, occupational feeds, and training. Interestingly polar bears utilize browse and leafy greens (lettuces) perhaps because they actively seek out kelp, berries, and bush leaves in the wild.</p> <p>Activity: Depending on the age and sex of the bear, polar bears tend to be less active in the warmer months than in the colder months. Enrichment programming can include some events that encourage activity but also events such as puzzles that promote mental dexterity.</p>