


# 生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	帶羽毛的「牙齒」過濾食物 (Feathered “Teeth” Filter Food)
生物系統 LIVING SYSTEM	藍鯨 (Blue whale)
功能類別 FUNCTIONS	#捕獲、吸收或過濾有機體 #驅逐液體 #Capture, Absorb, or Filter Organisms #Expel Liquids
作用機制標題	鯨魚在吞嚥之前使用帶羽毛的角蛋白片將食物與水分開。(Whales use sheets of feathered keratin to separate food from water before they swallow.)
生物系統/作用機制 示意圖 (確認版權、註明出處；畫質)	
作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)	
<p>藍鯨的鯨鬚 (baleen) 由角蛋白 (keratin) 組成，與構成指甲和頭髮的材料相同。大約 350 塊這種材質從鯨魚的上頷牙齒所在的上顎兩側垂下 (如果它有牙齒的話)。</p> <p>這些板從頷骨 (jaw) 中長出，彼此平行並垂直於頷骨，像垂直百葉窗的板條一樣排列。每塊板由一塊主板和較小的板組成，形成三角形輪廓。這些板含有小管，這些小管在舌側分開形成磨損邊緣 (frayed edge)，在底部由直徑為 2 毫米或更小的刷毛密集組成。</p> <p>將磷蝦 (krill) 和水一起攝入後，鯨魚會部分閉上嘴巴，這樣當水流回海洋時，水必須通過鯨鬚。鯨鬚板和邊緣 (fringe) 的作用能夠捕獲到約半毫米大小的磷蝦。</p> <p>The blue whale's baleen is composed of keratin, the same type of material that makes up fingernails and hair. About 350 plates of this material hang down from each side of its upper jaw where the whale's top teeth would be (if it had teeth).</p> <p>The plates grow out of the jaw parallel to each other and perpendicular to the jaw, lined up like slats of a vertical window blind. Each plate is made up of a main plate and smaller plates, forming a triangular profile. The plates contain tubules that separate to form a frayed edge on the tongue side and at the bottom made up of densely packed bristles 2 millimeters or smaller in diameter.</p> <p>After taking in krill and water together, the whale partly closes its mouth so that the water has to go through the baleen as it moves back out into the ocean. The baleen plates and fringes are able to trap krill down to a size of about half a millimeter.</p>	

## 文獻引用 (REFERENCES)

所有鯨骨鯨的共同特徵是它們的鯨鬚，這是上顎上的一系列板狀物 (plate)，位在嘴巴的每一側形成一個梳子來代替習慣上的牙齒。梳子中的每個骨板或“牙齒”都在內緣磨損，顯示出毛髮狀的生長物或邊緣 (fringe)。這些板塊的形狀和排列，每邊可能有 100 到 400 個，反映了鬚鯨家族之間不同的攝食方法。露脊鯨 (right whale) 有細長的鯨骨板，有時超過 3 m，共同組成一個非常大的細齒梳；而長鬚鯨 (finner whale) 和灰鯨 (gray whale) 的特點是更短的三角形板，它們結合在一起形成一個更粗且更小的梳狀結構。” ( Pivorunas 1979 : 432)

一般來說，長形的彈性鯨鬚板意味著方便撇取海水中的食物。因為鯨鬚板是過濾食物的內平面之表面，由細小的鯨鬚條紋組成，而長長的鯨鬚板內緣在連續過濾中非常有效。另一方面，短而寬的鯨鬚板則對於在很短的時間內過濾食物非常有用，在嘴裡仍保留食物時，肉舌 (flesh tongue) 的強烈壓力可使水從鯨鬚板流出。(Nemoto 1959:154)

“The feature that all the whalebone whales have in common is their baleen, a series of plates on the upper jaw that form a comb on each side of the mouth in place of the customary teeth. Each plate or “tooth” in the comb is frayed on the inner edge, displaying hairlike outgrowths, or fringes. The shape and arrangement of these plates, which may number from 100 to 400 on each side, reflect different methods of feeding among the families of baleen whales. The right whales have finely fringed whalebone plates that are very long, sometimes exceeding 3 m, which together make up a very large fine-toothed comb, whereas the finner whales and the gray whale are characterized by much shorter triangular-shaped plates that combine to form a much coarser and smaller comblike structure.” (Pivorunas 1979: 432)

Generally speaking, the long elastic baleen plates mean convenience to skim the foods in the sea water. Because the baleen plates are filtering foods on the surface of the inner plane consists of fine baleen fringes, and long inner edge of baleen plates is very effective in the successive filtering. Short and wide based plate is on the other hand very useful for filtering their foods in a very short time, with strong stress of flesh tongue to make the water run off through the plates remaining the mass of food in the mouth. (Nemoto 1959:154)

## 參考文獻清單與連結 (REFERENCE LIST) Harvard 或 APA 格式

The Feeding Mechanisms of Baleen Whales (The Feeding Mechanisms of Baleen Whales)

Food of Baleen Whales With Reference to Whale Movements (Sci Rep Whales Res Inst Tokyo | 1959 | Takahisa Nemoto)

延伸閱讀: Harvard 或 APA 格式 (取自 AskNature 原文; 若為翻譯者補充, 請註明)

## 生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)

## 撰寫/翻譯/編修者與日期

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AskNature 原文連結

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