

《海獭生存智慧：从工具使用到食物选择，揭示海洋生物的适应之道》

Sea otters are large marine mammals that spend their days foraging in kelp forests. They dive to the bottom to grab tasty morsels, plus sometimes rocks that they plan to use as tools. They bring these to the surface and float on their backs, using their bellies as tables as they get to work on opening and eating their snacks.

"Their preferred prey are usually urchins and abalone," says Chris Law, a biologist at the University of Texas and the University of Washington, who notes that urchins and abalone are relatively easy for otters to break apart.

But in places where lots of otters are living together in Monterey Bay, "unfortunately, all those prey items have been declining or have declined," says Law.

He says there are areas with an over-abundance of urchins — the so called "urchin barrens" where urchins have eaten all the kelp. Since the kelp is gone, however, these urchins no longer have a good food supply and are thus calorie-poor. They offer little nutritional value for otters, which aren't interested in consuming these so-called "zombie urchins."

"So that means otters have to eat alternative foods," says Law. "A lot of those alternative foods are those super-hard-shell prey items that really require some kind of external force to break into."

Snails, for example, are abundant in the bay, but they're low-calorie and "basically like a rock that you have to break into to eat the insides," says Law.

While sea otters are known for using tools, not all individuals actually wield them. Some otters forgo them entirely and simply specialize in eating soft prey. Some otters use tools occasionally, while others use them most of the time that they're foraging for food.

海獭是大型海洋哺乳动物，它们整日里在海藻林中觅食。它们潜入海底，捕捉美味的食物碎块，有时也带上它们打算用作工具的石头。它们将这些带到水面，仰面漂浮，用肚子当桌子，开始打开并享用零食。

“它们最喜欢的猎物通常是海胆和鲍鱼，”来自德克萨斯大学和华盛顿大学的生物学家克里斯·劳说，他注意到，海胆和鲍鱼对于海獭来说相对容易破开。

但在蒙特利湾，许多海獭聚居在一起的地方，“不幸的是，这些猎物数量一直在减少或已经减少，”劳说。

他表示，有些地方海胆数量过多——所谓的“海胆荒地”，那里的海胆吃光了所有的海藻。然而，由于海藻消失了，这些海胆不再有良好的食物供应，因此热量不足。它们为海獭提供的营养价值很小，海獭对食用这些所谓的“僵尸海胆”不感兴趣。

“这意味着海獭必须吃替代性食物，”劳说。“许多替代性食物都是那些超级坚硬的带壳猎物，它们真的需要某种外力才能破开。”

比如，海湾里蜗牛很多，但它们的热量很低，“基本上就像一块你必须破开才能吃到里面的岩石，”劳说。

虽然海獭以使用工具而闻名，但并不是所有个体都会使用工具。有些海獭完全放弃使用工具，专门吃软猎物。有些海獭偶尔使用工具，而有些海獭在觅食时大部分时间都在使用工具。

