

Fun Facts About Sea Turtle | Where, How, and Why Do Sea Turtles Bask?

Introduction of the Author



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Where, How, and Why Do Sea Turtles Bask?



Since all reptiles (except for leatherbacks) are ectothermic, their physiological functions rely solely on external sources of body heat. However, animals that are endothermic, including mammals and birds, produce their own body heat. It is common knowledge that freshwater turtles use basking to regulate their body temperatures. Yet, only the **green turtle**—which Mirriam Webster described as "to lie or relax in a pleasant warmth or atmosphere"—among the seven species of ocean turtles comes up from the water to bask. Only during sunny, calm periods do olive ridleys and occasionally other sea turtles bask at the ocean's surface with their carapace exposed. Some hard-shelled sea turtles, including the herbivorous green turtle, have been observed seeking out warm water areas for sunbathing, like the discharge of cooling water from power plants.

Although green turtles are widespread around the world, emergence from the ocean to the atmosphere for basking—as opposed to nesting or stranding due to harm or disease—only takes place at a few well-known places, all in the Pacific. These locations include Socorro Island, the Hawaiian Archipelago, Australia's Wellesley Islands in the Gulf of Carpentaria, and the Galapagos. An unusual story of green turtles basking in Namibia, Southwest Africa, is currently being investigated. In the logbooks of early European explorers who turned turtles into food, green turtles have been documented to sunbathe in the Galapagos and Northwestern Hawaiian Islands for centuries.



Green turtles are known to sunbathe, regardless of their size, stage of life, or gender. In Hawaii, basking takes place near shorelines where hatching takes place or where pastures for foraging algae are present. Green turtles in the pelagic phase have been spotted enjoying the sun on floating items. Green turtles in Hawaii land on their own, although in other places they bask passively in shallow bays during ebbing tides. Both the day and the night are suitable times for basking. In captivity, basking has been observed in rearing tanks with ramps that enable small turtles to emerge and on artificial nesting beaches (Sea Life Park Hawaii). Basking turtles frequently group together, indicating a social element. Basking might have a hereditary component. A variety of surfaces, including different-sized black to light-colored sand, boulders, ancient lava flows, limestone benches, the tops of offshore coral heads, shipwrecks, and even beach chairs, are used for tanning. Due to tourism, basking turtles in Hawaii have grown acclimated to being around people. Conflicts on the beach arise

when people with opposing viewpoints disagree about whether or how to control turtle viewing. It is important that basking did not exist in the Main Hawaiian Islands until the 1990s, when it started to spread quickly in both breadth and scale along with a large increase in turtle populations linked to the commercial harvest prohibition from the 1970s. The accessibility of basking turtles has made it possible to publish and conduct a variety of life history research studies that were previously impossible.



So why do green turtles bask?

That should be an easy question to answer, but it is not so simple that they bask like freshwater turtles just for the reason of regulating their body temperature. Heat acquisition was only part of the reason, according to a significant study on the thermal ecology of sunbathing in Hawaii. Elevated body temperatures have the potential to mobilize stored fat and, theoretically, hasten egg maturation in females who are laying eggs. Additionally, basking turtles of all sizes may theoretically benefit from optimal body temperatures that aid in digestion. Parsimony, on the other hand, suggests that basking can be a mechanism for females to escape unwelcome copulation by males and for turtles to avoid danger from predators like tiger sharks. Additionally, it makes sense that a turtle that is out of the water can preserve energy by basking because it does not need to frequently come to the surface to breathe when it is resting in an underwater refuge. Another theory that is being debated and supported by published research is that the growing turtle population in Hawaii is causing carrying capacity of some foraging meadows to be exceeded. That example, turtles with poor nutrition feel that basking is essential.

A 1925 issue of National Geographic Magazine featured the first published image of "a green turtle napping on a sandy beach" in the Northwestern Hawaiian Islands. The caption, which provides the most succinct and accurate explanation of why green turtles bathe, reads as follows- " These grotesque creatures browse in submarine fields of algae until hunger is satisfied, and then crawl heavily out to sprawl in the sand, safe from enemies in the sea."



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海龟冷知识 | 晒太阳背后的秘密

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海龟在哪里晒、如何以及为什么要晒太阳？

所有的爬行动物，除了皮皮虾，都是外温动物，因此完全依赖外部的体温来源来调节生理功能。相反，内温动物（哺乳动物和鸟类）维持自己的体温。淡水龟为调节体温而晒太阳的现象很普遍，也很有名。然而，在七种海龟中，只有绿海龟从海里出来晒太阳，正如 Mirriam Webster 所定义的“在一个愉快的温暖或氛围中躺着或放松”。太平洋丽龟，有时还有其他海龟，也会晒太阳，但只是在阳光充足、风浪平静的时期，在海面上露出龟壳。一些硬壳海龟，包括食草的绿海龟，会寻找暖水区晒太阳，如发电站的冷却水排放口。

尽管绿海龟遍布于全球，但与产卵或因受伤或生病而搁浅不同的是，绿海龟从海洋到水面之上的空气中晒太阳只发生在几个有据可查的地方，都在太平洋地区。这些地方包括加拉帕戈斯、索科罗岛、澳大利亚卡彭塔利亚湾的韦尔斯利群岛和夏威夷群岛。目前正在调查非洲西南部纳米比亚的一个关于发现绿海龟晒太阳的异常报告。人们从早期欧洲航海家的航海日志中得知，几个世纪以来，他们把在加拉帕戈斯和夏威夷群岛西北部晒太阳的绿海龟当作食物。

所有绿海龟，不论大小、生命阶段、雄性和雌性，都会晒太阳。在夏威夷，海龟们的日光浴发生在产卵场的海岸线上，或邻近藻类觅食的牧场。远洋阶段的绿海龟被发现在漂浮物上晒太阳。夏威夷绿海龟自己爬上岸，而在其他地方，日光浴是在浅水湾的落潮中被动实现的。晒太阳可以在白天或晚上进行。在人工饲养的人工筑巢海滩(夏威夷海洋生物公园)和带有斜坡的饲养箱中，已经记录了晒太阳的情况，允许小海龟出现。

晒太阳的海龟经常聚集在一起，表明有社会因素，也可能有一个遗传因素。海龟们晒太阳的基质千奇百怪，从黑色到浅色的不同颗粒大小的沙子、岩石和古老的熔岩流、石灰石台和近海珊瑚头的顶部、沉船，甚至是海滩上的休闲椅。

在夏威夷，晒太阳中的海龟已经习惯了人们在旅游的同时接近它们。在如何或是否有必要管理海龟观赏的问题上，持不同观点的人之间爆发了海滩冲突。重要的是，在 20 世纪 90 年代之前，夏威夷群岛的晒太阳行为并不存在，当时这种行为在范围和程度上都开始迅速蔓延，与此同时，海龟数量的急剧增加与 20 世纪 70 年代的商业捕捞禁令有关。接触上岸晒太阳的海龟的便利，促进了一系列关于海龟生命史的研究项目的开展和发表，这在之前几乎是不可能的。

那么，绿海龟为什么要晒太阳？

这本应该很容易回答，即它们像淡水龟一样晒太阳，主要是为了优化体温。但事实并非如此简单。对于夏威夷晒太阳的海龟的热生态学的一项重要研究发现，热量的获得只是日光浴的一部分。较高的体温可以调动储存的脂肪，因此理论上可以加速即将产卵的雌龟的卵成熟。理论上，最佳的体温可以促进所有尺寸的海龟在晒太阳时的消化。然而，根据推论，晒太阳可以作为一种手段，让雌性避免和不想要的雄性交配，同时让海龟远离虎鲨等捕食者的伤害。另外合理的解释是，晒太阳可以节省能量，因为离开水的海龟不需要像在水下栖息时定期浮出水面进行呼吸。另一个得到了公开研究支持的假设是，夏威夷某些觅食牧场已经不堪承载数量大幅增加的海龟，也就是说，对于营养不良的海龟，晒太阳是必须的。

在夏威夷群岛西北部，第一张公开发表的照片 "一只绿海龟在沙滩上睡觉" 出现在 1925 年的《国家地理》杂志上。标题如下，可能是对绿海龟晒太阳的原因给出了最简洁和最好的答案--"这些怪异的生物在海底的藻类区域巡游，直到饥饿得到满足，然后重重地爬出来，在沙地上爬行，安全地躲避海中的敌人。"

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