

《最长寿淡水鱼：能活过百岁且越老越健康》



[Photo/Unsplash]

一项新研究显示，水牛鱼格外长寿且它们在八九十岁时身体状态最好。钓鱼爱好者斯图尔特·布莱克（Stuart Black）钓过很多鱼，但他2019年在亚利桑那州的阿帕契湖钓到他的第一条水牛鱼时，他预感这是件特别的事。事实证明，他的直觉是正确的。

Scientists recently confirmed that the majority of the buffalofish swimming around this remote desert lake in eastern Arizona are older than a hundred.

科学家最近证实，在亚利桑那州东部这个偏远的沙漠湖周围生活的大多数水牛鱼的年龄都在100岁以上。

The discovery builds on other recent research that has upended beliefs about the little-studied buffalofish, a genus of five freshwater fish species native to North America. 这一发现建立在最近其他研究的基础上，这些研究颠覆了人们对水牛鱼的看法，水牛鱼是一种原产于北美的五种淡水鱼属。

Just a few years ago, scientists thought that these fish, which come in an array of colors from chestnut brown to bluish, only lived into their mid-20s. However, a 2019 study revealed that bigmouth buffalofish could live up to 112 years old, making it the oldest known freshwater teleost, a group of about 12,000 ray-finned fish species found worldwide. Then in January, researchers announced the discovery of a 127-year-old bigmouth in Saskatchewan, Canada.

就在几年前，科学家们以为这些栗色、蓝色的鱼只能活到20多岁。然而，一项2019年的研究揭示，大口水牛鱼能活到112岁，是已知最古老的淡水硬骨鱼，这是一种在全球范围内发现的约有12000种的射线鳍鱼类。在今年1月，研究人员宣布在加拿大萨斯喀斯温省发现一只127岁的大口水牛鱼。

Now, the new study, published recently in Scientific Reports, confirmed that two more buffalofish species—the smallmouth buffalo and the black buffalo—can live more than a hundred years, making it the only known genus of animal besides the marine rockfish, *Sebastes*, that has three centenarian species.

现在，最近发表在《科学报告》上的这项新研究证实，又有两种水牛鱼——小口水牛鱼和黑水牛鱼——可以活过一百岁，这使其成为除了海洋岩鱼（主要由鲷科成员组成）之外，唯一已知的拥有三种百年物种的动物属。

For the Arizona study, a few dozen anglers, including Black, caught 222 buffalofish at Apache Lake from July 2018 to July 2023. Twenty three were humanely euthanized and donated to the research team, who estimated the fishes' ages by removing and analyzing tiny ear stones called otoliths. These calcium carbonate structures, which allow fish to hear and sense vibrations in the water, form a new layer each year that can be read somewhat like tree rings.

在亚利桑那州的研究中，2018年7月至2023年7月，包括布莱克在内的几十名垂钓者在阿帕契湖捕获了222条水牛鱼。23条被人道安乐死并捐赠给研究小组，研究小组通过移除和分析微小耳石来估计这些鱼的年龄。这些碳酸钙结构使鱼类能够听到和感知水中的振动，每年都会形成一个新的层，类似树木的年轮。

The otolith analysis revealed that about 90 percent of Apache Lake's buffalofishes were more than 85 years old. Researchers aged individuals of all three species studied there—smallmouth buffalo, bigmouth buffalo, and black buffalo—past a hundred years old.

耳石分析揭示，大约90%的阿帕契湖的水牛鱼都活过85岁。研究者们估计那里的三种研究物种——小口水牛鱼，大口水牛鱼和黑水牛鱼——的个体年龄都在一百岁以上。

Greenland sharks have the greatest longevity of any living vertebrate, reaching at least 250 years old.

格陵兰鲨鱼是现存寿命最长的脊椎动物，可以活到至少250岁。

What's more, research has revealed that buffalofish continue to live their best lives into their upper 80s and 90s, with better stress response and immune function relative to

younger individuals.

此外，研究表明，水牛鱼在八九十岁时仍能保持最佳的生活状态，与年轻个体相比，它们应对压力的反应和免疫功能更强。

“The one takeaway is that buffalofishes do not conform to preconceived notions,” says study leader Alec Lackmann, a fish expert at the University of Minnesota. “They defy expectations.”

明尼苏达大学鱼类专家、研究负责人亚历克·拉克曼说：“一个结论是，水牛鱼并不符合我们常规的认识。它们的情况出人意料。”

Buffalofish can go decades between successful reproductions because they require very specific environmental conditions—most of which are still unknown—to procreate. That’s why the fish evolved to live so long: It’s an evolutionary adaptation to account for long periods without breeding, according to Lackmann.

水牛鱼的成功繁殖间隔可达数十年之久，这是因为它们需要非常特殊的环境条件才能繁殖，而其中大部分条件至今仍不为人所知。这就是水牛鱼进化得如此长寿的原因：拉克曼认为，水牛鱼长时间不繁殖是一种进化适应。

In Saskatchewan, where buffalofish can go up to 50 years without producing offspring, the fish only attempt to spawn within a narrow range of water-level fluctuations that may rarely occur.

在萨斯喀斯温省，水牛鱼可以长达 50

年不产后代，这种鱼只试图在狭窄水位波动范围内产卵，而这种情况可能很少发生。

Lackmann says further studies into buffalofish longevity could provide insight into how vertebrates, including humans, can live longer.

拉克曼说，对水牛鱼寿命的进一步研究可以深入了解包括人类在内的脊椎动物如何活得更长。

“One of the major outstanding questions about the buffalofishes is how they do it in terms of their amazing longevity. What is their fountain of youth?”

“关于水牛鱼的一个主要悬而未决的问题是，它们是如何实现长寿的。它们的青春源泉是什么？”

One strategy may be understanding why older buffalofish are less stressed and have stronger immunity than younger fish, which was confirmed in a 2021 study on bigmouth buffalofish.

其中一个可行策略是弄清楚为什么年长的水牛鱼比年轻的水牛鱼压力更小，免疫力更强，这一点在2021年一项关于大口水牛鱼的研究中得到了证实。

Older individuals could fight off bacteria better than younger animals. Not only that, the elderly fish had a lower ratio of neutrophils to lymphocytes in the blood, an indication of lower stress levels.

年老的个体能比年轻的动物更好地对抗细菌。不仅如此，老年鱼的血液中中性粒细胞/淋巴细胞的比例更低，这是压力水平较低的表现。

“ They are still advancing into prime condition at a century old, which is astonishing, ” Lackmann says.

拉克曼说：“它们在百岁年纪仍处于身体最佳状态，这令人惊讶。”

重点词汇

Just a few 只有几个；一二

years ago 多年前

come in 进来吧；到达；加入，参与；流行起来，上市；传来；取得；起作用，发挥作用；掌权，执政；当选；接收到；涨；有收入；定期收到

an array of 一系列；大量的；大量；一排；一批

chestnut brown 栗棕色；栗褐色；栗色；栗棕；栗褐

buffalofish 巨嘴亚口鱼

live up to 不辜负；符合；遵守

years old 岁；年龄；当我八岁时

a group of 一群

in January 一月；在一月份；在一月里

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