



Noise Pollution Is a Menace to Humanity – and a Deadly Threat to Animals

噪声污染是对人类的威胁，也是对动物的致命威胁

Date: Jan. 3, 2023

Noise pollution is one of the **gravest** yet least recognized health threats of our time. Even **moderate** levels of noise – the kind that surrounds us in any urban environment – increase risks of **cardiovascular** disease, cognitive **impairment**, developmental delays and **dementia**. Now, scientists are revealing that non-humans, too, suffer from noise pollution – and that they are far more sensitive than humans.

噪声污染是我们这个时代最严重，但最不为人关注的健康威胁之一。即使是中等水平的噪声——任何城市环境中我们周围的那种噪声——也会增加心血管疾病、认知障碍、发育迟缓和痴呆症的风险。现在，科学家发现，人类之外的生物也会受到噪声污染的影响，而且它们比人类要敏感得多。

Perhaps nowhere is this more urgent than in the global oceans. **Marine** animals see and sense the world through sound, which travels farther underwater than light. Whales – which use sound to find prey and navigate, communicate and mate – are one well-known example. But scientists are now revealing that a vast range of marine creatures are **exquisitely** sensitive to sound. The range of negative effects caused by marine noise pollution is **staggering**: delayed development, **hampered reproduction**, **stunted** growth, **distorted** migration paths.

也许噪声污染对全球海洋造成的影响最为紧迫。海洋动物通过声音感知世界，声音在水下比光传播得更远。鲸鱼就是一个人们熟知的例子，它们利用声音来寻找猎物、导航、交流和交配。但科学家们现在发现，大量的海洋生物对声音极其敏感。海洋噪声污染造成的负面影响令人惊诧：生长迟缓、繁殖受阻、发育不良、迁徙路线扭曲。

609 Words

grave [greɪv] *adj.* 严重的，重大的；严肃的 *n.* 墓穴 | The consequences will be very grave if nothing is done. 如果不采取任何措施后果将会是非常严重的。

moderate ['mɑːdərət] *adj.* 适度的，中等的；温和的 *v.* 缓和 | moderate to strong winds 中到大风

cardiovascular

[ˌkɑːrdioʊˈvæskjələr] *adj.* 心血管的

impairment [ɪmˈpeɪrmənt] *n.* 缺陷，障碍，损伤 | visual impairments 视力受损

dementia [diˈmenʃə] *n.* 痴呆

marine [məˈriːn] *adj.* 海洋的，海产的

exquisitely [ekˈskwɪzɪtli] *adv.* 剧烈地，异常地；精致地

staggering ['stægərɪŋ] *adj.* 令人震惊的，令人难以相信的 | The results have been quite staggering. 结果非常令人震惊。

hamper ['hæmpər] *v.* 妨碍，阻止 | The bad weather hampered rescue operations. 恶劣的天气阻碍了救援工作的进行。

reproduction [ˌriːprəˈdʌkʃn] *n.* 生殖，繁殖；复制

stunted ['stʌntɪd] *adj.* 发育（或生

Extreme noise can kill **outright**. A single shot from a **seismic survey air-gun** can kill **zooplankton** – the foundation of the marine food chain – up to a mile away from the **detonation** site. Motorboat engine noise has been found to affect fish **embryos**. As one study **grimly** noted: human noise may even be scrambling the eggs of baby fish.

极端噪声可以当场致死。地震勘探气枪的一次爆炸就能杀死距离爆炸地点一英里远的浮游动物，而浮游动物是海洋食物链的基础。摩托艇发动机的噪声已被发现影响鱼类胚胎。一项研究严肃地指出：人类的噪声甚至可能会影响幼鱼卵。

More remarkable still, even **aquatic** plants are highly sensitive to sound. Take, for example, marine seagrass. Just like **terrestrial** forests, seagrass is a **carbon sink**, contributing to stabilizing our global climate. In the past few decades, seagrass meadows the size of the Amazon have vanished. Climate change, pollution, boat anchors and **dredging**, the building of seawalls and harbors, and **hypersaline** water from **desalinization** plants are all likely factors. As researchers at the Technical University of Catalonia have recently discovered, we can now add noise pollution to this list of threats. When the scientists exposed a sample of Mediterranean seagrass to seismic blast-level sound, the seagrass was severely damaged, as were the **symbiotic** fungi that help the plants absorb nutrients.

更值得注意的是，即使是水生植物也对声音高度敏感。以海草为例，就像陆地上的森林一样，海草也是碳汇，有助于稳定全球气候。在过去的几十年里，与亚马逊雨林大小相当的海草床已经消失。气候变化、污染、船锚、疏浚、海堤和港口的建设，以及海水淡化厂产生的高盐度水都是可能因素。正如加泰罗尼亚理工大学的研究人员最近发现的那样，我们现在可以将噪声污染添加到这个会对海草造成威胁的列表中。科学家们将一份地中海海草样本暴露在地震爆炸级的声音中时，海草受到了严重破坏，帮助植物吸收营养的共生真菌也受到了严重破坏。

关注公众号：拾点外刊 免费下载电子版 附音频

长) 不良的

distort [drɪ'stɔːrt] v. 使变形, 扭曲; 歪曲, 曲解 | The paper was accused of distorting the truth. 这家报纸被指控歪曲真相。

outright ['aʊtraɪt] adv. 一下子, 立即; 完全彻底 adj. 完全的; 公开的 | The driver was killed outright. 驾驶员当场死亡。

seismic survey air-gun 地震勘探气枪 [注: 全球许多石油和天然气公司在近海地区使用地震勘探气枪探测地下油气, 气枪制造的爆炸噪声最远可传达 2500 英里, 其响度可达 260 分贝, 比火箭发射的声音还要大。]

zooplankton [ˌzəʊə'plæŋktən] n. 浮游动物

detonation [ˌdetə'neɪʃn] n. 爆炸, 引爆

embryo ['embriəʊ] n. 胚胎

grimly [grɪmli] adv. 严肃地

aquatic [ə'kwætɪk] adj. 水生的, 水栖的

terrestrial [tə'restriəl] adj. 陆生的, 陆栖的; 地球上的

carbon sink 碳汇 (指能从大气中吸收二氧化碳的森林、海洋或其他自然环境)

dredge [dredʒ] v. 疏浚, 清淤 | They're dredging the harbour so that larger ships can use it. 他们正在疏浚港湾以便大船驶入。

hypersaline [ˌhaɪpə'seɪliːn] adj. 高盐的

Why would plants, without any apparent means of hearing, be sensitive to sound? Marine plants have **organelles** called amyloplasts, which help plants sense sound **vibrations**, and also store food, orient themselves to gravity and thus root themselves in the ocean floor. These tiny organelles are **analogous** to organelles found in octopuses and shrimp, called statocysts, which can sense even tiny sound vibrations in water. In octopuses, statocysts are grouped into lateral lines on their heads and arms. This explains how, even without ears, octopuses can locate prey or **predators**, particularly in low light conditions: they hear with their arms. Similarly, plants hear with their bodies.

为什么没有任何明显听觉手段的植物会对声音敏感呢？海洋植物有一种叫做淀粉体的细胞器，它可以帮助植物感知声音振动，储存食物，使自己适应重力，从而在海底扎根。这些微小的细胞器类似于在章鱼和虾身上发现的细胞器，被称为平衡囊，它们可以感知水中极微小的声音振动。章鱼的平衡囊分布在头部和触手的侧线上。这就解释了为什么即使没有耳朵，章鱼也能定位猎物或捕食者，尤其是在光线较差的条件下：它们用触手来听。同样，植物也用它们的身体来听。

Their sensitive hearing is an advantage in the dark depths of the ocean, but it makes aquatic organisms very **vulnerable**. Loud underwater sounds can damage or destroy their hearing ability. These effects occur at much lower intensities of sound than are known to be damaging to terrestrial animals. By way of **analogy**: imagine a loud **siren** passing by. Now imagine that it **renders** you deaf; disrupts your digestion; and renders you so dizzy that you are unable to walk or tell which way is up. This is the fate of marine organisms in an increasingly noisy ocean: **an onslaught of** noise that **stunts**, harms and even kills.

水生生物灵敏的听觉在黑暗的海洋深处是一种优势，但这使它们非常脆弱。巨大的水下声音会损害或破坏它们的听力。能造成这些伤害的声音强度比已知会对陆地动物造成损害的声音强度低得多。打个比方：想象耳

desalinization

[diˌsæləˌnaɪˈzeɪʃən] *n.* 脱盐，海水淡化

symbiotic [ˌsɪmbaɪˈɑːtɪk] *adj.* 共生的，互惠互利的

organelle [ˌɔrgəˈnel] *n.* 细胞器

vibration [vaɪˈbreɪʃn] *n.* 震动，颤动；（感情的）共鸣 | We could feel the vibrations from the trucks passing outside. 我们可以感到外面卡车经过时的颤动。

analogous [əˈnæləɡəs] *adj.* 相似的，类似的 | The report's findings are analogous with our own. 这篇报告的发现与我们的类似。

predator [ˈpredətər] *n.* 捕食者；剥削者，掠夺者

vulnerable [ˈvʌlnərəbl] *adj.* 脆弱的，易受伤害的 | Old people are particularly vulnerable members of our society. 老年人是社会中尤为明显的弱势群体。

analogy [əˈnælədʒi] *n.* 类比，比拟 | The teacher drew an analogy between the human heart and a pump. 老师打了个比喻，把人的心脏比作水泵。

siren [ˈsaɪrən] *n.* 汽笛，警报器

render [ˈrendər] *v.* 使成为，致使；给予，提供 | His back injury had rendered him unfit for work. 他的背伤使他不适宜工作。

an onslaught of 大批，大量

stunt [stʌnt] *v.* 阻碍生长，妨碍发展，遏制 *n.* 花招，噱头 | Poor diet

边响过一声响亮的警笛。现在想象它使你失聪，扰乱你的消化系统，使你头晕目眩，无法走路，也分不清哪边朝上。这就是海洋生物在日益嘈杂的海洋中的命运：大量的噪声会阻碍它们的生长，伤害甚至杀死它们。

These findings **underscore** the vast threat that marine noise pollution poses to our oceans. As **offshore** operations – from seabed mining to oil and gas and renewable energy construction – are **proliferating**, little thought has been given to noise pollution. While exposure **threshold** levels have not yet been determined, it is clear that this emerging science will eventually lead to new restrictions on the permitting and operations of marine industrial and shipping activities.

这些发现强调了海洋噪声污染对海洋造成的巨大威胁。海上作业（从海底采矿到开采油气和可再生能源建设）激增的同时，人们却很少考虑噪声污染。虽然接触阈值水平尚未确定，但显然，这一新兴科学最终将导致对海洋工业和航运活动的许可和操作施加新的限制。

can stunt a child's growth. 糟糕的饮食会阻碍儿童的发育。

underscore [ˌʌndər'skɔːr] v. 强调，突出 | The study underscores the importance of early diagnosis. 该研究强调早期诊断的重要性。

offshore [ˌɒf'ʃɔːr] adj. 海上的，近海的 | offshore drilling 近海钻探

proliferate [prə'lifəreɪt] v. 迅速繁殖（或增殖），猛增 | Books and articles on the subject have proliferated over the last year. 过去一年以来，论及这一专题的书和文章大量涌现。

threshold ['θreʃhoʊld] n. 阈，界；起始点；门槛，门口 | My earnings are just above the tax threshold. 我的收入刚刚超过征税起点。

➤ 脉络梳理

- Para. 1-2 引出话题：噪声污染不仅对人类有影响，还会对其他生物尤其是海洋生物造成危害
- Para. 3-4 具体介绍噪声污染对海洋动植物造成的影响
- Para. 5-6 分析水生植物也会受到噪声影响的原因
- Para. 7 展望未来，指出针对噪声污染对海洋生物影响的研究将带来新的限制

➤ 长难句拆解

Perhaps **nowhere** is this more urgent than in the global oceans.

• 否定副词 nowhere 放句首构成部分倒装，句中 nowhere（否定）与比较级连用表示最高级含义。

正常语序：This is more urgent nowhere than in the global oceans.