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[Environment](#), [Water](#)



English 90/101

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Navy Sonar Testing Vs. Marine Life

Sonar is an artificial form of echolocation, which involves the use of sound navigation and ranging techniques for the propagation of sound underwater. This technology is used for navigating, communicating or detecting objects that are under or above the water surface. Specialized sea creatures such as whales and dolphins have the ability to use sound reflected from waves for sensing and locating distant objects or prey, this is called echolocation. Bats also use the same technique to navigate in the dark. Humans also use echolocation through sonar technology in ships and submarines to avoid icebergs, locate fish, and navigate in the sea. Sonars technology is highly beneficial but there are some negative connotations to it. The effects of sonar system on the marine ecosystem is largely undocumented but most of the recent studies have discovered the staggering effects of sonar systems on marine life. This review documents the existing information on the effects of sonar on marine fauna.

The use of navy sonar testing is a tactical necessity for US Navy because of the gains accrued from it, despite the staggering pitfalls that accompany it; and therefore there is a need to improve its use instead of shelving it completely. Brosnan posits that the testing of navy sonar can have long term impacts on marine life. At the heart of the matter is that whales and most marine fauna depend on their auditory capabilities and low frequency sonar for basic functions such as communication, orientation, finding food, making

friends, meeting mates and sea exploration. Higher frequency sonar interferes and obstructs the normal functioning of all auditory capabilities of marine fauna, thus impacting basic functions such as feeding and mating. Feeding and mating are two basic functions of organic life forms and in the event that they are interfered with, death and extinction automatically follow (Brosnan).

Brosnan states that an active sonar system produces very intense sound waves, which have the potential to travel through the ocean like floodlight and thereby unveil objects in its path including hidden submarines, icebergs etc. Some sonar systems operate at decibels as high as 235. According to Brosnan, this amount of sound frequency can travel across hundreds of nautical miles. For instance, noise from the navy's main low frequency sonar sound system was felt across the northern Pacific Ocean during tests that were carried off the coast of California. Moreover, these sonic waves have the capacity to retain decibels as high as 140. This sound intensity is one hundred times more powerful than the amount that is known to alter or interfere with whales' behavior (Brosnan).

Presently, the navy's most common sonar system runs in mid frequency range, which can have life-threatening impacts on marine fauna. The credibility of this standpoint was brought to the fore in 2000 when four different species of whales beached themselves along the shores of Bahamas. Beaching or stranding is a phenomenon where whales come up on beaches from water. This incident was followed by a notable disappearance of Cuvier's beaked whales. Marine researchers concluded that the Cuvier's beaked whales had either died in the sea or abandoned their habitat. Similar

mass beaching and deaths at the sea shore were also noted in Greece, Madeira, the Canary Islands and the United States- particularly in the Virgin Islands and Hawaii.

During the aforementioned instances of higher sonar frequencies, marine life and beach whales have sustained extensive physical trauma. This physical trauma has included bleeding in the ears, brain and oral tissues. Foley elaborates that whales and marine life have also sustained bubbles in their internal and external organs. Scientists such as Foley compare the physical effects of sonar on marine life to the illnesses that kills scuba divers when they surface fast from deep water. Foley further clarifies that mid frequency sonar blast has the power to significantly modify the diving patterns of whales. These newly acquired diving patterns alter the behaviour ecology of the whales and other marine animals, often resulting in fatal injuries (Foley, 1).

Southall points out that the beaching whales are not the ultimate manifestation of the adversity of higher sonar frequency. On the contrary, beaching whales are but the most visible signs of the problems that affect the much larger community of marine life. According to Southall, apart from the previously mentioned disrupted feeding, communication, socialization and mating habits, naval sonar has consistently shown its ability to alter the behavior of whales and marine life by causing unnecessary stress and driving animals away from traditional feeding waters. Scientists point out that the cumulative effects of naval sonar is not fully known but could be staggering (Southall). Recent estimates made by the navy on the impacts of Sonar is unsettling. According to Navy personnel, subsequent five years of

Sonar testing will have an impact on the marine life that will be 10 million times the effect caused between the years 2000-03. During this time the marine life along US coasts (Virgin Islands and Hawaii) may be impacted beyond resurgence(Evans).

We are faced with a difficult choice when it comes to sonar, while sonar is indispensable for naval technology and warfare, we simply cannot overlook its impact on marine biodiversity. Decommissioning sonar technology is not an option as that will expose tactical vulnerabilities that a superpower like USA cannot afford to have(Chang and Watson).

Finding a middle way is very important to maintain the USA's Naval supremacy without affecting marine biodiversity along the Coastline. First, it is important that the navy limits the testing of sonar technologies to Fort Lauderdale, this will localize the impact of sonar at a spatial scale. The second approach involves installation of sophisticated weapons across the East Coast so as to minimize the impact on dolphins, whales and other forms of marine life. Unfortunately, these recommendations are still in form of draft federal reports and the damage caused meanwhile may cause irreversible damage to marine biodiversity. This recommendation is also to be followed with the gradual shifting to undersea cables and newer forms of protection devices, which will replace sonar technology and limit its usage. The installation of these undersea cables and safer devices are soon to begin off the coast of Port Everglades.

The Environmental Protection Agency (EPA) should move quickly to establish marine life/mammal protection zones. Naval observers aboard ships should have the power to abort detonation of test nuclear devices when marine

mammals are spotted nearby. The above-mentioned recommendations should be followed by capacity building of relevant organizations and environmental safety agencies such as the Natural Resources Defense Council (NRDC). NRDC has been instrumental in the effort to have sonar use regulated, as a way of protecting whales and other forms of marine life from long-term harmful effects. It is against this backdrop that the NRDC was able to file a case in 2008, against the US Navy at the United States Supreme Court. This case brought attention to this issue and raised awareness about the effects of sonar on marine life. The NRDC should be equipped with the power to oversee adherence to the stranding response plan. Specifically, it will be of great help to have the NRDC send its officers to the sonar testing site so as to ensure conformity to the dictates of the stranding response plan. To this effect, US Navy ships should have NRDC officers aboard during naval sonar testing. The NRDC should be made an autonomous institution so as to reduce chances of collusion with the Navy. The crux of the matter is that, Marine biodiversity is responsible for delicate balance of life on earth, therefore we need to protect it at all costs. A significant amount of damage is already done, but we can take steps to ensure that marine ecosystem gets a chance to recuperate. The Navy and NRDC should work closely with the public to make sure that innocent marine animals no longer have to bear the brunt of our naval aspirations.

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