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The deaths of beaked whales
have been blamed on naval
exercises involving sonar.

Panel quits in row over sonar damage

SAN DIEGO

As the US Navy plans to expand its testing of sonar in the oceans, the creation of an independent research programme to find out how the noise may affect marine mammals seems doomed. Evidence is also emerging that the Navy may have been pressuring scientists to downplay links between sonar and damage to marine life.

After two years of meetings costing nearly \$1 million, an advisory committee of scientific, military and industry leaders convened by the US Marine Mammal Commission (MMC) has collapsed. Instead of producing a consensus-based report on how best to study the effects of sonar on marine mammals, the 28 members will, next week, submit individual recommendations. The MMC will then report to US Congress in the next few months, but without agreement, it is unlikely that any research will be funded.

At the beginning of the decade, environmental groups took the Navy to court over its use of low-frequency sonar. The Navy lost early court rounds, but after going to Congress, won exemptions from environmental laws. In 2003, Congress created the MMC advisory panel, in

which warring parties were brought together to hammer out a plan for future research and management. It was hoped that agreed research questions would be pursued by an independent programme, estimated to cost about \$25 million over five years.

Such research is badly needed. Little is known about how marine mammals are affected by sonar — although whales or dolphins have repeatedly been found beached after military sonar tests. The strongest evidence for its destructive effects comes from British researchers, who reported that military sonar off the Canary Islands was linked to decompression deaths of beaked whales (P. D. Jepson *et al. Nature* **425**, 575–576; 2003). A subsequent study found cavities in sperm whale skeletons, supporting the idea that whales suffer from decompression sickness (M. J. Moore and G. A. *Early Science* **306**, 2215; 2004).

MMC executive director David Cottingham says the committee couldn't agree because of "the high degree of uncertainty over the impact of various noises on marine mammals". But interviews with observers and panel members suggest that the Navy, as well as other groups that use sonar, including geophysical

researchers and the oil and gas industry, blocked a consensus. A Navy spokesman, however, denies this; along with representatives from the other groups, Navy officials insist that they are interested in good science.

What lies beneath

Mammalogists on the panel disagree. "This process has been a travesty of fiscal responsibility, scientific integrity, and environmental stewardship," Lindy Weilgart of Dalhousie University in Nova Scotia, Canada, wrote to the MMC as the committee disintegrated last September.

"The science of ocean sound is highly politicized," adds Hal Whitehead, a marine mammalogist at Dalhousie and Weilgart's husband. "I see the breakdown of the committee as an indication that the Navy and others didn't want Congress to have a clear picture of what the risks are."

Either way, the promised research is unlikely to happen. And scientists question whether the current US programme, funded mainly by the Navy, will tackle questions fairly and openly. Late last year, a lawsuit forced the release of e-mails in which military officials discussed their attempts to pressurize a

researcher funded by the Office of Naval Research (ONR) to withhold comments on the damaging effects of sonar. The 2001 e-mails detail how Robert Gisiner, who manages the ONR's mammal research funding programme, engaged in "a pretty scorching phone call" with Robert Schusterman, a marine biologist at the University of California at Santa Cruz. Schusterman had filed comments for an environmental report saying that a Navy sonar test could be harmful to marine mammals. Gisiner denies any impropriety and says he was simply "talking to an old friend".

And last week, a report by Teri Rowles, coordinator of the National Marine Fisheries Service's (NMFS) stranding programme, was made public in another court case; the National Resources Defense Council is aiming to force the NMFS to release information about the

potential impact of a new training range planned off North Carolina. In an initial version of the report, Rowles reported that the death of at least one whale stranded on the North Carolina coast last year could have been caused by sonar. But in the final report released by the NMFS, the link to sonar had been removed.

Critics see such incidents as evidence of the conflict of interest inherent in the current Navy programme. Whitehead and Weilgart wrote in October that the funding system should be changed, "to safeguard the credibility of the field and protect us all from conflicts of interest" (see *Mar. Mamm. Sci.* 21, 779–781; 2005).

Meanwhile, the public has until the end of January to comment on the Navy's plans for a new training range. ■

Rex Dalton

Nations wrestle to host future telescope

Observatories in Chile and Mexico are vying to host a new kind of astronomical facility, which, if approved, will set the standard for sensitive all-sky surveys in the next decade.

The Large Synoptic Survey Telescope (LSST) corporation, based in Tucson, Arizona, has asked for proposals from astronomers at three sites chosen for their excellent visibility: Las Campanas and Cerro Pachón in Chile, and San Pedro Mártir in Mexico. The winning site will be announced in April.

The LSST's ambitious goal is a kind of "celestial cinematograph", says project director Tony Tyson of the University of California, Davis. A single 8.4-metre telescope will photograph the entire sky every three days, across a range of wavelengths from ultraviolet to near-infrared.

The survey will pick up far fainter objects than today's Sloan Digital Sky Survey, and LSST images could be used for a range of astronomical problems, from searching for dark matter to tracking fast-moving asteroids. The volume of data generated will be unprecedented — 20 terabytes

of raw image data, more than the entire Sloan Survey's output, every night.

Tyson sees the LSST as a "totally different paradigm" for astronomy, akin to the Human Genome Project. All the data will be shared freely, as will the algorithms for image



Mexico's San Pedro Mártir site is favoured for its remoteness.

processing. He says the project is now spending most of its time on software development, and recently used Wayne Rosing, Google's former senior vice-president of engineering, as a consultant.

Private funding has allowed work to begin on the mirrors, and the National Science Foundation (NSF) is providing US\$14.2 million over four years. Still, that's far from the \$270 million

needed for construction and a decade of operations. Tyson hopes the US Department of Energy and the NSF will contribute roughly \$100 million each, with the rest coming from private sources.

The Chilean sites already have several premier telescopes, including the Gemini and SOAR (Southern Astrophysical Research Telescope) on Cerro Pachón and the Magellan telescopes on Las Campanas. The San Pedro Mártir site in the Mexican state of Baja California is less well known; its largest instrument is a modest 2.1 metres in diameter.

But the remoteness of the Mexican site could be a bonus; the Chilean observatories have had to contend with light pollution as the population builds up in nearby communities. The 'astro-climate' for the three sites — which includes factors from atmospheric transparency and stability to the number of clear nights per year — is virtually identical, says Tyson. So other considerations, from local infrastructure to politics, may sway the decision. ■
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