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THE NAVY AND LOW FREQUENCY ACTIVE SONAR: STRIPPING THE ENDANGERED SPECIES ACT OF ITS AUTHORITY

NATE CIHLAR*

For over two decades,¹ the United States Navy has been developing a new technology called Surveillance Towed Array Sensor System Low Frequency Active Sonar ("LFAS"), designed for the detection of enemy submarines.² In order for LFAS to be successful, it must emit low frequency sounds³ that are potentially damaging to the habitat and survival of many endangered species.⁴ Reports have claimed that these species, in particular the humpback and sperm whales, behave erratically whenever the Navy conducts system testing;⁵ some opponents even blame the sonar for directly

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¹ According to Lanny Sinkin, an attorney who has represented several parties, including the Hawaii County Green Party, over the past decade in litigation against the Navy and its use of Low Frequency Active Sonar ("LFAS"), the initial development of the LFAS system began as early as 1980. Lanny Sinkin, *Comments of Lanny Sinkin on National Marine Fisheries Service Proposed Rule, Docket No. 990927266-0240-02, I.D. 072699A, Taking and Importing Marine Mammals; Taking Marine Mammals Incidental To Navy Operations of Surveillance Towed Array Sensor System, Low Frequency Active Sonar*, at § 2.0, available at <http://www.manyrooms.com/commentslanny.htm> (May 31, 2001) [hereinafter Sinkin, *Comments on NMFS Rule*].

² Defenders of Wildlife, *LFA Sonar: A Deadly Technology*, at <http://www.defenders.org/wildlife/new/marine/whales/sonar.html> (last visited Oct. 23, 2003).

³ "Sound waves can differ in wavelength, intensity, and frequency (measured in cycles per second or Hertz). The lower the frequency of a sound, the farther it can travel in the ocean. Sound of frequencies below 1000 Hertz (Hz) is often referred to as low-frequency sound." Elena M. McCarthy, *International Regulation of Transboundary Pollutants: the Emerging Challenge of Ocean Noise*, 6 OCEAN & COASTAL L.J. 257, 262 (2001).

⁴ Unfortunately, these low levels of sonar may be interfering with animals who use sound for "navigat[ion], finding food, staying with other members of one's species, and reproduction" Greenpeace Found. Campaign, *LFA/Ocean Environment Campaign*, at <http://www.greenpeacefoundation.com/action/campinfo.cfm?campID=18> (last visited Oct. 23, 2003).

⁵ See generally Larry Sinkin, *United States Navy Testing of Low Frequency Active Sonar on*

causing the whales to beach themselves.⁶ Environmentalists continue to argue that LFAS's interference with the whales' habitat amounts to taking them by "harm," in violation of the takings clause of the Endangered Species Act ("ESA").⁷ Since humpback and sperm whales are federally protected, ESA holds that federal funds cannot legally be used to "harm" these animals.⁸

I. BACKGROUND

Throughout the 1980s and early 1990s,⁹ evidence accumulated showing that the Navy was developing LFAS without the initial required scientific testing outlined by ESA.¹⁰ Further allegations claimed the existence of ample evidence that a taking had already occurred. If valid, this evidence should have the requisite authority to force the Navy to apply for an incidental take permit in order to continue the implementation of the system.¹¹

The proposed illegal conduct by the Navy created a precarious situation: either force the Navy to complete an Environmental Impact Statement ("EIS") through preliminary tests, even after years of development, or allow the Navy to avoid the testing altogether. If an EIS were completed and testing uncovered a scientifically proven link between LFAS and the death of the endangered species, ESA could require a complete halt to LFAS develop-

Humpback Whales and Other Beings Off the Island of Hawaii: Facts and Policy Issues (Apr. 16, 1998), available at <http://www.ilhawaii.net/~light/report3.html> [hereinafter Sinkin, *Facts and Policy Issues*].

⁶ For a full list of possible effects on marine mammals from LFAS, see MARINE MAMMAL COMM'N ANNUAL REPORT OF THE MARINE MAMMAL COMMISSION: ANNUAL REPORT TO CONGRESS at 168-69 (1997). Some of the effects found are: "death from . . . trauma," "hearing loss," "disruption of feeding, . . . nursing, . . . communication and sensing," and "stress, [which makes] animals more vulnerable to disease . . . and predation . . ." *Id.* at 169.

⁷ Endangered Species Act, 16 U.S.C. § 1538(a)(1)(C) (2000) (prohibiting the taking of endangered species on the high seas).

⁸ Congress states in ESA that "the United States has pledged itself as a sovereign state in the international community to conserve to the extent practicable the various species of fish or wildlife and plants facing extinction . . ." 16 U.S.C. § 1531(a)(4) (2000).

⁹ See generally Sinkin, *Comments on NMFS Rule*, *supra* note 1 (discussing the Navy's testing program).

¹⁰ Before beginning the development of any government project that may have detrimental effects on endangered species, ESA requires the Navy to prepare an Environmental Impact Statement ("EIS"). 16 U.S.C. § 1539(a)(2)(A) (2000).

¹¹ The Secretary of the Interior may permit any taking that "is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B).

ment;¹² a costly decision, since the Navy may have spent three hundred and fifty million dollars on LFAS thus far.¹³ If the Navy, however, is not subjected to the laws of ESA and avoids the preliminary testing, the decision would virtually eliminate ESA's authority.

Although the Navy began development without following ESA procedures, mounting pressure led the Navy to agree to conduct preliminary tests before full implementation of LFAS.¹⁴ Once the tests were complete, allegations arose that the Navy used imprecise procedures during testing and that there were discrepancies with the end results.¹⁵ Over the past eight years, the Navy's use of LFAS has gained national and even international exposure, and has caused environmentalists to continually argue for ESA guidelines to be followed.¹⁶ The power to stop government agencies, especially the military, from taking endangered species and to require them to follow the guidelines set forth by ESA could ultimately be determined by the decisions made regarding the LFAS controversy.

A. *What is LFAS?*

The Navy has used sonar for decades to search for enemy submarines,¹⁷ "but it has relied primarily on passive sonars, which use sensitive micro-

¹² This is especially true because once a taking has been proven, incidental permits are very difficult to acquire and the EIS testing can take over a year to process before being granted. 7 NAT'L ACAD. OF SCI., TECHNOLOGY FOR THE UNITED STATES NAVY & MARINE CORPS, 2000-2035: BECOMING A 21ST-CENTURY FORCE; UNDERSEA WARFARE, app. D (1997), available at http://www.nap.edu/html/tech_21st/uwindex.htm.

¹³ This is the amount the environmental group, Hawaii County Green Party, claims the Navy has spent. Hawaii County Green Party v. Clinton, 124 F. Supp. 2d 1173, 1198 (D. Haw. 2000).

¹⁴ The Navy began the formal testing required by ESA in 1995 after "a scientist discovered the planned deployment of the system and alerted the Natural Resources Defense Council (NRDC)." Sinkin, *Facts and Policy Issues*, *supra* note 5. Since the formal testing began, national attention has continued to grow. See generally *id.*

¹⁵ See generally Ocean Mammal Inst., *US Navy's Misinformation to Congress about LFA (Low Frequency Active) Sonar*, at <http://www.oceanmammalinst.org/lfa-navy.html> (last modified June 7, 2000) (critiquing the Navy's response to Congressional inquiries about the use of LFAS).

¹⁶ See generally Sinkin, *Facts and Policy Issues*, *supra* note 5 (discussing the various forms of response the news of the testing has provoked).

¹⁷ In 1906, "Lewis Nixon invented the very first [s]onar type listening device," and ten years later, "[i]n 1915, Paul Langévin invented the first sonar type device for detecting submarines By 1918, both Britain and the U.S. had [instituted active sonar]" Mary Bellis, *The History of Sonar*, at <http://inventors.about.com/library/inventors/blsonar.htm> (last visited Oct. 23, 2003).

phones to pick up the sound of distant ships.”¹⁸ In contrast, LFAS emits a volatile low frequency sound.¹⁹ These active sonar sounds are produced by massive speakers at sound levels reaching two hundred and forty decibels.²⁰ “To put this sound in perspective, consider that the sound of a jet engine from 100 feet away is 130 decibels; exposure to any sound above 140 decibels causes immediate hearing damage in humans; and a sound of 160 decibels would instantly puncture your eardrums[.]”²¹

The purpose and design of LFAS is to detect solid objects in the ocean by creating an echo upon impact.²² Navy ships monitor these echoes, determining whether each came from an enemy submarine.²³ The major advantage to low frequency sonar is its ability to travel much farther than other higher frequency noises.²⁴ The Navy uses this advantage by “‘lighting up’ the deep sea with reflected sound” dispersed over wide stretches of ocean from individual speakers.²⁵ The Navy’s ultimate plan is to deploy this system in over eighty percent of the earth’s oceans,²⁶ making it impossible for federally protected endangered species, including humpback and sperm whales,²⁷ to avoid encounters with the sonar.

¹⁸ Defenders of Wildlife, *supra* note 2.

¹⁹ *See id.*

Sound is a form of mechanical energy. It is a vibration that travels as a wave in a fluid. While the ocean is basically opaque to light, it is comparatively transparent to sound. The ocean is an especially effective medium for transmitting sound—of all forms of known radiation, sound travels through the sea the best.

McCarthy, *supra* note 3, at 26.

²⁰ Defenders of Wildlife, *supra* note 2. “The decibel (dB) is the [measuring] unit [that] compare[s] different quantities of sound, usually intensity and power.” The scale it uses provides different levels and “expresses sounds logarithmically, so the difference between 180 and 190 dB is not 10, but 10 times.” McCarthy, *supra* note 3, at 262.

²¹ Defenders of Wildlife, *supra* note 2.

²² *Id.*

²³ *Id.*

²⁴ McCarthy, *supra* note 3, at 262.

²⁵ Greenpeace Found. Campaign, *supra* note 4.

²⁶ Lanny & Mary Rose Sinkin, *LFAS: The Last Sound You Hear*, Sea Shepherd Log, Summer 1998, at 3, available at <http://www.seashepherd.org.issues/habitat/sscslognoise.html>.

²⁷ ESA published lists of endangered animals and plants in 50 C.F.R. §§ 17.11, 17.12. Both the humpback and sperm whales were listed as endangered species on June 2, 1970. 50 C.F.R. §§ 17.11, 17.12 (2002).

B. *Endangered Species Act*

Ever since the passage of ESA²⁸ in 1973, critics have speculated about a need for change and have continually proposed more developed legislation.²⁹ Even with all the intimations that legislation needs to create laws that clarify the protection given to endangered species, “the Act stands as the United States’ best effort to date at preserving the country’s biological diversity.”³⁰ Congress passed ESA in order to ensure that industrialization by humans does not impede on the rights of other species.³¹ The Act does not consider the worth of the species it sets out to protect, but protects each species for its own benefit rather than for the benefit of humans.³² Congress passed the Act recognizing that endangered “species of fish, wildlife, and plants are of [a]esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people.”³³ Essentially, it is Congress’

²⁸ Congress enacted ESA to strengthen protection of endangered plants and animals. The Act combined United States species lists with foreign lists and applied uniform provisions, categorized species as “threatened” or “endangered,” required all agencies to employ policies for conservation of the listed species and enacted broad takings prohibitions. Fish & Wildlife Service, *History and Evolution of the Endangered Species Act of 1973, Including Its Relationship to CITES*, at <http://endangered.fws.gov/esasum.html> (last modified Oct. 1996).

²⁹ See Jeff Curtis & Bob Davison, *The Endangered Species Act: 30 Years on the Ark*, OPEN SPACES QUARTERLY, Jan. 2003, at 8, 19, available at <http://www.open-spaces.com/article-v5n3-davison.php> (“[O]ur commitment to species conservation must go beyond the ESA. Precious few species have been recovered, and the ESA has often succeeded in maintaining species and their habitat only at threshold [sic] levels.”). But see Michael S. Coffman, *The Problem with the Endangered Species Act*, NEWSWITHVIEWS.COM, Aug. 2, 2003, at para. 13, at <http://www.newswithviews.com/Coffman/mike2.htm> (“Federal environmental regulations like the ESA have destroyed the lives on tens of thousands of people, closed entire communities, and confiscated hundreds of millions (if not billions) of dollars of private property”). See generally Susan Petersen, Comment, *Congress and Charismatic Megafauna: A Legislative History of the Endangered Species Act*, 29 ENVTL. L. 463 (1999) (exploring the history and amendments of the Endangered Species Act). Many current problems facing ESA were unforeseen, such as threatened extinctions, when Congress drafted ESA in 1973. *Id.* at 482-83. These unforeseen problems have made the ESA much more difficult to enforce and a lot more costly. *Id.* at 482-84.

³⁰ Ray Vaughan, *Proof of “Prohibited Takings” Under the Endangered Species Act*, 27 AM. JUR. 3d *Proof of Facts* 421, 425 (1994).

³¹ ESA’s purpose is “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved” 16 U.S.C. § 1531(b) (2000).

³² Vaughan, *supra* note 30, at 425.

³³ 16 U.S.C. § 1531(a)(3).

policy that all federal agencies are responsible for their actions toward endangered species, and each agency must attempt to conserve the species listed.³⁴

II. THE TAKING CLAUSE

Section 9 of ESA provides the "takings clause." The clause makes it unlawful for any person subject to American laws to "take any [endangered] species within the United States or the territorial sea of the United States"³⁵ or to "take any such species upon the high seas"³⁶ It further defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."³⁷ The recent technological advancement of LFAS has brought the ESA takings clause back into heavy litigation with rampant questions concerning its breadth. This has left environmentalists with two primary approaches for pleading their case.

A. *Option 1: Direct Killing*

The first option is to prove that LFAS is directly "killing" the endangered species. In the waters surrounding recent Navy sonar use, there have been reports of whale deaths from internal bleeding.³⁸ Environmentalists argue that LFAS can cause "great damage to the immune system with injuries similar to being microwaved."³⁹ It is clear from the plain language of ESA's definition of "taking" that if the LFAS system is causing this internal bleeding and direct death, the Navy would be in violation of the takings clause.⁴⁰ Ultimately, the Navy would need either a valid incidental take permit or to be granted an exemption to the rule in order to continue

³⁴ Sabrina C.C. Fedel, *A Cause of Action for "Taking" of Wildlife Under the Endangered Species Act of 1973*, 13 CAUSES OF ACTION 273, 281 (1999).

³⁵ Endangered Species Act, 16 U.S.C. § 1538(a)(1)(B) (2000).

³⁶ 16 U.S.C. § 1538(a)(1)(C).

³⁷ 16 U.S.C. § 1532(19) (2000).

³⁸ One of the most recent was in March of 2000. Various beaked whale species were stranded and beached immediately following the passing of a naval fleet using mid-range sonar off the coast of the Bahamas. Ocean Def. Int'l, *LFA Sonar—The U.S. Navy's Plan to Kill Marine Mammals*, at <http://www.oceandefense.org/lfa.html> (last visited Nov. 1, 2003).

³⁹ *Id.*

⁴⁰ Since the takings clause specifically defines killing as a taking, a direct link to death would be nearly impossible to refute. 16 U.S.C. § 1532(19).

with the implementation of the system. There is, however, one major obstacle confronting environmentalists in their attempt to argue that the Navy is “taking” whales through direct killing—*proof*.

“Scientists have only scratched the surface in their understanding of how sounds are used by well-known animals; and for animals less studied the questions have not yet even been asked.”⁴¹ Additionally, although there seems to be circumstantial evidence supporting the proposition that the sound levels deployed by LFAS are causing injuries to the endangered animals, the Navy has classified most of the hard evidence from testing, and it is accordingly unavailable for independent scientific review.⁴² Therefore, even if the testing of LFAS resulted in hundreds of beached whales, scientists would be unable to directly link the internal bleeding to the sonar,⁴³ and the Navy could always argue that other variables played a role in each animal’s untimely death.⁴⁴

Independent scientists would have little to fall back on without the classified information,⁴⁵ making it nearly impossible to satisfy standing in order to bring a case. As a necessary element of standing, environmentalists would have to demonstrate “injury in fact” and that the injury is “fairly traceable” to the actions of the Navy.⁴⁶

To satisfy the “case” or “controversy” requirement of Article III, which is the “irreducible constitutional minimum” of standing, a plaintiff must, generally speaking, demonstrate

⁴¹ Greenpeace Found. Campaign, *supra* note 4.

⁴² *Id.*; see also Ocean Def. Int’l, *supra* note 38, at para. 5.

⁴³ It is very difficult to determine the effect that low frequency sonar has on animals because “sound is multi-dimensional” and hard to measure. McCarthy, *supra* note 3, at 263. Many factors need to be considered such as: “the intensity of the sound, its duration, frequency, bandwidth, duty cycle, rise time, temporal structure, and the similarity of any of these factors to biologically relevant sounds.” *Id.*

⁴⁴ There are many difficulties in predicting actual levels of sound received by an animal, because “[s]everal environmental factors affect transmission loss in the ocean . . .” *Id.* “Overall noise in the ocean results from a combination of sources, some man-made (sonar, ships’ engines) and some natural (waves, wind, rain, ice).” *Id.* Ultimately, this leaves scientists guessing just how much sound the whales are exposed to. See *id.*

⁴⁵ To date, the significant literature written publicly about behavioral disturbance reactions of marine mammals are anecdotal and only concerned with short-term behavioral reactions. Few long-term studies are publicly available. *Id.* at 270.

⁴⁶ *Loggerhead Turtle v. County Council of Volusia County*, 148 F.3d 1231, 1247 (11th Cir. 1998) (quoting *Bennett v. Spear*, 520 U.S. 154 (1997)).

that *he has suffered "injury in fact," that the injury is "fairly traceable" to the actions of the defendant, and that the injury will likely be redressed by a favorable decision.*⁴⁷

The scientific community does not have sufficient definitive evidence to directly link internal bleeding with LFAS.⁴⁸ Circumstantial evidence combined with conjectural statistics⁴⁹ is unlikely to satisfy the requirement for standing because the scope of the sonar is so vast (eighty percent of the oceans) and so many other variables are present.⁵⁰ Ultimately, it is difficult to argue that the causal relationship is "fairly traceable" to the Navy if the Navy emits the sonar throughout the entire ocean at once, or continues to

⁴⁷ *Id.* (emphasis added).

⁴⁸ SARAH DOLMAN ET AL., WHALE & DOLPHIN CONSERVATION SOC'Y, OCEANS OF NOISE: A WDCS SCIENCE REPORT 57 (Mark Simmonds et al. eds., 2003), *available at* <http://www.wdes.org/dan/publishing.nsf/alweb/64543E9BBF9860D780256D2D00331176>.

⁴⁹ The International Whaling Commission's Standing Working Group on Environmental Concerns has provided statistical information for beached whales that is hard to refute. *See id.* at 39. The group

reported that 8/49 beaked whale strandings, and 6/6 multiple species beaked whale strandings occurred with "military activities". [sic] . . . In fact, the probability that 8/49 (or more) beaked whale strandings occurred with military activities to be greater than $p=0.05$ (the usually accepted level for rejection of a null hypothesis), military activity would have had to occur more than 8.4% of the time, and for the probability that 6/6 multiple beaked whale strandings occurred with military activities to be greater than $p=0.05$, military activity would have had to occur more than 60.7% of the time. The actual rate of military activities in any area is probably nearer 0.1%. Thus, the number of strandings of beaked whales with military activities is very unlikely to be a coincidence.

Id. (quoting Letter from Dr. Hal Whitehead, Killam Professor of Biology, Dalhousie University, to Donna Wieting, Chief of Marine Mammal Conservation Division, National Marine Fisheries Service (May 28, 2001)).

⁵⁰ *See generally* OceanLink, *Causes of Oceanic Noise Pollution and Recommendations for Reduction*, at <http://oceanlink.island.net/oceanmatters/noise%20pollution.html> (last visited Mar. 7, 2004) (discussing a number of sources of undersea noise pollution besides sonar, including large ships, boat traffic, acoustic thermometry, underwater exploration and mining, and pingers and ringers, which have caused ambient ocean noise to rise ten decibels from 1950 to 1975); DOLMAN ET AL., *supra* note 48.

only sporadically use the device, resulting in the beaching of only a handful of whales at times distant from one another.⁵¹ Environmentalists are left with no hard evidence that the sonar is actually “killing” endangered species.

B. *Option 2: Proof of “Harm”*

Regardless of whether the LFAS system is directly killing the endangered whales, the Navy could still be held responsible. The issue becomes just how broadly ESA’s takings clause should be read. Instead of focusing on the word “kill” in the takings clause, environmentalists may be best served by focusing on the interpretation of the word “harm.”

When interpreting the plain meaning of the word “harm,” one must consider that it “gathers meaning from the words around it.”⁵² In the context of the takings clause, Congress meant for “harm” to stand for a particular meaning different from the meanings of other categorical listings.⁵³ This different interpretation ultimately includes “indirectly injuring endangered animals through habitat modification”⁵⁴

Even if LFAS is not “directly” responsible for a whale’s death, the sonar could be disturbing the habitat in which the animal lives by altering reproductive activity, communication, and swimming patterns, among other things.⁵⁵ The Supreme Court’s decision in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon* stated that harm “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns”⁵⁶ Therefore,

⁵¹ Even though “standing is not defeated merely because the alleged injury can be fairly traced to the actions of both parties and non-parties,” many variables are found within the ocean that could impact results. *Loggerhead Turtle*, 148 F.3d at 1247 (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992)).

⁵² *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 702 (1995) (quoting *Jarecki v. G.D. Searle & Co.*, 367 U.S. 303, 307 (1961)).

⁵³ *Sweet Home*, 515 U.S. at 702.

⁵⁴ *Id.*

⁵⁵ See *DOLMAN ET AL.*, *supra* note 48, at 53, 54 tbl.5.2.1 (listing possible impacts of noise on cetaceans, including physical (auditory and non-auditory), perceptual, behavioral, chronic/stress, and indirect effects). Decompression sickness is a new concern in cetaceans, caused when “gas (principally nitrogen) comes out of solution, forming significant bubbles that, in turn, can grow and make damaging ‘holes’ in tissues.” *Id.* at 59. These gas bubbles obstruct narrow blood circulation pathways and thus keep oxygen from reaching tissues. *Id.*

⁵⁶ *Sweet Home*, 515 U.S. at 691 (quoting 50 C.F.R. § 17.3 (1994)).

one may conclude that the definition of "take" has been made broader because "take" includes "harm" which includes "habitat modification." The consequence of allowing the definition of "habitat modification" to include injuries not "directly" responsible for the endangered species' deaths ultimately ensures that "take" protect the species from indirect effects as well.⁵⁷

1. Breadth of "Habitat Modification"

In *Sweet Home*, the Supreme Court concluded that "significant habitat modification or degradation that . . . kills or injures wildlife" is covered under the "harm" portion of the takings clause.⁵⁸ Consequently, one must look even deeper and decide what constitutes sufficient habitat modification to enforce the "harm" provision.

Sweet Home was a class action suit filed by several small landowners and logging companies.⁵⁹ The issue was whether or not people could interfere with woods in the Pacific Northwest and Southeast that contained both the red-cockaded woodpecker and the northern spotted owl.⁶⁰ The Court held that interference was allowed so long as it did not result in a modification to the woods that "actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."⁶¹ "The problem after *Sweet Home* is the ambiguity of the Court's holding regarding the proof of causation of a habitat modification . . ."⁶² Since the decision, disagreement emerged about the interpretation of the word "actually." Commentators have argued that the word "actually" was used to

⁵⁷ See discussion *supra* at text accompanying note 53; see also Steven G. Davison, *The Aftermath of Sweet Home Chapter: Modification of Wildlife Habitat as a Prohibited Taking in Violation of the Endangered Species Act*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 541, 582 (2003) ("Habitat modification may constitute a prohibited taking in violation of the ESA either when the habitat modification directly kills or injures a particular protected animal or when the habitat modification indirectly kills or injures a protected animal.").

⁵⁸ *Sweet Home*, 515 U.S. at 708 (quoting 16 U.S.C. § 1538 (2000)).

⁵⁹ *Id.* at 692.

⁶⁰ *Id.* The red-cockaded woodpecker has been listed as an endangered species since Oct. 13, 1970; the northern spotted owl is a threatened species, listed since June 26, 1990. Endangered and Threatened Wildlife and Plants, 50 C.F.R. § 17.11 (2002).

⁶¹ *Sweet Home*, 515 U.S. at 691 (quoting 50 C.F.R. § 17.3 (1994)).

⁶² Brandon Jensen, *Litigating the Crossroads between Sweet Home and Daubert*, 24 VT. L. REV. 169, 178 (1999).

limit "harm that is hypothetical or conjectural, as opposed to harm that is concrete and particularized."⁶³ Regardless, at a minimum, "[c]ourts thus far appear content that the term 'actually' refers to the 'degree of certainty that harm would befall' an endangered species as opposed to the 'timing of the injury.'"⁶⁴ Finding that "actually" was implemented to refer to a degree of certainty, one can imply that in order to constitute a taking, the sonar does not have to directly kill the animals, but must only lead to eventual death due to a change in behavioral patterns. It seems that there must be a high degree of certainty that the habitat modification will lead to a deadly change in behavioral patterns. Some clarification has been provided by circuit courts since the *Sweet Home* decision in establishing just what degree of harm is necessary.

2. Necessary Degree: The Element of Imminence

In *Marbled Murrelet v. Babbitt*, the Ninth Circuit Court of Appeals found that a showing of "an imminent threat of future harm is sufficient for the issuance of an injunction under the ESA."⁶⁵ The plaintiff alleged that the defendant's logging activity would constitute a take of marbled murrelets, a protected nesting bird,⁶⁶ in violation of ESA.⁶⁷ Defendant argued that evidence of a past harm is necessary for an injunction and that future harm does not satisfy the "harm" requirement of the takings clause.⁶⁸ The court disagreed, finding that "[n]owhere does the re-definition of 'harm' or its explanatory commentary require historic injury to protected wildlife."⁶⁹

Although historic injury⁷⁰ is not required, *Marbled Murrelet* reaffirmed

⁶³ *Id.* at 179.

⁶⁴ *Id.* at 180 (quoting *Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781, 785 (9th Cir. 1995)).

⁶⁵ *Marbled Murrelet v. Babbitt*, 83 F.3d 1060, 1064 (9th Cir. 1996), *cert. denied*.

⁶⁶ The marbled murrelet was listed as a threatened species on Oct. 1, 1992. *Endangered and Threatened Wildlife and Plants*, 50 C.F.R. § 17.11.

⁶⁷ *Marbled Murrelet*, 83 F.3d at 1062.

⁶⁸ *Id.*

⁶⁹ *Id.* at 1065 (quoting *Rosboro*, 50 F.3d at 784). The new definition was issued by the Secretary "because the Secretary was concerned that the old definition of 'harm' could be read to mean habitat modification *alone*," so "the Secretary [therefore] inserted the phrase 'actually kills or injures wildlife.'" *Id.* (quoting *Rosboro*, 50 F.3d at 784) (*emphasis in original*).

⁷⁰ Historic injury is synonymous with past injury. *See id.* ("To the extent the *Sweet Home*

that the level of proof needed for "habitat modification" includes imminence.⁷¹ Courts have allowed a certain amount of elasticity when dealing with the definition of imminence, leading to a range of interpretations.⁷² Nevertheless, imminence "cannot be stretched beyond its purpose, which is to ensure that the alleged injury is not too speculative for Article III purposes—that the injury is 'certainly impending.'"⁷³ This leads to necessary evidentiary proof from the given facts of each case. "Where there is no actual harm, however, its imminence (though not its precise extent) must be established."⁷⁴

The issue for environmentalists once again becomes how to provide the satisfactory level of evidence to prove imminence of harm from habitat modification. Reaching the necessary level of proof, although much lower than would be needed to show actual killing, will still be very difficult for environmental groups because of the aforementioned lack of scientific proof.⁷⁵ The lack of proof is compounded by the fact that LFAS is a relatively new technological advancement without much published information about its development. Environmentalists do not have the available resources, knowledge of the technology, or time before the Navy's implementation of the system to prove its harmful effects. It seems that the only party that has the resources available to solve whether there is a satisfactory level of imminence of harm for a take is the Navy itself.

opinion may be read to say past injury is required before an injunction may issue, such a statement is dictum.").

⁷¹ *Id.* at 1066. The Court found that the remainder of the *Sweet Home* decision did not intend to alter previously settled case law. Therefore the Court upheld the Ninth Circuit decision in *Rosboro Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781 (9th Cir. 1995), which was decided three months prior to the *Sweet Home* decision. The *Rosboro* decision concluded that "[a] reasonably certain threat of imminent harm to a protected species is sufficient for issuance of an injunction under section 9 of the ESA." *Id.* at 1065.

⁷² *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 564 n.2 (1992) (Scalia, J.) (conceding that imminence is an elastic concept).

⁷³ *Id.* (quoting *Whitmore v. Arkansas*, 495 U.S. 149, 158 (1990)) (emphasis omitted).

⁷⁴ *Id.*

⁷⁵ See *supra* notes 41–46 and accompanying text; see also DOLMAN ET AL., *supra* note 48, at 40.

As the military undertake [sic] activities in all the waters of the world, their potential encroachment of cetacean habitats is considerable. Because public information on the exact nature and extent of military activities is highly restricted, the total impact of the military's ensonification of the world's oceans will be difficult to quantify.

Id.

III. INCIDENTAL TAKE PERMIT

“Although proof of . . . death of . . . [an endangered] species . . . would be virtually conclusive evidence of a taking, it is not required,” or else ESA would lose its purpose.⁷⁶ “The entire purpose of the ESA is to protect and recover species before they become extinct”⁷⁷ A prohibited taking can be proven under ESA through expert testimony, showing that the activity in question has caused habitat modification or degradation impacting the ability of a species to survive.⁷⁸

Under ESA section 10, the Secretary of the Interior may permit any taking that “is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”⁷⁹ Since proof of prohibited takings hinges on sufficiency of evidence,⁸⁰ environmentalists have correctly assumed that they are best served by trying to force the Navy to conduct the full range of required testing necessary under an incidental take permit.⁸¹ If environmentalists are able to show that the effects of the LFAS system on endangered species are more than “incidental,” the system will fail the ESA test and should not be deployed. Requiring the Navy to conduct the necessary tests under an incidental take permit may provide scientific evidence that LFAS is killing or at least harming endangered species before the sonar ever reaches the oceans.

The amount of scientific proof necessary to show imminent harm resulting from a habitat modification could be compiled rather quickly and would undoubtedly be accomplished more readily than proving a direct correlation to internal bleeding and death.⁸² Knowledge based on testing of animals to prove imminence of harm and habitat modification can be acquired through mere isolation and observation, with no need for biological connections or a true understanding of the effects of LFAS.⁸³ As previously discussed, it is imperative that environmentalists delay the planned imple-

⁷⁶ Vaughan, *supra* note 30, at 436.

⁷⁷ *Id.*

⁷⁸ *Id.* at 436-37.

⁷⁹ Endangered Species Act, 16 U.S.C. § 1539(a)(1)(B) (2000).

⁸⁰ Vaughan, *supra* note 30, at 426.

⁸¹ See 7 NAT'L ACAD. OF SCI., *supra* note 12, at app.D.

⁸² See *id.* at 436-37.

⁸³ See *id.* at 435-36. Merely observing a change in eating, breeding, or perhaps swimming patterns may be enough. See *id.* at 434.

mentation of LFAS in eighty percent of the oceans until scientific evidence can be collected.⁸⁴ Otherwise, it will be difficult to isolate the system as the culprit responsible for the deaths of endangered species.⁸⁵

Thus far, the Navy has dismissed as inconclusive allegations that whales are altering behavioral patterns due to sonar.⁸⁶ For example, a single experiment using bowhead whales produced evidence that "50 percent of [the] migrating whales observed . . . altered [their] course to [avoid an underwater] . . . transmitter that emitted drilling-type noise."⁸⁷ The evidence did not prove harm to the whales because scientists were unable to measure any long-term effects, or even to determine whether this reaction was a mere indication of hearing sensitivity.⁸⁸ Additionally, the whales were not isolated and could have been affected by many other variables, including other types of low frequency ambient sound already present in the ocean.⁸⁹

"The levels of low-frequency ambient sound in almost all the world's oceans are already dominated by anthropogenic sources, primarily shipping noise. It has been estimated that the background sound level at 100 Hz has been increasing by about 1.5 dB per decade since the advent of propeller-driven ships."⁹⁰

To negate the ocean's other variables, an incidental take permit would require more isolated sound testing by the Navy. In order to receive an incidental take permit, the Navy was supposed to apply for and complete an

⁸⁴ See *supra* note 26 and accompanying text.

⁸⁵ See DOLMAN ET AL., *supra* note 48, at 9.

To ascertain the effects of noise on marine mammals, however, we must be able to know which sounds they are capable of hearing (something still largely unknown for the great whales) and how they react to them, if at all. . . . Practically impossible to discern are changes in population characteristics, such as birth and death rates, in response to changing noise levels. Such measures are the best indicators of the population's welfare and therefore would be vital to obtain before we can be more confident that, for example, a particular noise source is "harmless" to that population. . . . Linking changes in population measures to changes in noise levels is usually not straightforward, as many other factors (e.g. oceanographic, ecological, etc.) can affect a population's well-being.

Id.

⁸⁶ See discussion *infra* notes 135-37 and accompanying text.

⁸⁷ 7 NAT'L ACAD. OF SCI., *supra* note 12, at app. D.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

EIS before any development of LFAS.⁹¹ The Navy did not support its initial claims that LFAS was not taking whales with proof or adequate information about the sonar's effects on wildlife.⁹² ESA requires the Navy to complete an EIS in order to demonstrate definitive proof that the system does not harm animals.⁹³ In addition, a take under ESA "requires a formal consultation with [the National Marine Fisheries Service ("NMFS")] to ensure that the planned activit[ies] will not [interfere with] the . . . existence of the [endangered] species."⁹⁴

Because "the Navy is a principal stakeholder in the issue,"⁹⁵ and because the Navy has the available funds to conduct the necessary testing, forcing the Navy to apply for an incidental take permit is the environmentalists' best opportunity for success in halting the implementation of LFAS. The results from the EIS may provide sufficient information to prove the harm necessary to stop the deployment.

IV. EIS STATEMENT

By law, the Navy was required to prepare an EIS the moment they decided to deploy the LFAS system.⁹⁶ Yet, "[i]n the period from the mid-1980s to the mid-1990s, the Navy designed, engineered, manufactured, and conducted extensive sea tests of the SURTASS⁹⁷ LFA system. Estimates of expenditures during those years are in the range of \$100 million."⁹⁸ The Navy was not only illegally developing and testing LFAS, they were also building a sixty million dollar ship that was to be used to deploy the sonar throughout the oceans.⁹⁹

The Navy argued that they "sponsored an extensive Scientific Research Program (SRP) to specifically evaluate any potential effects" prior to the initial development of LFAS.¹⁰⁰ SRP testing did not come close to fulfilling

⁹¹ Endangered Species Act. 16 U.S.C. §1539(a)(2)(A) (2000).

⁹² See discussion *infra* Part IV.B.

⁹³ 16 U.S.C. § 1539(a)(2)(A).

⁹⁴ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 2.0.

⁹⁵ 7 NAT'L ACAD. OF SCI., *supra* note 12.

⁹⁶ See *supra* notes 10-14 and accompanying text (explaining EIS requirements).

⁹⁷ SURTASS stands for Surveillance Towed Array Sensor System.

⁹⁸ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 2.0.

⁹⁹ Ocean Mammal Inst., *supra* note 15.

¹⁰⁰ *Id.* (quoting a Navy statement).

the requirements mandated by ESA for an EIS.¹⁰¹ A major flaw in the testing with regard to the impact of LFAS on whales is that the testing was done "at an acoustic intensity at least 5,000 times lower than the Navy's planned deployment levels."¹⁰² Additionally, the Navy claims the testing determined the impact of LFAS on overall stock populations of cetaceans,¹⁰³ but the testing included only four species of cetaceans for approximately one month.¹⁰⁴ This is not enough time to determine the effects of LFAS on stock populations.¹⁰⁵

Thus, the Navy avoided the application of environmental laws for years, failing to conduct essential research which might produce information to explain the effects of LFAS. Instead, the Navy was able to conduct nearly fifteen years of development without taking the actions required by ESA.¹⁰⁶ Ultimately, the government has invested a substantial amount of money into the system; the total figure invested is estimated at three hundred and fifty million dollars,¹⁰⁷ a sum that the government is not readily willing to write off.

It stands to reason that the Navy was hesitant to apply for an incidental take permit once funding for the project began. The permits are very difficult to acquire and EIS testing can take more than a year to process before being granted.¹⁰⁸ The testing is costly in addition to being time consuming.¹⁰⁹ In this instance, EIS testing would probably entail elaborate environmental surveys and observations in addition to the need for acoustic monitoring for the presence of whales and for determining the impact on them.¹¹⁰ The time

¹⁰¹ Compare Elizabeth M. Jalley et al. *Environmental Crimes*, 39 AM. CRIM. L. REV. 403, 486 (2002) (describing the elements of an EIS that are required for applicants to receive a permit under the ESA), with Ocean Mammal Inst., *supra* note 15, at paras. 7-46 (offering examples of deficiencies in the Navy's SRP testing).

¹⁰² Ocean Mammal Inst., *supra* note 15.

¹⁰³ Cetaceans include whales, dolphins, and porpoises. Office of Protected Res., Nat'l Marine Fisheries Serv., *Cetaceans: Whales, Dolphins, and Porpoises*, at http://www.nmfs.noaa.gov/prot_res/species/cetaceans/cetaceans.html (last visited Jan. 25, 2004).

¹⁰⁴ Letter from Marsha L. Green & Linde Weilgart to Congressional Representatives (Mar. 8, 2001), available at <http://www.geocities.com/shootdaguy/commentsfeis/MarshaGreentoCongress.html>.

¹⁰⁵ *Id.*

¹⁰⁶ See Endangered Species Act, 16 U.S.C. § 1539(a)(2)(A) (2000).

¹⁰⁷ Hawaii County Green Party v. Clinton, 124 F. Supp. 2d 1173, 1198 (D. Haw. 2000).

¹⁰⁸ 7 NAT'L ACAD. OF SCI., *supra* note 12, at app. D.

¹⁰⁹ *Id.*

¹¹⁰ See *id.* (describing previous tests conducted by the Navy).

delays and costs of proper testing are “potentially devastating to a Navy program” and “has . . . stopped programs cold.”¹¹¹

Possibly for these reasons, it was not until 1995 that the Navy applied for an incidental take permit and began EIS testing.¹¹² It is no coincidence that the Navy did not begin testing until “a scientist discovered the planned deployment of the system and alerted the Natural Resources Defense Council (NRDC).”¹¹³ NRDC contacted the Navy to challenge the legality of the development of LFAS without complying with environmental statutes.¹¹⁴ This pressure caused the Navy to agree to file an EIS before deploying LFAS.¹¹⁵ It took an additional three years, however, before the Navy began the required formal consultation with NMFS to ensure that LFAS would not endanger whales.¹¹⁶ It was not until January of 2001 that the Navy finally released their final EIS for LFAS.¹¹⁷

A. *The Controversial EIS Testing—The Hawaii Case*

Once the EIS process began, Navy scientists conducted tests in two phases off the coast of California.¹¹⁸ In December of 1998, the lead Navy scientist applied for an amendment to the incidental take permit and wanted the permit to include testing on humpback and sperm whales off the west coast of Hawaii.¹¹⁹ The amendment to the permit was specifically designed to test the system during the whale’s breeding, birthing, and nursing season.¹²⁰ The Navy failed to consider the “deep bond” that exists between the people of Hawaii and the humpback whales.¹²¹

Before this testing began, Navy scientists were sent to explain the testing procedures to the people of Hawaii.¹²² Even at the proposed testing

¹¹¹ *Id.*

¹¹² Sinkin, *Facts and Policy Issues*, *supra* note 5.

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 2.0.

¹¹⁷ Ocean Mammal Inst., *Low Frequency Active Sonar (LFAS) Dates and Events*, at <http://www.oceanmammalinst.org/lfadates.html> (last modified July 18, 2001).

¹¹⁸ Sinkin, *Facts and Policy Issues*, *supra* note 5.

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.* at 3.

¹²² *Id.*

levels, one thousand times weaker than actual deployment levels, the people of Hawaii were outraged.¹²³ For the islanders, the deliberate injury and disruption of the protected whale's cycles was not an option. Hawaii's Congressional Representative, Patsy Mink, found it particularly hypocritical that a federal agency would invade the waters around Hawaii when the federal government had just established the National Marine Humpback Whale Sanctuary in Hawaiian waters. "For a federal agency to come to the Sanctuary area shortly after the dedication with a permit to harass the very whales protected appeared to be 'grand hypocrisy . . .'"¹²⁴

When the islanders discovered that the Navy had already spent many years and millions of dollars bringing the SURTASS LFA system to the deployment stage before conducting an Environmental Impact Statement . . . and only agreed to prepare an EIS after an environmental group caught the Navy violating numerous environmental laws, the tests appeared to be little more than window dressing for a decision already made.¹²⁵

The islanders felt that the mere testing of LFAS was so disruptive to the endangered species that it should have been discontinued immediately since evidence of harm was clearly apparent.¹²⁶ "On February 23, [1998,] four environmental organizations filed [a] suit seeking to enjoin any further testing" near Hawaii until all other phases of EIS testing were completed, but the court declined to issue the injunction.¹²⁷ The Navy was able to begin its EIS testing over many objections, leading to the prominent case of *Hawaii County Green Party v. Clinton*.¹²⁸ The case was filed on March 18, 1998, following the first few weeks of EIS testing off the coast of Hawaii, and was one of the first suits to allege actual evidence of adverse effects.¹²⁹ The suit alleged nine violations of the mitigation requirements for EIS testing and the

¹²³ *Id.*

¹²⁴ Sinkin, *Facts and Policy Issues*, *supra* note 5 (quoting from a letter from Representative Patsy Mink to the National Marine Fisheries Service).

¹²⁵ *Id.*

¹²⁶ *See id.*

¹²⁷ *Id.* at 4.

¹²⁸ *Hawaii County Green Party v. Clinton*, 124 F. Supp. 2d 1173 (D. Haw. 2000).

¹²⁹ *See id.* at 1180.

incidental take permit.¹³⁰ The mitigation requirements that the Green Party argues that the Navy was violating read:

Source transmissions shall be suspended immediately if an acute behavioral response (e.g. repeated/prolonged activity (vocalizations, breaching, blowing, time on surface, etc.), potential injurious activity, abnormal number of animals present or absent in the area, abnormal mother-calf activity, or erratic swimming behavior of pinnipeds, small cetaceans, or sea turtles) by a marine mammal or sea turtle [is] detected.¹³¹

As the issue gained national exposure, many of the islanders began to observe the results of the testing being conducted by the Navy. The Green Party filed extensive evidence from whale watch boat captains, fisherman, and other islanders indicating that the number of whales in the area declined since the beginning of the testing, and disappeared completely shortly thereafter.¹³² Additionally, one specific incident occurred in which a baby humpback whale, out of the presence of its mother, was seen “excessively breaching, pectoral slapping, tail slapping, and remaining within 100 feet of shore for hours”¹³³

The Green Party argued that these occurrences satisfied the harm requirement, and environmentalists were successful in forcing the Navy to spend for testing they had for so long avoided. But, the Green Party still lacked evidence to prove causation.¹³⁴ The ambiguity of the Court’s holding in the *Sweet Home* decision¹³⁵ left the court with room to decide in favor of the Navy. The Navy was able to argue that the word “actually” in the *Sweet Home* case prevents a charge of “harm that is hypothetical or conjectural, as opposed to harm that is concrete and particularized.”¹³⁶

¹³⁰ Sinkin, *Facts and Policy Issues*, *supra* note 5.

¹³¹ *Id.* (emphasis omitted).

¹³² *Id.* at para. 49.

¹³³ *Id.* at para. 65.

¹³⁴ *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 700 n.13 (1995) (explaining that causation is requirement of *Sweet Home* test).

¹³⁵ *See Jensen, supra* note 62, at 179. Even though the case concluded that habitat modification can be a “take,” the ambiguity is what constitutes actual habitat modification. *Id.*

¹³⁶ *Id.* at 179.

The Navy's defense again focused on the ocean's other variables that could have accounted for the change in whale behavior. The Navy attributed the rapid decline of humpback whales in the area to the beginning of seasonal migration and to the effects of El Nino.¹³⁷ They argued that the observations by the plaintiff were "anecdotal and lacking scientific credibility."¹³⁸ The islanders' extensive familiarity with the habits and activities of the whales could not overcome the Navy's argument for lack of proof, even though the Navy had no countering data.¹³⁹

It seems ironic that the Navy should win on an argument based on a lack of scientific proof, since EIS testing is supposed to develop knowledge and scientific proof; yet, the Green Party essentially lost on that very issue. It would not be until January of 2001 that the Navy finally completed its testing and released an EIS for LFAS.¹⁴⁰ If the EIS was done correctly, it should have presented thorough information about the LFAS system and its harmful effects.

B. *Navy's Proposed Final EIS Results: Mere Window Dressing*

As a prerequisite to receiving an incidental take permit, the Navy would be required to submit a habitat conservation plan based on the results of the completed EIS testing. Three things would be required for each submission. First, the Navy would have to explain the impact that would likely result from the taking. Second, the Navy would have to identify steps taken to minimize the impact. Finally, the Navy would have to disclose any other alternatives it considered.¹⁴¹

1. Explanation of the Impact of Taking

The Navy clearly has never attempted to discern what the impact of the taking would be on the whales. The Navy has consistently overlooked the whales' peculiar behaviors and has especially ignored the possibility of any

¹³⁷ Sinkin, *Facts and Policy Issues*, *supra* note 5, at para. 50.

¹³⁸ *Id.*

¹³⁹ *See id.* at paras. 47, 55-56.

¹⁴⁰ Ocean Mammal Inst., *supra* note 115, at para. 67.

¹⁴¹ Endangered Species Act, 16 U.S.C. § 1539(a)(2)(A)(iii) (2000). A fourth consideration is broad and covers any other measures an issuing agent may consider to be necessary. *See id.* at (iv).

long-term impact. The final EIS only tested LFAS at levels with at least five thousand times less acoustic intensity and seventy times less pressure than actual operational levels.¹⁴² “Consequently, we know virtually nothing about what impact the higher, deployment level sonar will have on marine life and humans over the long term.”¹⁴³

Additionally, even at the lower LFAS test levels, humpback whales demonstrated altered behavioral patterns.¹⁴⁴ Whales were seen both leaving the testing area and changing the length of their songs.¹⁴⁵ Yet, the Navy disregarded these behavioral changes, never satisfactorily examining the cause of these changes.¹⁴⁶ The issue again is whether the changes in behavioral patterns qualifies as a taking.

Because the Navy did not follow the guidelines for completion of an EIS, it remains impossible to determine the true scientific impact of LFAS and whether it causes the changes in song or the whales’ fleeing from the areas. All of the conclusions to be drawn from the changes in whales’ songs are still speculative because the Navy has either ignored or dismissed the behaviors as “biologically insignificant” in its EIS reports.¹⁴⁷ A more detailed examination of the changes in songs helps to illustrate scientists’ lack of understanding of humpback whales and illustrates how the Navy failed to thoroughly complete the EIS testing.

Male humpback whales are known to sing complex songs during the mating season.¹⁴⁸ Scientists believe that these songs are sexual displays.¹⁴⁹ In June of 2000, scientists hired by the Navy described the results of the 1998 testing of humpback whales off the coast of Hawaii.¹⁵⁰ The whale songs were twenty-nine percent longer when LFAS was being broadcast at lower rates than would be used when the LFAS system is fully implemented.¹⁵¹ The

¹⁴² Ocean Mammal Inst., *Why the Navy's Conclusions About the Safety of LFAS Are Scientifically Flawed*, at para. 3, at <http://www.oceanmammalinst.org/navyconclusionsflawed.htm> (last updated Apr. 5, 2001).

¹⁴³ *Id.* at para. 6.

¹⁴⁴ *Id.* at para. 4.

¹⁴⁵ *Id.*

¹⁴⁶ *See id.*

¹⁴⁷ *Id.*

¹⁴⁸ Ocean Mammal Inst., *supra* note 15, at para. 56.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

scientists suggested that the longer songs were to compensate for the acoustic interference.¹⁵²

This evidence demonstrates just how little is known about whales' vocalizations and, in particular, the effects of sonar on them. Scientists hypothesize that the songs are sexual displays, but then do no more than recognize that the songs have become longer. Little is known about what, if any, effects the "increased energy expenditure might have on long term reproductive rates."¹⁵³ Had the Navy conducted full EIS reports, it would have been required to research and study these effects before developing the LFAS system. Additionally, environmentalists argue that the Navy's research has only analyzed conventional direct effects on hearing, while ignoring the possibility that whale strandings or injuries could result from other effects of the sonar not related to hearing.¹⁵⁴ For instance, the Navy has never addressed the possible effects of direct transmission of acoustic energy into bodily tissue and resonant cavities occurring when bodies are submerged in water.¹⁵⁵ "In air, 99.97% of acoustic energy is reflected from the body. In water, however, there's no reflection or reduction of energy because the body is mostly water. Therefore, 100% of acoustic energy goes into the body in water."¹⁵⁶ Many scientists believe that this effect may cause tissue rupture and hemorrhaging in various organs; yet, the Navy has failed to satisfactorily address the issue.¹⁵⁷

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ Letter from Green & Weilgart, *supra* note 104, at para. 5.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ See *id.* at para. 6. In the Navy's Technical Report 3, accompanying its draft EIS, it was reported that soft tissue damage and liver hemorrhage would be likely at an exposure level of about 184 dB. *Id.* (citing TECHNICAL REPORT 3: SUMMARY REPORT ON THE BIO-EFFECTS OF LOW FREQUENCY WATER BORNE SOUND (E. Cudahy et. al. eds., 1999) (unpublished report on file with Dept. of the Navy), in 1 DEPT. OF NAVY, FINAL OVERSEAS ENVIRONMENTAL IMPACT STATEMENT AND ENVIRONMENTAL IMPACT STATEMENT FOR SURVEILLANCE TOWED ARRAY SENSOR SYSTEM LOW FREQUENCY ACTIVE (SURTASS LFA) SONAR incorporated by reference). The Navy failed to examine whether lower decibel levels would cause resonance or vestibular effects in the whales resulting in panic and stranding. *Id.*

2. Steps Taken to Minimize the Impact of LFAS

The EIS reports fail to identify the steps taken by the Navy to minimize the impact of LFAS. The Navy simply tries to deny any impact, ignore the whales' behavioral changes, or conclude the behavioral changes are insignificant. Environmentalists claim, however, that accepted research exists demonstrating that whales change their behavior in an attempt to avoid sonar at 115-120 dB.¹⁵⁸ This is only half the level that the active sonar produced by the LFAS system can reach.¹⁵⁹ Rather than try to minimize the impact of LFAS, the Navy has done the opposite by repeatedly arguing that the scientifically accepted level at which whales change behavior is too low.¹⁶⁰ If the Navy were to successfully increase this accepted level, most of the environmentalists' protests would lose merit because LFAS would then fall within accepted levels of sound. Since the EIS statements, however, are incomplete in regards to scientific evidence, the Navy similarly will have a difficult time finding adequate proof that a higher level of decibels for its sonar is acceptable.

3. Proposed Alternatives

Lastly, the Navy has failed to list and explain alternative technology and seems unwilling to terminate the LFAS project for a system using less active sonar. There is evidence that the Navy has developed passive sonar systems that are also able to detect silent submarines.¹⁶¹ Not only is this passive sonar better for the endangered marine life, but the use of the "equipment has also resulted in substantially reduced costs with no reduction in fielded

¹⁵⁸ See MARSHA GREEN, LET'S END THE VIOLENCE AGAINST MARINE LIFE, at <http://www.oceanmammalinst.org/int/berlintalk.html> (last visited Feb. 27, 2004) ("[W]hales swim 2 to 3 times faster away from boats whose engines reach the level of 120 dB. The source level of LFAS at 240 dB is one trillion times louder than the 120 dB level whales avoid.").

¹⁵⁹ DEFENDERS OF WILDLIFE, *supra* note 2, at para. 3. The active sonar is produced by massive speakers that produce sounds as loud as 240 decibels. *Id.*

¹⁶⁰ Ocean Mammal Inst., *supra* note 15, at para. 8.

¹⁶¹ *Id.* at paras. 9-12; *Navy Submarine Force Structure and Modernization Plans: Hearing Before the Subcomm. on Military Procurement of the House Comm. on Armed Services, 106th Cong.* (2d. Sess. 2000) (citing statements of Rear Admiral Malcolm I. Fages, U.S. Navy Director, Submarine Warfare Division and Rear Admiral John P. Davis, U.S. Navy Program Executive Office for Submarines).

capability.”¹⁶² This alternative appears to be ideal from the environmental standpoint, since the Navy can simultaneously protect the security of the nation while also protecting the endangered species of our seas.¹⁶³ Unfortunately, the Navy did not address this alternative in the EIS statement and is reluctant to write off all the money previously invested in LFAS. Because of this alternative, an incidental take permit should not have been granted because there seems to be an available alternative to accommodate the species.¹⁶⁴

C. *Difficulty with Arguing Invalid EIS*

As knowledge about the underlying effects of LFAS on marine life does not exist, at least outside of confidential Navy materials, environmentalists have little evidence with which to refute the EIS, regardless of the procedures followed by the Navy or the level of active sonar implemented in the testing. Because the answers are still outside current non-military scientific capacity, it is nearly impossible to “base reasonable strategies for ensuring that these laws are not violated and that marine life is protected”¹⁶⁵ Ultimately, a conclusion that EIS testing did not produce a valid Habitat Conservation Plan would be either arbitrary or based on incomplete and inaccurate information.¹⁶⁶ Nonetheless, steps could have been taken to limit the arbitrariness of the findings.

Perhaps the easiest step to ensure a fair analysis of the data would be to consult neutral scientists, not paid by the Navy, with differing opinions and ideas.¹⁶⁷ The reports from independent research teams during the testing off the coast of Hawaii were completely ignored by the Navy and NMFS.¹⁶⁸ These reports cited abnormal behaviors among whales, but the Navy either

¹⁶² *Id.* at para. 12.

¹⁶³ *Id.* at para. 13.

¹⁶⁴ Vaughan, *supra* note 30, at 438.

¹⁶⁵ 7 NAT'L ACAD. OF SCI., *supra* note 12, at para. 7 (discussing the laws that must be followed when completing an EIS).

¹⁶⁶ *Id.*

¹⁶⁷ “All the Navy’s LFAS tests were conducted by scientists paid by the Navy. . . . There was no testing done by independent marine biologists.” Ocean Mammal Inst., *supra* note 15, at paras. 14-15.

¹⁶⁸ *Id.* at para. 16. “The Ocean Mammal Institute (OMI) sent an experienced research team to observe the LFAS test area in Hawaii in March 1998.” *Id.*

ignored or failed to record the events. For example, a research team from Ocean Mammal Institute ("OMI") conducted its own observational testing and documented an abandoned humpback calf showing agitated behavior.¹⁶⁹ "This calf breached (jumped out of the water) a total of 230 times during a four-hour time frame. The calf also slapped its pectoral fin on the water 671 times during this same observation period."¹⁷⁰ Had the Navy listened to or consulted with this independent testing team, the LFAS testing would have been required to stop since the testing permit application clearly stated that testing would be suspended if an animal is observed with significant behavioral modifications.¹⁷¹ A second step would have been to require the use of more comparable acoustic levels. Findings may have been more conclusive had the Navy used the higher acoustic levels of LFAS. Since the tests used were five thousand times less acoustically intense than the planned deployment,¹⁷² it is difficult to conclude that the same indeterminate results would occur at full implementation levels. Even the scientists the Navy hired asserted that it would be difficult to extrapolate from the results at lower levels to predict responses at higher exposure levels.¹⁷³

A third simple step would be the requirement of alternatives in the Navy's Habitat Conservation Plan. Without alternatives, an incidental take permit should not be issued because the Habitat Conservation Plan clearly requires the applying Agency to explore alternatives. Once alternatives are provided, they may bring to light more efficient and friendly options.¹⁷⁴ Yet,

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at para. 20. During a breach, the whale generates upward force with its flukes to propel its body two-thirds of the way out of the water. EMILY GARDNER, EARTHTRUST, *Humpback Whales* § II, in HAWAII'S MARINE WILDLIFE: WHALES, DOLPHINS, TURTLES AND SEALS: A COURSE OF STUDY, at <http://www.earthtrust.org/wlcurric/whales.html> (last visited Jan. 24, 2004). The whale may also twist its body at the height of the breach. *Id.* It should be noted that researchers believe that breaching is usually related to courtship or play activity. *Id.*

¹⁷¹ Ocean Mammal Inst., *supra* note 15, at para. 22. The mitigation requirements read:

Source transmissions shall be suspended immediately if an acute behavioral response (e.g. repeated/prolonged activity (vocalizations, breaching, blowing, time on surface, etc.), potential injurious activity, abnormal number of animals present or absent in the area, abnormal mother-calf activity, or erratic swimming behavior of pinnipeds, small cetaceans, or sea turtles) by a marine mammal or sea turtle [is] detected.

Sinkin, *Facts and Policy Issues*, *supra* note 5, at para. 44 (emphasis omitted).

¹⁷² Ocean Mammal Inst., *supra* note 15, at para. 3.

¹⁷³ *Id.* at para. 45.

¹⁷⁴ Vaughan, *supra* note 30, at 438.

the Navy clearly has not taken the necessary actions to improve alternative habitats, "so that the likelihood of survival and recovery of the species as a whole is not appreciably reduced."¹⁷⁵ The Navy simply continues to argue that no harm results from LFAS.

If the EIS findings were sufficiently conclusive to find a taking, and an incidental take permit was not an option because alternatives were never explored, the project could be stopped immediately. At a minimum, a more thorough EIS would have erased some of the questions stemming from the use of LFAS and eliminated a portion of the arbitrary findings. Perhaps because the Navy was aware of this, it failed to follow the guidelines of the EIS and left many options unexplored. "The OEIS/EIS written to justify this action is a masterful piece of misdirection, obfuscation, and even deception requiring private citizens to spend interminable hours determining what is actually being said."¹⁷⁶ The Navy appears to have written the EIS merely to quiet the mounting pressure from environmentalists on the Navy and Congress; in actuality, it provided very little new information at all.

D. *Importance of Forcing Navy to Complete a More Thorough EIS*

The Navy has admitted that data gaps resulting from a lack of information about sonar have necessitated the use of various models to provide a rational basis for assessment of potential risk.¹⁷⁷ There does not appear to be any data that conclusively resolves the issue of the scientific feasibility of LFAS, because the Navy has refused to continue testing on the grounds of a "perceived urgent national security need."¹⁷⁸ "The OEIS/EIS does its best to suppress or obscure the truth. Nevertheless, the truth pops out in ways that demonstrate the conflicted nature of those preparing the document."¹⁷⁹

If the incidental take permit in ESA is to fulfill its ultimate purpose, the Navy should have been denied the right to implement LFAS because the three steps for a valid habitat conservation plan have not been satisfied;¹⁸⁰ at a minimum it should ensure that the Navy explains the likely impact that

¹⁷⁵ *Id.*

¹⁷⁶ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 5.0.

¹⁷⁷ *Id.* § 2.0.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.* § 3.4.

¹⁸⁰ See *supra* note 141 and accompanying text.

would result from the testing. Ultimately, if the Navy has knowledge and information about LFAS effects, environmentalists would force the distribution of information for other agencies to use in further scientific testing. Conversely, if the information still does not exist, an effective incidental take permit would require the Navy to conduct further scientific testing to get the answers about potential effects on the endangered whales. The pressure by environmentalists to force a truly accurate EIS statement is of utmost importance in either instance.

The lack of supplied information and alternatives from the Navy in their "final" EIS statement creates a difficult situation for NMFS. "If the inadequacies of the OEIS/EIS are significant, NMFS cannot rely upon that document for its decision-making."¹⁸¹ Thus, by forcing the production of a more thorough EIS, environmentalists may be able to pressure the Navy into conducting tests they have otherwise refused to perform.

E. *Other Hurdles*

1. *Would Any Group Have Sufficient Standing?*

A federal court will grant summary judgment if the parties "show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law."¹⁸² Ultimately, the burden of proof is on the party that brings the suit to trial.¹⁸³ Environmentalists fighting against the implementation of LFAS will therefore have to establish that the harm is adversely affecting them in order to establish sufficient standing.

In *Coho Salmon v. Pacific Lumber Co.*,¹⁸⁴ the court allowed the plaintiffs to file suit and avoid summary judgment because the plaintiffs showed "specific facts" to support their case.¹⁸⁵ The Supreme Court had established that "the plaintiff can no longer rest on such 'mere allegations,' but must 'set forth' by affidavit or other evidence 'specific facts' . . . which for purposes of the summary judgment motion will be taken to be true."¹⁸⁶ The plaintiffs in *Coho Salmon* were non-profit organizations trying to protect

¹⁸¹ *Id.* § 3.0.

¹⁸² FED. R. CIV. P. 56(c).

¹⁸³ *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992).

¹⁸⁴ *Coho Salmon v. Pacific Lumber Co.*, 61 F. Supp. 2d 1001, 1004 (N.D. Cal. 1999).

¹⁸⁵ *Id.* at 1011.

¹⁸⁶ *Lujan*, 504 U.S. at 561 (citation omitted).

and conserve the wild coho salmon¹⁸⁷ and their habitat.¹⁸⁸ The Court granted standing to the plaintiffs because they were able to prove that their aesthetic and recreational enjoyment had been threatened.¹⁸⁹ "[T]he 'injury in fact' test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured."¹⁹⁰ Any member of an environmentalist group or organization is required, therefore, to show injury to himself and to every party in the suit.

If environmentalists can demonstrate that the whales might be harmed by LFAS, environmental groups should be able to bring suit against the Navy, under the holding of *Coho Salmon*, because whale-watching has become a national recreational activity.¹⁹¹ Because the key requirement for the purpose of standing "is that the plaintiff have suffered his injury in a personal and individual way,"¹⁹² an environmentalist bringing suit should be able to meet this requirement by arguing that the aesthetic value of whale-watching has been damaged. This is especially true because whale-watching has developed great economic value for many companies that conduct expeditions for recreational purposes.¹⁹³ Thus, standing, under the citizen proof provision of ESA, should be approved readily by the court.

Although whales have become a recreational attraction and have brought national attention to the issue of LFAS, other endangered species may also be negatively affected by LFAS. Without the aesthetic value argument, plaintiffs wishing to protect these animals will have a more difficult time obtaining standing. Environmental groups may be forced to plead a case on behalf of the animals, employing the legal fiction that the animals themselves are bringing the charge. "Some courts have permitted suits to go forward under the citizen suit provisions of the ESA with fish and

¹⁸⁷ Coho Salmon was listed as threatened on November 20, 1996. Endangered and Threatened Wildlife and Plants, 50 C.F.R. § 17.11 at n.598 (2002).

¹⁸⁸ *Coho Salmon*, 61 F. Supp. 2d at 1004.

¹⁸⁹ *Id.* at 1014-15.

¹⁹⁰ *Lujan*, 504 U.S. at 563 (quoting *Sierra Club v. Morton*, 405 U.S. 727, 734-35 (1972)).

¹⁹¹ See GARDNER, *supra* note 170, § III (D). "[T]he whale-watch industry draws almost one million visitors to Hawaii each year, resulting in tourist income for the state of more than 80 million dollars annually." *Id.*

¹⁹² *Animal Legal Def. Fund, Inc. v. Glickman*, 154 F.3d 426, 433 (D.C. Cir. 1998).

¹⁹³ See Howard Dicus, *Whale-Watching Industry Predicts Heavy Traffic*, PAC. BUS. NEWS, Dec. 10, 2001, available at http://pacific.bizjournals.com/pacific/stories/2001/12/10/small_b3.html. "Whale-watching companies charge between \$22 and \$30 for excursions . . ." *Id.* at para. 5.

wildlife species as the named plaintiffs even though the definition of 'person' under section 1532(13) does not include fish or wildlife species."¹⁹⁴

Courts are divided on whether the endangered species, itself, can be the plaintiff.¹⁹⁵ The contention is that fish and wildlife are able to receive standing because section 1540(g) of ESA allows any person to bring suit on his behalf, and the term "person" includes "any other entity subject to the jurisdiction of the United States."¹⁹⁶ Although the court in *Coho Salmon* did not conclusively decide the issue, the court suggested that it would be difficult for an endangered species to obtain standing for itself. "Without delving into the vagaries of the term 'entity,' the court notes that, to swim its way into federal court in this action, the coho salmon would have to battle a strong current and leap barriers greater than a waterfall or the occasional fallen tree."¹⁹⁷

2. Exemption Through Section 7 of ESA: "God Squad"

In spite of the provisions that have been violated, it is important to note that ESA provides an opportunity for programs to survive even if they are harmful to an endangered species. Section 7 of ESA¹⁹⁸ provides an exemption procedure that allows activities to proceed even if it places a listed species in jeopardy.¹⁹⁹ This procedure is set in motion by the Endangered Species Committee, commonly known as the "God Squad."²⁰⁰ This subcommittee has been called together very rarely since the subsection was added to ESA in 1978.²⁰¹ Only once has the exemption been fully granted.²⁰²

¹⁹⁴ *Coho Salmon v. Pacific Lumber Co.*, 61 F. Supp. 2d 1001, 1008 n.2 (N.D. Cal. 1999).

¹⁹⁵ See *id.* for examples of divided cases.

¹⁹⁶ 16 U.S.C. §§ 1532(13), 1540(g)(1) (2000).

¹⁹⁷ *Coho Salmon*, 61 F. Supp. 2d at 1008 n.2.

¹⁹⁸ 16 U.S.C. § 1536(h) (2000) (providing the rules for an exemption).

¹⁹⁹ Vaughan, *supra* note 30 at 426. An exemption may be granted for LFAS, but it would not be an exemption permitting the harm of the endangered whales. See EUGENE H. BUCK ET AL., CONG. RESEARCH SERV. ORDER CODE IB10072, CRS ISSUE BRIEF FOR CONGRESS, ENDANGERED SPECIES: DIFFICULT CHOICES, at CRS-3 (Dec. 9, 2003), available at http://resources.committee.house.gov/Press/reports/esa/esachoices_crs.pdf ("Proponents of federal action may apply for an exemption from § 7(a)(2) of the ESA for that action (not for a species).").

²⁰⁰ BUCK ET AL., *supra* note 199, at CRS-3.

²⁰¹ *Id.*

²⁰² *Id.* The exemption was granted in a case where the State of Nebraska and

In order for an exemption to be granted, five out of the six specified federal officials on the God Squad must vote positively to allow future harm of a species.²⁰³ This exemption process is very time-consuming, and, as already seen by the avoidance of EIS procedures, the Navy is adverse to time-consuming procedures. Perhaps for this reason, the Navy once again avoided a valid procedure for implementation of the new technology under ESA and decided instead to bypass ESA and apply for an exemption based on national security.

3. National Security: United States Navy Granted an Exemption for Five Years

After over twenty years of development and following years of excuses for ESA "oversights," the Navy turned to one of its most unassailable strategies by applying for an exemption based upon national security.²⁰⁴ This last option taken by the Navy to bypass ESA guidelines and essentially strip ESA's authority, effectively demonstrates that ESA is not applicable to the United States military. Ultimately, if granted an exemption for national protection, it will be virtually impossible to restrict the Navy's right to implement LFAS throughout the world's oceans.²⁰⁵

Proponents of any federal action are allowed to apply for an exemption to the Endangered Species Act.²⁰⁶ ESA allows the Department of Commerce²⁰⁷ to grant exceptions for certain actions that would otherwise be in violation of its terms.²⁰⁸ Nonetheless, if LFAS is not needed for national

environmentalists were trying to stop construction of the Grayrocks Dam and Reservoir on the Laramie River in Wyoming because of the harm it was posing to the whooping crane. *Nebraska v. Rural Electrification Admin.*, 23 F.3d 1336, 1338 & n.1 (8th Cir. 1994). The reservoir was being designed to supply water to the Missouri Basin Power Project. *Id.* The settlement agreement and establishment of a Trust, allowed an exemption to be granted. *Id.* at 1138 n.1.

²⁰³ BUCK ET AL., *supra* note 199, at CRS-3.

²⁰⁴ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 4.1.

²⁰⁵ Even the God Squad must grant an exemption if the Secretary of Defense determines that it is needed for national defense and security. BUCK ET AL., *supra* note 199, at CRS-10.

²⁰⁶ *Id.* at CRS-3.

²⁰⁷ "The DOI [Department of Interior] is responsible for all terrestrial species, while the Department of Commerce is responsible for marine species." Jalley, *supra* note 101, at 484 (citation omitted).

²⁰⁸ *Id.* at 486.

protection, the Navy should still be subject to ESA, because ESA has established that any person, including a government agency, is not allowed to engage in a taking.²⁰⁹

The Navy argues that a “submarine challenge triangle” exists consisting of Russia, China, and other “countries of concern,” including Iran and North Korea.²¹⁰ The belief is that although the total number of submarines in the world has declined, the quality of new submarines is vastly improving.²¹¹ As a result, the Navy purports to require continual intensified development of our country’s sonar system, as other nations’ submarines have become more and more technologically advanced.²¹² The Navy anticipates “that over the next several decades, the proliferation of quiet, capable, and effective submarines through foreign sales and indigenous manufacture will result in even more reliance on active acoustics”²¹³

Opponents argue that as we enter the twenty-first century, most of the United States’ present enemies do not have a sophisticated Navy with technologically advanced submarines.²¹⁴ A study performed by Forecast International even speculated a decline from a 2001 submarine sales assessment of \$70 billion over the next ten years to \$60.5 billion for Middle Eastern countries.²¹⁵ The study also anticipates that “only three submarine producers will stay in the market leaving fewer options for countries seeking diesel-electric submarines.”²¹⁶

²⁰⁹ *Mausolf v. Babbitt*, 125 F.3d 661, 668 (8th Cir. 1997), *cert. denied*, 524 U.S. 951 (1998).

²¹⁰ *Worldwide Submarine Challenges: Hearing on S. Res. 450 Before the Subcomm. On Sea Power of the Comm. on Armed Servs.*, 105th Cong. (1st Sess. 1997) (statement of Rear Admiral Michael W. Cramer, Dir. of Naval Intelligence, U.S. Navy), *available at* http://www.fas.org/irp/congress/1997_hr/s970408c.htm.

²¹¹ *Id.* at para. 3.

²¹² *See generally id.* (discussing the strategic increase of submarines within the submarine challenge triangle).

²¹³ 7 NAT’L ACAD. OF SCI., *supra* note 12, at app. D, para. 13.

²¹⁴ *See, e.g.,* Lauren Bemis, The Jewish Institute for National Security Affairs, *Middle Eastern Submarine Fleets Modernize Swiftly: ‘Wine Dark Seas’ Quickly Becoming More Dangerous*, JINSA ONLINE, June 28, 2002, at para. 1, at <http://www.jinsa.org/articles/articles.html/function/view/categoryid/154/documentid/1513/>. “The vast majority of Middle Eastern submarines operated by navies, acquired in the 1970s, are facing obsolescence, and countries from Egypt to Iran are in the process of upgrading their submarine fleets.” *Id.* at para. 7. In fact, currently Turkey has the largest submarine fleet in the entire Middle East with only fifteen submarines. *Id.*

²¹⁵ *Id.* at para. 15.

²¹⁶ *Id.*

In addition, although there have been recent altercations with China, relations between the two countries are far from hostile. Our Navy has spent millions on "super silent" submarines with non-cavitating propulsive blades and quiet engines;²¹⁷ these submarines are not essential for national security reasons. There are no immediate threats or concerns of submarine-related activities, providing ample time for the Navy to test LFAS, and time to find safer alternatives if such tests demonstrate LFAS harms marine life. Although there is no indication of threats by submarine warfare, NMFS granted the Navy a five-year exemption from the Marine Mammal Protection Act in the summer of 2002.²¹⁸ By granting this exemption, ESA's influence and authority has been eviscerated. The minor restrictions placed upon the Navy by the Bush administration are a far cry from the requirements of an EIS report. The Navy is only required to restrict the sonar's routine use to at least twelve nautical miles and must visually scan for endangered marine mammals and sea turtles, shutting down the system whenever detected.²¹⁹ The effects on endangered species that are out of sight or further than twelve nautical miles away are not even addressed.

Perhaps ESA's forms and completion guidelines for EIS reports are partially to blame. EIS documents themselves do not include terms of procedure in times of threat or warfare, apparently implying that in time of threat or warfare, destruction of the environment is acceptable.²²⁰ The EIS completed by the Navy specifically excludes any evaluation of environmental impacts in times of threat and warfare.²²¹ Additionally, NMFS' statutory powers include the right to decline to make a decision regarding the deployment until the Navy evaluates the full range of the effects of LFAS, including effects during times of warfare.²²² Although the NMFS still should have been able to stop the deployment prior to a claim of national security by the Navy, "[t]he current willingness of NMFS to waive the mitigation requirements when inconvenient to Navy training and look the other way in

²¹⁷ Greenpeace Found. Campaign, *supra* note 4, at para. 15.

²¹⁸ Kenneth R. Weiss & Tony Perry, *The Nation: Navy Use of Sonar OKd Despite Risk to Whales; Military: Some Scientists Say Safety Features in the Submarine-Detection System Aren't Enough*, L.A. TIMES, June 16, 2002, at A1.

²¹⁹ *Id.*

²²⁰ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 3.1.

²²¹ *Id.*

²²² *Id.*

case of threat or warfare conditions continues the erosion of confidence in regulatory vigor.”²²³

It is unfortunate that the Bush administration has decided to grant the exemption. “Until such time as national security is defined to include a healthy and vital environment, people outside the national security establishment will continue to face the false dichotomy of national security versus environmental protection.”²²⁴ LFAS “is an excellent example of a narrow-minded, national security pursuit of a militarily-defined goal that failed to recognize, ignored, or deliberately avoided the environmental implications of the proposed action.”²²⁵ This suggests that the Navy considers itself to be above the law.²²⁶

4. International Ramifications/Problems with Enforcement

Global extinction rates continue to rise in spite of an increased global awareness of the types of conservation programs needed to sustain endangered fish and wildlife.²²⁷ As the human population grows,²²⁸ people are developing more land, consuming more food and water at the expense of plants and animals, and invading more space for recreation.²²⁹ The changes in human use of the world’s oceans over the past century have created a cacophony of underwater noise pollution.²³⁰ Yet, when the initial testing of the LFAS system began in the early 1980s, the Navy first took the position that an incidental take permit and EIS testing was not necessary.²³¹ The Navy argued that because the testing was being done in foreign waters it did not have to follow ESA laws.²³² The Navy indicated that ESA did not apply within the Exclusive Economic Zone (“EEZ”) of foreign nations, but ESA

²²³ *Id.* § 4.1.6.6.

²²⁴ *Id.* § 1.0.

²²⁵ *Id.*

²²⁶ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 1.0.

²²⁷ Jensen, *supra* note 62, at 169-70.

²²⁸ “The human population is growing at an exponential rate and is expected to double in size half-way through the next century.” *Id.* at 169.

²²⁹ *See id.* “[H]uman activities account for the rarity of sixty-eight percent of the birds and eighty-six percent of the mammals [considered rare or endangered]” *Id.* at 170.

²³⁰ McCarthy, *supra* note 3, at 265-66.

²³¹ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 2.0.

²³² *Id.*

does apply unless within three-mile limits of the foreign coast.²³³ The fact that the Navy felt it could avoid ESA guidelines by simply moving locations stirred so much outrage from environmentalists that it persuaded the Green Party²³⁴ to file a supplemental motion to reopen their 1998 case.²³⁵

Today, many groups are urging that sonar and other ocean noise be classified as a transboundary pollutant.²³⁶ "Because acoustic emissions involve the introduction of energy into the marine environment and may involve deleterious effects to marine mammals, noise can clearly be considered pollution under UNCLOS [the United Nations Convention on the Law of the Sea]."²³⁷ The problem is that transboundary pollution laws do not yet fully address environmental problems irrespective of international legal boundaries.²³⁸ Because ecological effects know no boundaries and can easily spill across international lines,²³⁹ it should be a major concern of the nations

²³³ *Id.*

²³⁴ The Green Party is an environmental activist organization. See *Hawaii County Green Party v. Clinton*, 124 F. Supp. 2d 1171, 1179 (D. Haw. 2000).

²³⁵ Ocean Mammal Inst., *supra* note 15, at para. 25.

²³⁶ McCarthy, *supra* note 3, at 259. The 1982 United Nations Convention on the Law of the Sea ("UNCLOS") defines marine pollution as:

the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

Id. (quoting United Nations Convention on the Law of the Sea, Dec. 10, 1982, art. 1(1)(4), 21 I.L.M. 1261, 1271 (1982)) [hereinafter UNCLOS].

²³⁷ *Id.* at 259. See generally UNCLOS, *supra* note 236 (defining marine pollution as introduction of energy into the marine environment with the likely result of causing deleterious effects). One of the main topics addressed by UNCLOS is the protection of the marine environment. The convention addresses six main sources of ocean pollution, one of which is vessel-source pollution. *Id.* "With regard to marine pollution from foreign vessels, coastal States can exercise jurisdiction only for the enforcement of laws and regulations adopted in accordance with the Convention for 'generally accepted international rules and standards.'" Oceans & Law of the Sea, United Nations, *The United Nations Convention on the Law of the Sea (A Historical Perspective)*, available at http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm.

²³⁸ *Id.* at 260.

²³⁹ McCarthy, *supra* note 3, at 258 (citing *Trail Smelter Arbitration* (U.S. v. Can.), 3 R.I.A.A. 1905, 1965 (1941), reprinted in 35 AM. J. INT'L L. 684, 716 (1941) (describing the case as the only international adjudication on the subject of air pollution)).

of the world to design treaties to limit ocean noise pollution. Unfortunately, currently there is a lack of coherent policy²⁴⁰ and “no international treaties or laws that specifically address the operations of sonars . . . in territorial waters or the high seas.”²⁴¹

Although many international instruments state that nations “have an implied duty and a due diligence obligation” to the environment in ensuring that new technology and products do not cause any harm,²⁴² by implementing and testing LFAS off foreign coasts, the United States appears to put its rights above the rights of others.²⁴³ “Secretary of State Colin Powell has begun enunciating a theory of American exceptionalism that pretty much says the United States can do as it pleases. It is so superior to other nations that it need not be bound by the rules of international behavior that bind other nations.”²⁴⁴

V. CONCLUSION

“The language of ESA ‘indicates beyond doubt that Congress intended endangered species to be afforded the highest of priorities.’”²⁴⁵ Congress’ intent obviously was to prevent extinctions at any cost.²⁴⁶ ESA even provides the federal government with a “mandatory duty” to use all methods available to protect an endangered species.²⁴⁷ Yet, the authority and weight the government actually gives ESA is minimal.

²⁴⁰ For a list of international instruments of actual or potential relevance to protection of cetaceans from ocean noise, treaties underlying regional sea initiatives, and selected provisions of regional seas treaties, see DOLMAN ET AL., *supra* note 48, at 124-30.

²⁴¹ *Id.* at 260.

²⁴² *Id.* at 287.

²⁴³ “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” *Id.* at 288 (quoting *Report of the United Nations Conference on Environment and Development: Rio Declaration on Environment and Development*, U.N. GAOR, princ. 15, U.N. Doc. A/CONF.151/26 (Vol. I)(1992)).

²⁴⁴ Sinkin, *Comments on NMFS Rule*, *supra* note 1, § 1.0 (quoting from an editorial in the *Minneapolis Star Tribune* republished in the *Hawaii Tribune-Herald* on Feb. 13, 2001).

²⁴⁵ Vaughan, *supra* note 30, at 427 (quoting *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 173 (1978)).

²⁴⁶ *Id.*

²⁴⁷ *Id.* at 427-28.

The decisions that have accompanied the development of the LFAS system for the last twenty years have consistently ignored both ESA's guidelines and the environment as a whole. Each time environmentalists have presented information about the harmful effects of the LFAS system, the Navy has found another way to evade the realities of the damages. The bumps and hurdles are vast, and it is apparent that the government is unwilling to terminate the entire project or find alternative measures because of the funds already invested. The scientific knowledge about the effect of sonar on whales and other endangered species is still too inconclusive to force a change in Navy procedures.

It is more than coincidental that, although the testing conducted by the Navy has repeatedly failed to meet ESA's standards, the Navy remains, singularly, in a position to address the issue of sonar in our oceans.²⁴⁸ The more than twenty years of testing have left them in sole possession of the amount and quality of information needed to determine the impact of this operation on endangered marine species.²⁴⁹

[T]he current structure of marine mammal science in the US, where Navy and other defense related agencies fund a large proportion of medium-large projects (especially those involving underwater acoustics) effectively restricts academic freedom. . . . [sic] it is disturbing when any agency with a principal mandate unrelated to science funds a large proportion of the research in any field.²⁵⁰

ESA's purpose, "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be

²⁴⁸ 7 NAT'L ACAD. OF SCI., *supra* note 12, at app. D, para. 19. In fact, the Navy began testing the use of sonar by marine mammals in the early 1960s, and has had a marine mammal program in place since 1960. See PUB. BROAD. SERV., A WHALE OF A BUSINESS: THE STORY OF NAVY DOLPHINS (1998), at <http://www.pbs.org/wgbh/pages/frontline/shows/whales/etc/navycron.html>. The program's intent was to study the sonar capabilities of dolphins and beluga whales, in attempting to develop more efficient method of detecting objects underwater. *Id.*

²⁴⁹ 7 NAT'L ACAD. OF SCI., *supra* note 12, at app. D para. 19.

²⁵⁰ Ocean Mammal Inst., *supra* note 15, at n.16 (quoting H. Whitehead & Lindy Weilgart, *Marine Mammal Science, The US Navy and Academic Freedom*, 11 MARINE MAMMAL SCI. 260, 263 (1995)).

conserved,"²⁵¹ seems to no longer be a priority of our government. If the last twenty years has proven anything, it is that ESA lacks the equitable weight that Congress initially desired it provide. The conflict between economic interests and the increasing pressures on our natural resources as the earth rapidly runs out of open space is only growing. The time has come to examine the Endangered Species Act and enact legislation that will protect endangered species from the power of an ever-changing global dynamic.

²⁵¹ Endangered Species Act, 16 U.S.C. § 1531(b) (2000).