Volume 1 of 2

FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

NATURAL RESOURCES DEFENSE COUNCIL, INC.; THE INTERNATIONAL FUND FOR ANIMAL WELFARE; CETACEAN SOCIETY INTERNATIONAL; LEAGUE FOR COASTAL PROTECTION; OCEAN FUTURES SOCIETY; JEAN-MICHEL COUSTEAU,
Plaintiffs-Appellees,

CALIFORNIA COASTAL COMMISSION,
Intervenor-Appellee,

v.

DONALD C. WINTER, Secretary of the Navy; UNITED STATES DEPARTMENT OF THE NAVY; CARLOS M. GUTIERREZ, Secretary of the Department of Commerce; NATIONAL MARINE FISHERIES SERVICES; WILLIAM HOGARTH, Assistant Administrator for Fisheries of the National Oceanographic and Atmospheric Administration; CONRAD C. LAUTENBACHER, JR., Administrator of the National Oceanographic and Atmospheric Administration,
Defendants-Appellants.

No. 08-55054
D.C. No.
CV-07-00335-FMC
OPINION

Appeal from the United States District Court
for the Central District of California
Florence Marie Cooper, District Judge, Presiding

Argued and Submitted
February 27, 2008—Pasadena, California

Filed February 29, 2008

Before: Betty B. Fletcher, Dorothy W. Nelson, and Stephen Reinhardt, Circuit Judges.

Opinion by Judge B. Fletcher

COUNSEL

Ronald J. Tenpas (argued), Acting Assistant Attorney General; Michael R. Eitel, Luther L. Hajek, and Allen M. Brabender, Appellate Section, U.S. Department of Justice, Environment & Natural Resources Division, Washington, D.C.; Craig D. Jensen and J. Page Turney, Office of General Counsel, Department of the Navy, for the federal defendants-appellants.

Joel R. Reynolds, Cara A. Horowitz, Stephen Zak Smith, Natural Resources Defense Council, Inc., Santa Monica, California; Richard B. Kendall (argued), Gregory A. Fayer, and Josh B. Gordon, Irell and Manella LLP, Los Angeles, California, for the plaintiffs-appellees.

Edmund G. Brown, Jr., Janet Gaard, J. Matthew Rodriguez, Jamee Jordan Patterson (argued), Office of the Attorney Gen-

eral of California, for intervenor-appellee California Coastal Commission.

OPINION

B. FLETCHER, Circuit Judge:

Defendants Secretary of the Navy, Department of the Navy, Secretary of the Department of Commerce, National Marine Fisheries Service (NMFS),[1] and two Administrators of the National Oceanographic and Atmospheric Administration (NOAA) appeal the district court's January 3, 2008 order, as modified on January 10, 2008, granting a motion for a preliminary injunction and imposing certain conditions on the completion of the remaining eight of fourteen large training exercises scheduled to be conducted by the Navy's Third Fleet in the waters off the coast of southern California between February 2007 and January 2009 (the "SOCAL exercises").[2] The motion was filed by plaintiffs Natural Resources Defense Council, Inc., International Fund for Animal Welfare, Cetacean Society International, League for Coastal Protection, Ocean Futures Society, and Jean-Michel Cousteau (collectively "NRDC" or "plaintiffs"), who are concerned that the Navy's use of high-intensity, mid-frequency active sonar ("MFA sonar") in the SOCAL exercises will cause serious harm to various species of marine mammal present in the southern California waters, and by extension, to plaintiffs themselves.

[1]The National Marine Fisheries Service has now been renamed "NOAA Fisheries." Because many of the documents refer to the agency by its former name, it shall be referred to as "the NMFS" throughout this opinion.

[2]While the district court imposed the injunction when the Navy had yet to conduct nine training exercises, it issued a temporary partial stay of its injunction on January 17, 2008, after which the Navy conducted its sixth exercise. Accordingly, only eight of the fourteen scheduled exercises have not yet been conducted.

In granting NRDC's motion for a preliminary injunction, the district court found that NRDC had demonstrated probable success on the merits of its claim that the Navy violated the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 *et seq.*, by failing to prepare an Environmental Impact Statement ("EIS"). The district court also found that NRDC had demonstrated probable success on the merits of its claim that the Navy violated the Coastal Zone Management Act ("CZMA"), 16 U.S.C. § 1451 *et seq.*, by submitting a consistency determination to the California Coastal Commission ("CCC") that did not take into account the planned use of MFA sonar and by failing to adopt the mitigation measures the CCC determined were necessary for the SOCAL exercises to be consistent with the California Coastal Management Program ("CCMP").

On January 15, 2008, the Council on Environmental Quality ("CEQ") purported to approve "alternative arrangements," pursuant to 40 C.F.R. § 1506.11, that would permit the Navy to continue its exercise without first completing an EIS. On the same day, President George W. Bush, pursuant to 16 U.S.C. § 1456(c)(1)(B), exempted from the requirements of the CZMA the Navy's use of MFA sonar in the SOCAL exercises.

On February 4, 2008, the district court upheld its injunction on the basis of plaintiffs' NEPA claim, concluding CEQ's action was invalid and therefore not entitled to deference. The district court also expressed concerns about the constitutionality of the President's CZMA exemption on the ground that it appeared to amount to an executive revision of a judicial decision and thus violated the principle, recognized in *Hayburn's Case*, 2 U.S. (2 Dall.) 408 (1792), that Congress cannot vest review of the decisions of Article III courts in officials of the Executive Branch. However, the court declined to decide the constitutionality of the CZMA exemption because it concluded the preliminary injunction was firmly supported on

NEPA grounds.[3] The district court also found that plaintiffs had demonstrated a possibility of irreparable harm and that the balance of hardships tipped in plaintiffs' favor. *Natural Res. Def. Council v. Winter*, ___ F.Supp. 2d ___, 2008 WL 314192 (C.D. Cal. Feb. 4, 2008) ("Feb. 4, 2008 Dist. Ct. Order").

For the reasons stated below, we uphold the district court's preliminary injunction.

I. Procedural History

Plaintiffs commenced this action on March 22, 2007. On August 7, 2007, the district court granted in part NRDC's motion for a preliminary injunction and enjoined the Navy from conducting the then remaining eleven SOCAL exercises.[4] After appealing the district court's preliminary injunction order,[5] the Navy filed an emergency motion with this court for a stay of the order while its appeal was pending. On August 31, 2007, a divided motions panel granted the Navy's motion on the grounds that the district court had failed to consider the "public interest" in having a trained and effective Navy and had failed to explain why an unconditional injunction on the SOCAL exercises, rather than an injunction conditioning the conduct of those exercises on the adoption of additional mitigation measures, was appropriate. *NRDC v. Winter*, 502 F.3d 859 (9th Cir. 2007).

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[3]Because the district court did not rule on the likelihood of success of plaintiffs' CZMA claim in light of the President's exemption, we decline to reach that issue.

[4]The district court granted NRDC's motion only in part because it found that NRDC had not demonstrated probable success on the merits of its additional claim that the NMFS and the other non-Navy defendants had failed to prepare an adequate Biological Opinion and Incidental Take Statement in violation of the Endangered Species Act and the Administrative Procedure Act. NRDC has not appealed that portion of the district court's ruling.

[5]The CCC has intervened as appellee in this action.

On November 13, 2007, after hearing oral argument, we filed an order concluding that NRDC had met the necessary burden of proof to demonstrate that some form of preliminary injunctive relief was appropriate. Accordingly, we vacated the stay of the preliminary injunction order effective upon the Navy's completion of its fifth SOCAL exercise, which was in progress at the time of oral argument. However, we also concluded that an injunction conditioning continuation of the exercises on the Navy's adoption of narrowly tailored mitigation measures would be more appropriate than a total injunction. Accordingly, we remanded the case for the district court to enter a modified preliminary injunction containing appropriate mitigating measures. *NRDC v. Winter*, 508 F.3d 885 (9th Cir. 2007).

On January 3, 2008, the district court, after having received briefing from the parties and having toured the destroyer *USS Milius* at the naval base in San Diego, California, to improve its understanding of the Navy's sonar training procedures and the feasibility of the parties' proposed mitigation measures, issued a new preliminary injunction that allowed the Navy to conduct the remaining SOCAL exercises provided that it employ certain measures intended to mitigate the impact of the Navy's use of MFA sonar on the environment. On January 9, 2008, the Navy applied for a stay pending appeal and requested relief from the district court by January 14, 2008.

On January 10, 2008, in response to arguments raised in the Navy's stay application, the district court modified the preliminary injunction by narrowing the mitigation measures contained in the January 3, 2008 order. The Navy filed a notice of appeal the following day. The district court denied the Navy's stay application on January 14, 2008.

On the evening of January 15, 2008, the Navy filed an emergency motion with this court requesting vacatur of the preliminary injunction or, alternatively, a partial stay of the preliminary injunction pending a decision on its appeal by our

court. The Navy's motion was based in part on two developments that occurred on the same day that the motion was filed. First, the President of the United States, pursuant to 16 U.S.C. § 1456(c)(1)(B), exempted from the provisions of the CZMA the Navy's use of MFA sonar during the SOCAL exercises, finding that such use of MFA sonar is "essential to national security" and in the "paramount interest of the United States." Second, the CEQ, finding "emergency circumstances," purported to approve "alternative arrangements" to accommodate those emergency circumstances, pursuant to 40 C.F.R. § 1506.11. It permitted the Navy to follow the prescribed arrangements to continue its exercises pending completion of the Navy's EIS. The Navy subsequently adopted the alternative arrangements and determined that it would comply with them. *See* Decision Memorandum Accepting Alternative Arrangements for the U.S. Navy's Southern California Operating Area Composite Training Unit Exercises and Joint Task Force Exercises Scheduled To Occur Between Today and January 2009, 73 Fed. Reg. 4189 (Jan. 24, 2008).

On January 16, 2008, we remanded the matter to the district court to consider in the first instance the effect, if any, of these developments on its preliminary injunction order. On January 17, 2008, the district court issued a temporary partial stay of its preliminary injunction order pending the court's consideration of the Navy's *ex parte* application to vacate the preliminary injunction. The Navy subsequently conducted its sixth SOCAL exercise.

On February 4, 2008, following briefing by the parties and oral argument, the district court denied the Navy's application to vacate the preliminary injunction and lifted the temporary partial stay. In its published order, the district court held in relevant part that CEQ's approval of "alternative arrangements" was invalid because there are no "emergency circumstances" within the meaning of 40 C.F.R. § 1506.11. Feb. 4, 2008 Dist. Ct. Order at 13-25. Thus, the district court left in

place the original preliminary injunction. The Navy filed a notice of appeal two days later.

On February 8, 2008, we issued a *sua sponte* order expediting the appeal of the district court's order imposing the preliminary injunction. On February 15, 2008, the Navy filed an emergency motion for a partial stay of the preliminary injunction pending our consideration of the appeal on the ground that the injunction would interfere with the Navy's conduct of two exercises in March, 2008. On February 19, 2008, we denied the Navy's motion for a partial stay in light of our order expediting the appeal, which set oral argument for Wednesday, February 27, 2008. We now affirm the district court's order imposing the preliminary injunction.

II. Factual Background

A. The SOCAL Exercises and the Effect of MFA Sonar on Marine Mammals

The scheduled SOCAL exercises consist of seven Composite Training Unit Exercises ("COMPTUEX"), which last three to four weeks each, and seven Joint Tactical Force Exercises ("JTFEX"), which last approximately ten days each. The exercises, which involve the use of multiple surface ships, aircraft and submarines, are part of the "integrated" training phase of the Navy's Fleet Response Training Plan, in which individual naval units — ships, submarines and aviation squadrons — learn and demonstrate skills as members of a strike group.[6] Declaration of Captain Martin N. May ("May

[6]The Navy employs two types of strike groups. A carrier strike group generally consists of an aircraft carrier and five surface combatant ships. May decl. ¶ 5. An expeditionary strike group includes surface combatant ships and an amphibious ready group. *Id*.

A strike group starts developing skill sets at the individual ship, submarine, or aviation squadron level by conducting unit-level training. *Id*. ¶ 6. As skill levels increase, units coordinate training with other units. *Id*. Prior

decl.) ¶ 6. In a COMPTUEX exercise a strike group must demonstrate that it is capable of operating in a "complicated threat-based scenario environment that simulates real world situations." *Id*. In a JTFEX exercise, which follows the COMPTUEX exercise and typically includes other Department of Defense services and Allied Forces, the focus is on "mission planning and strategy and on the orchestration of integrated maneuvers, communication and coordination." *Id*. ¶ 7. Upon completion of the integrated training phase the Fleet Commander is able to certify that a strike group is ready for deployment. *Id*.

According to the Navy, the ability to execute anti-submarine warfare ("ASW") is critical to a Commander's certification of a strike group. *Id.* Improving ASW is the Pacific Fleet's top "war-fighting" priority because of the proliferation of extremely quiet diesel electric submarines throughout the world.[7] *Id*. ¶ 11; Dec. 14, 2007 Declaration of Rear Admiral John M. Bird ("Bird. Decl") ¶ 16. In turn, an important part of ASW is the use of active sonar, a technology which the Navy deems absolutely necessary to detect today's extremely quiet submarines. The type of active sonar, the use of which

to commencing the "integrated" phase of the Navy's training plan, the individual units comprising a strike group must be trained and attain proficiency in the "basic" phase of the training plan. *Id*. ¶ 25. During the "integrated" training phase, an individual unit learns and demonstrates skills as a team member of the strike group. Following completion of the "integrated" phase, strike groups enter the "sustainment" phase of the training plan. *Id*. This phase continues through the strike group's scheduled deployment and post-deployment periods and ends with the commencement of the "maintenance" phase, during which the ships comprising the strike group undergo maintenance and modernization. *Id*. ¶¶ 24, 25.

[7]We note that neither quiet submarines, nor the use of active sonar to detect them, are new technologies. According to the Navy's Environmental Assessment ("EA"), active sonar was used effectively against German U-boats during World War II, and during the Cold War technological developments in active sonar were "critical" for tracking sophisticated Soviet submarines.

NRDC challenges, is mid frequency active sonar; other categories of active sonar are low-frequency active sonar and high-frequency active sonar.[8]

Active sonar involves a vessel or other sonar source emitting a loud noise underwater and then listening for whether the noise comes back to the source, indicating that the noise may have bounced off the hull of a previously undetected submarine. According to the Navy, active sonar has two important advantages over passive sonar, which merely involves listening for noise made by submarines themselves: active sonar gives both the bearing and the distance of the target submarine, while passive sonar gives only the bearing;[9] and active sonar allows the Navy to target submarines that emit sound at levels below those of the surrounding marine environment. Bird decl. ¶ 9. Accordingly, the Navy has concluded that in certain environments, including shallow coastal waters where ambient noise levels are high, MFA sonar allows better detection of quiet submarines than passive sonar. May decl. ¶¶ 9, 14.

According to the Navy, personnel using MFA sonar must train with it regularly, under realistic conditions, and in a variety of situations. May decl. ¶ 10. The Navy therefore trains with MFA sonar in the ASW exercises that constitute an important component of the SOCAL exercises.

The SOCAL exercises are conducted in the Navy's training ranges off the coast of southern California ("the Southern California Operating Area"). This area is located in biologically

[8]According to the Navy, low-frequency active sonar is transmitted at frequencies between 0.1 kHz and 1.0 kHz; mid-frequency active sonar at frequencies between 1.0 kHz and 10.0 kHz; and high-frequency active sonar at frequencies greater than 10.0 kHz. Bird decl. ¶ 12; May decl. ¶ 9.

[9]Active sonar allows a calculation of the distance of a target submarine by considering the speed at which the sonar sound moves through water and the time it takes for emitted sonar sound to travel to the target and back. Bird decl. ¶ 12.

diverse waters. At least thirty-seven species of marine mammals are found there, with the most common being various species of dolphin and whale, as well as the California sea lion. Nine of those species are listed as threatened or endangered under the Endangered Species Act ("ESA"), 16 U.S.C. § 1531 *et seq.*: the blue whale, fin whale, humpback whale, Northern Pacific right whale, sei whale, sperm whale, sea otter, Stellar sea lion, and Guadalupe fur seal. In addition, up to eight species of beaked whale are found in the Southern California Operating Area. A study submitted by NRDC classifies the California coastal waters as a "key area" for beaked whales because over 25% of all beaked whale species are found there.[10]

The Navy acknowledges in its EA that MFA sonar may affect both the physiology and behavior of marine mammals. Exposure to "very high" acoustic energy levels may impair the functioning of marine mammals' visual system, vestibular system and internal organs, and may cause injury to their lungs and intestines. However, the primary physiological effects of MFA sonar are on marine mammals' auditory system: very high sound levels may rupture the eardrum or damage small bones in the middle ear, but even exposure to lower levels of sound may cause permanent or temporary hearing loss.

Several studies suggest that active sonar may also cause a form of decompression sickness (or the "bends") in marine mammals by inducing growth of gas bubbles in their blood stream or tissues, potentially leading to fatal hemorrhaging, lesions and emboli in the organs. However, the Navy disputes the conclusions of these studies and it has submitted a decla-

[10]According to the study, the "key area" in southern California comprises the California shelf margins, which the study defines as the area west of the Californian coast up until the 125.0 degree longitude. Navy maps in the record show that the Southern California Operating Area falls largely within this area.

ration by an expert on marine mammal auditory systems stating that decompression sickness requires super-saturation of tissue with gas and that such super-saturation has not been shown to occur in marine mammals. *See* Declaration of Dr. Darlene R. Ketten ("Ketten decl.") ¶¶ 12-16.

The Navy also acknowledges that the use of MFA sonar may overtly disrupt the normal behavior of marine mammals even if it does not affect their physiology. While the Navy acknowledges that active sonar may cause behavioral responses such as attempting to avoid the site of sound exposure, swimming erratically, sluggish behavior, tail slapping, "jaw popping," and aggressive behavior, those responses were observed in studies using trained animals held in captivity.[11] NOAA concluded in 2006 that studies of marine mammals in the wild "strongly suggest" that the use of sonar at levels lower than those found to produce behavioral effects in the tests of captive animals can result in "profound" behavioral alterations, including changes in feeding, diving, and social behavior. In a February 9, 2007 Biological Opinion concerning the SOCAL exercises,[12] the NMFS found that acoustic exposures can impair marine mammals' foraging ability and their ability to detect predators or communicate. The NMFS cited studies finding that noise has caused whales to move away from their feeding and mating grounds and migration routes, and to change their calls.

[11]These behavioral responses were observed in a study to which the EA cites for the effects of MFA sonar on marine mammals. *See* J.J. Finneran and C.E. Schlundt, *Effects of Intense Pure Tones on the Behavior of Trained Odontocetes*, Space and Naval Warfare Systems Center, San Diego, Technical Document (September 2004).

[12]The NMFS issued the Biological Opinion pursuant to section 7(a)(2) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1536(a)(2), which concluded that while the SOCAL exercises might "adversely affect" certain threatened and endangered species, the exercises were not "likely to jeopardize the [species'] continued existence." The NMFS also issued an Incidental Take Statement under which harm done to animals of the threatened or endangered species would be excused under the ESA as incidental.

As the record demonstrates, substantial evidence suggests that beaked whales are particularly vulnerable to MFA sonar. While it is not settled what causes this vulnerability,[13] it is clear that use of MFA sonar may lead to the stranding of beaked whales. A 2004 Navy-sponsored study concluded that "the evidence of sonar causation is . . . completely convincing and that therefore there is a serious issue of how best to avoid/minimize future beaching events." Likewise, the Standing Working Group on Environmental Concerns of the International Whaling Commission's Scientific Committee concluded in 2004 that "[t]he weight of accumulated evidence now associates mid-frequency, military sonar with atypical beaked whale mass strandings," and found that "[t]his evidence is very convincing and appears overwhelming."

A 2006 study cited as possible explanations for the association between MFA sonar and strandings of beaked whales that (1) beaked whales may swim into shallow waters to avoid the sonar sound and strand if they are unable to navigate back to deeper waters, and (2) that behavioral responses to sonar may lead to tissue damage that in turn leads to stranding. The study explains that while a stranding need not be fatal, stranded marine mammals have died from cardiovascular collapse due to hyperthermia or from the stress associated with the stranding. Several mass strandings of marine mammals—mostly, though not exclusively, beaked whales—have been associated with the use of active sonar. Another 2006 study describes a stranding of twelve beaked whales in Greece in 1996, a stranding of seventeen marine mammals (including fourteen beaked whales) in the Bahamas in 2000, and a stranding of

[13]A 2004 Navy-sponsored study investigated several possible explanations for beaked whales' vulnerability to MFA sonar, including that beaked whales have a specialized anatomy, possibly due to their deep diving, which renders them especially sensitive to sound, and that beaked whales are "especially skittish" such that loud, reverberant acoustic fields cause "uncontrolled attempts to escape." The study concluded that the latter explanation was the most likely to be correct, but that this conclusion could change "as more research is done on this problem."

fourteen beaked whales in the Canary Islands in 2002,[14] all of which occurred at the same time and place as the naval use of MFA sonar. The study also recounts a stranding of three beaked whales in the Madeira Islands in 2000, which coincided with NATO's conduct of naval exercises,[15] as well as a stranding of two beaked whales in the Gulf of California, Mexico, in 2002, which coincided with the conduct of seismic surveys involving, among other acoustic sources, a multi-beam, high-frequency sonar. In addition, a 2006 report by the NMFS recounts that 150 to 200 melon-head whales stranded in a Hawaiian bay in 2004, at the same time and place as the Navy's use of active sonar as part of its biennial Rim of the Pacific (RIMPAC) exercise.[16]

Necropsies of the dead whales involved in the Bahamas, Canary Islands and Madeira Islands strandings revealed hemorrhages in and around the ears, in the cranial spaces, and in other parts of the body such as the jaw fat, lungs and kidneys. In a joint report, the Navy and NOAA concluded that the injuries to the whales that stranded in the Bahamas constituted "some sort of acoustic or impulse trauma," and that the Navy's use of MFA sonar was the "most plausible" source of that trauma. The International Whaling Commission agreed

[14]Notably, the study states that after the stranding in the Canary Islands, local researchers examined past stranding records and found reports of eight other strandings of beaked whales in the Canaries since 1985, at least five of which coincided with naval activities offshore.

[15]According to the study, NATO has been unwilling to provide information on its sonar activity during the Madeira Island exercises.

[16]The RIMPAC exercises have been conducted biennially since 1968 in the "Hawaiian operating area" and are intended to enhance the communication and coordination between Pacific Rim armed forces "as a means of promoting stability in the region to the benefit of all participating nations." Bird decl. ¶ 34. Unlike the JTFEX and COMPTUEX exercises, the RIMPAC exercises are not part of the "integrated" phase of the Fleet Response Training Plan; they are focused on command and control among the nations involved, and not focused on certifying strike groups for deployment. *Id*. However, like the JTFEX and COMPTUEX exercises, the RIMPAC exercises include ASW training that involves the use of MFA sonar.

that the hemorrhages in the inner ears and cranial spaces were consistent with "direct acoustic effects."

According to a biologist on whose declaration NRDC relies, the use of MFA sonar in the Bahamas may also have had a serious effect on the local population of beaked whales. *See* Declaration of Dr. Hal Whitehead. The biologist cites a study showing that no Cuvier's beaked whales were sighted for twenty months following the stranding in the Bahamas, despite an increased survey effort. *Id.* ¶ 8. He also cited studies showing that of the Cuvier's beaked whales that had been photo-identified over a nine-year period, only a few have been sighted since the stranding in 2000. *Id.*

With respect to the stranding of the melon-head whales in Hawaii, the NMFS issued a report concluding that "[w]hile causation of this stranding event may never be unequivocally determined, we consider the active sonar transmissions . . . a plausible, if not likely, contributing factor in what may have been a confluence of events."

Undoubtedly, many training exercises involving the use of active sonar occur around the world without marine mammal strandings being observed or reported. However, a declaration by a NOAA scientist submitted by the Navy acknowledges that it is generally poorly understood in which combinations of physical and biological circumstances such strandings are likely to occur. Declaration of Brandon L. Southall ¶ 19. The declaration also acknowledges that whether marine mammal strandings are observed depends on the extent to which people are looking for them. *Id.*

B. The Navy's EA and the Predicted Harm to Marine Mammals in the Southern California Waters

In February 2007, the Navy issued an Environmental Assessment ("EA") for the SOCAL exercises pursuant to NEPA. *See* 40 C.F.R. § 1501.3. The EA set forth the Navy's

estimate of how much harm the use of MFA sonar would inflict on marine mammals, classifying the harm as either "Level A harassment" or "Level B harassment."

Level A harassment is an act that physically injures the marine mammal. Level A harassment refers to an exposure to MFA sonar that "injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild." Injury is defined as any destruction or loss of any biological tissues, and includes permanent hearing loss.

Level B harassment is an act that disrupts the behavior of a marine mammal. Level B harassment refers to an exposure to MFA sonar that "disturbs or is likely to disturb a marine mammal or marine mammal stock by causing disruption of natural behavioral patterns including, but not limited to, migration, surfacing, nursing, feeding, or sheltering to a point where such behaviors are abandoned or significantly altered." Notably, Level B harassment may also, though it need not, include temporary hearing loss.

The behavioral effects that result from Level B harassment may have severe consequences. According to the Biological Opinion of the NMFS, acoustic exposures can result in the death of a marine mammal by impairing its foraging or its ability to detect predators or communicate by increasing stress or by disrupting important physiological events.

In its EA, the Navy classified predicted sonar exposures as either Level A harassments or Level B harassments based on the sound intensity to which a marine mammal would be exposed. For cetaceans—which include whales and dolphins and which are the focus of NRDC's challenge to the SOCAL exercises—the Navy applied the following "impact thresholds": it classified as Level A harassments exposures to sonar levels of 215 decibels (dB) or greater, as Level B harassments including temporary hearing loss exposures to sonar levels between 195 dB and 215 dB, and as Level B harassments not

including temporary hearing loss exposures to sonar levels between 173 dB and 195 dB.[17]

Significantly, the Navy acknowledged in the EA that it does not know whether the above impact thresholds apply to beaked whales. Recognizing the recent beaked whale strandings and the fact that the exact causes of those strandings are unknown, the Navy concluded that "separate, meaningful impact thresholds cannot be derived specifically for beaked whales." Put simply, the Navy did not know whether exposure of a beaked whale to an acoustic energy of less than 215 dB might nevertheless cause permanent injury to the whale. Accordingly, the Navy took a "conservative approach" and counted all predicted Level B exposures of beaked whales as non-lethal Level A exposures. Thus, the Navy treated every predicted exposure of a beaked whale to a sonar level of 173 dB or greater as causing physical injury including permanent hearing loss.

In its EA, the Navy estimated that over the course of the SOCAL exercises, the use of MFA sonar would result in 564 instances of Level A harassment to marine mammals, 548 of which would be to beaked whales.[18] Specifically, the follow-

[17]The EA expressed the impact thresholds in terms of "energy flux density level," which is a measure of the flow of sound energy through an area, or, more formally, the time integral of the squared pressure divided by the impedance. Energy flux density is expressed in units of decibels referenced to the pressure and duration of the sound, e.g., 215 dB re 1 μPa^2-s. For convenience, we express the impact thresholds, and exposures to MFA sonar generally, only in units of decibels.

[18]The statements in the EA that "[t]he modeling efforts and harassment analysis for mid-frequency active sonar estimate that no Level A harassment" of beaked whales will occur is not to the contrary. As explained above, the Navy acknowledged in the EA that it did not know whether the impact thresholds it established for cetaceans generally also applied to beaked whales. Accordingly, the Navy decided that although its harassment model using those impact thresholds did not predict any Level A harassments to beaked whales, it would nevertheless treat all predicted Level B harassments to beaked whales as Level A harassments.

ing species would be subjected to Level A harassments: Cuvier's beaked whales in 436 instances; Ziphiid beaked whales in 104 instances; common dolphins in 16 instances; and Baird's beaked whales in 8 instances.[19]

The Navy also estimated that the use of MFA sonar would result in 8,160 exposures to Level B harassment with temporary hearing loss and 161,368 exposures to Level B harassment without hearing loss. Eight marine mammal species, including one endangered species, would be exposed to over 1,000 incidents of Level B harassment: 145,444 exposures to common dolphins; 6,460 exposures to Northern Pacific right whale dolphins; 4,292 exposures to Risso's dolphins; 4,100 exposures to Pacific white-sided dolphins, 3,252 exposures to striped dolphins; 1,830 exposures to pygmy sperm whales (endangered); 1,094 exposures to Pantropical spotted dolphins; and 1,092 exposures to bottlenose dolphins.

In light of the harm that marine mammals are expected to suffer as a result of the SOCAL exercises, plaintiffs contend that they and their members living in southern California will be harmed. For example, plaintiff Jean-Michel Cousteau alleges that as an environmental enthusiast and film-maker his ability to enjoy and educate others about the marine environment in southern California will be impaired if the harmful effects of MFA sonar on marine mammals are not sufficiently mitigated. Other plaintiffs make similar allegations.

The Navy stated in the EA that it "assumed" that its methodology for estimating harm overestimated the effects of MFA sonar on marine mammals, citing the lack of observed effects during several past major exercises. However, the EA also maintained that the methodology used was based on the

[19]These figures appear in the EA's Appendix A; the slightly different figures cited by the parties and the district court appear to be incorrect because they fail to account for 98 instances of Level A harassment to Ziphiid whales.

"best available science," and it provided no indication of the extent to which its methodology overestimated the effects of MFA sonar. In fact, there is at least some evidence that the Navy's methodology may have *underestimated* the effects of MFA sonar on marine mammals. NRDC has submitted declarations of several scientists who cite evidence that extraordinary behavior in marine mammals, including stranding by beaked whales, may be caused by acoustic energy levels below the Navy's bottom impact threshold of 173 dB. *See* Declaration of Dr. David E. Bain ¶¶ 6-11; Declaration of Dr. Edward C.M. Parsons ¶ 4; Declaration of Dr. Linda Weilgart ("Weilgart decl.") ¶ 9.

While NRDC has presented no evidence that marine mammals have actually been harmed by the Navy's use of MFA sonar in the Southern California Operating Area over the past forty years,[20] the record indicates that because harm to marine mammals is difficult to detect, except in cases of stranding, marine mammals may nonetheless be harmed by the Navy's use of MFA sonar in the Southern California Operating Area.

In the Navy's January 2007 "after action report" following the completion of the first three SOCAL exercises, the Navy acknowledged that "it is difficult to assess the potential expo-

[20]The "after action reports" compiled by the Navy following completion of COMPTUEX and JTFEX exercises in the Southern California Operating Area do catalogue a number of marine mammal deaths. For example, the Navy's June 2007 "after action report" following the first three SOCAL exercises notes that during one of the exercises the Navy observed a floating, badly decomposed whale carcass, and that during two of the exercises it observed floating pinniped and dolphin carcasses. The report does not disclose whether necropsies were performed on the carcasses and it does not discuss whether the deaths might be related to the use of MFA sonar. Instead, the report proffers only the tentative explanation that "circumstantial evidence" of a link between "potential" algal toxin in California ocean waters and increased marine mammal mortality "is not unexpected" and "may" have "contributed" to the fact that pinniped and dolphin carcasses were observed. June 28, 2007 COMPTUEX/JTFEX Combined After Action Report at 13-14.

sure to sonar for species not observed." Indeed, the "after action reports" for the last eight COMPTUEX and JTFEX exercises in the Southern California Operating Area reveal that in less than 15% of the instances in which marine mammals were observed, MFA sonar was in fact being used.[21] Thus, the Navy's reports show that relatively few marine mammals have been observed while MFA sonar was being used.

Beaked whales are particularly difficult to observe. According to a 2004 Navy-sponsored report, "[t]heir very low broaching profile and the limited time they spend at the surface have conspired to make them resistant to easy surveying." The report notes that beaked whales are "very deep divers" and spend an estimated 80% of their time at considerable depths. According to the EA, Cuvier's and Mesoplodont beaked whales make dives of up to 87 minutes.[22] An international workshop on beaked whales organized by the U.S. Marine Mammal Commission noted that only 1 in 50 beaked whales would be detected in naval mitigation surveys using shipboard visual observation, even assuming ideal observation conditions.

Correspondingly, injuries to beaked whales are also difficult to observe. In a January 2007 memorandum, the NMFS concluded that "injuries or mortalities . . . would rarely be documented, due to the remote nature of many [naval activities] and the low probability that an injured or dead beaked whale would strand." While the parties have presented conflicting declarations on the issue whether whale carcasses resurface for some time after they initially sink, *compare*

[21]The data in the "after action reports" for the eight COMPTUEX and JTFEX exercises in the Southern California Operating Area show that of 345 instances of marine mammal sighting, MFA sonar was being used only in 51 instances, or 14.8% of the time.

[22]The EA provides no information on the length of the dives of Baird's and Ziphiid beaked whales.

Weilgart decl. ¶ 7 *with* Ketten decl. ¶ 17, the likelihood that a whale carcass would be detected if it does not strand logically depends on how well the waters are searched for such carcasses. A 2007 study by NMFS researchers suggests that the likelihood of detecting dead beaked whales is low, as it concluded that, given current biological survey efforts, in 90% of beaked whale stocks a decline in population of 50% over a 15-year period would go undetected as a decline at all. Non-fatal injuries not leading to stranding would be even more difficult to detect because no beaked whale carcass would surface.

Moreover, it is not clear from the record whether in the past forty years the waters of southern California have been exposed to MFA sonar at the same power level and frequency and for the same duration as they are now. First, the Navy has provided no information about the frequency with which exercises involving the use of MFA sonar were conducted prior to 1992.

Second, while the Navy states that "Navy data going back to 1992 shows that the number of yearly exercises in the last 15 years and amount of [MFA sonar] use in SOCAL waters was greater in the past than it is now, showing a slight reduction trend," Bird decl. ¶ 18, that statement is too vague to allow conclusions to be drawn from it. The statement says nothing about the type of exercises or their duration over the years, and it does not make clear whether "in SOCAL waters" refers only to sonar use or also to the number of yearly exercises. Further, the statement does not specify whether "amount of [MFA sonar] use" refers to sonar use in each exercise or to total sonar use in a year, nor does it make clear whether that phrase refers to the number of times sonar was employed or to the aggregate duration of sonar transmission. The Navy produces no data in the record to clarify its statement.

Third, while the EA states that an average of seven JTFEX or COMPTUEX exercises are conducted each year, which is

consistent with fourteen SOCAL exercises to be conducted over two years, the EA does not state the starting date after which that average has been maintained.

Fourth, while the Navy points out that its currently-used SQS-53 sonar system transmits sonar at the same power levels and frequencies as the SQS-26 system that the Navy used in earlier years, it acknowledges that in a new class of destroyers the SQS-53 system has replaced the SQS-56 system. Bird. decl. ¶ 18. As the Biological Opinion of the NMFS makes clear, the SQS-56 system transmits MFA sonar at a lower power level and at different frequencies than the SQS-53 system.[23] Thus, the record suggests that with the new class of destroyers the average MFA sonar transmission may have increased in power level and changed in frequency. The Navy does not cite evidence to the contrary.

Finally, we can draw no conclusion from the statement in the EA that "output from active sonar systems used in [the Southern California Operating Area] and throughout the Navy has remained largely the same for the past 30 years." The EA does not explain whether "output" refers to frequency, sound intensity level, amount of time used during an exercise, or amount of time used per year.[24] Even assuming the statement

[23]Moreover, the NMFS' Biological Opinion states that two low-frequency sonar systems are likely to be employed in the SOCAL exercises, but it does not state in what proportion they have been used in the past or will be used now. The fact that one of those systems has the same acoustic capabilities as, but improved processing capabilities over, the other system—a fact to which the Navy refers in its November 13, 2007 letter to the court—is irrelevant.

[24]The same lack of clarity afflicts the statement in a Navy declaration that the Navy's training activities involving sonar during World War II "were similar in nature and intensity to those currently analyzed in the [EA for the SOCAL exercises]." Declaration of Conrad Erkelens ¶ 16. The statement does not make clear whether "intensity" refers generally to the frequency or size of the exercises or more specifically to the length of time during which sonar was used. Even if it refers to the latter, it appears to refer to the use of sonar per training activity, not per year.

refers to the use of the sonar systems during an exercise or during the year, it is unclear whether it refers to total use in the Southern California Operating Area or rather to total use by the Navy in all its training areas combined.

In any event, the Navy's estimate that its use of MFA sonar in the SOCAL exercises will expose marine mammals to 564 instances of Level A harassment and nearly 170,000 instances of Level B harassment clearly indicates that at least some substantial harm will likely occur in the Southern California Operating Area.

C. The Mitigation Measures Employed by the Navy and Those Imposed by the District Court

While the Navy adopted a number of mitigation measures intended to reduce the harm caused by the use of MFA sonar in the SOCAL exercises, the district court concluded that those measures were inadequate both to cure the Navy's likely NEPA violation and to avoid the possibility of irreparable harm to NRDC. Accordingly, following our November 13, 2007 remand order, the district court established additional, narrowly-tailored mitigation measures which the Navy would have to employ during the remaining SOCAL exercises. To place these mitigation measures in context, we explain what mitigation measures the Navy has previously employed and is currently employing in the SOCAL exercises.

In June 2006, shortly before the Navy was to conduct that year's "Rim of the Pacific" exercise off the coast of Hawaii (the "2006 RIMPAC exercise"), plaintiffs sued the Navy and the same co-defendants here,[25] seeking to enjoin the Navy from using MFA sonar in that exercise. Following the district court's grant of NRDC's motion for a temporary restraining

[25]Only the League for Coastal Protection was not a plaintiff in the 2006 action.

order, the parties entered into a settlement agreement that allowed the Navy to use MFA sonar in the 2006 RIMPAC exercise but only if it employed certain mitigation measures in addition to those already imposed by the NMFS in its June 27, 2006 Incidental Harassment Authorization and by the Department of Defense in its June 30, 2006 National Defense Exemption ("NDE I").[26]

The mitigation measures the Navy adopted for the 2006 RIMPAC exercise include operating MFA sonar at the lowest practicable level not to exceed 235 dB except for short periods to meet tactical training objectives, and using at least one lookout dedicated to the detection of marine mammals, as well as three non-dedicated lookouts, on each ship operating MFA sonar and requiring them to report sightings of marine mammals.

The following mitigation measures employed during the 2006 RIMPAC exercise are of particular importance here:

- The designation of "safety zones" in which:
  - the MFA sonar level is reduced by 6 dB if a marine mammal is detected within 1,000 meters of the sonar dome (located in the bow of the vessel);[27]

[26]The NMFS's Incidental Harassment Authorization (IHA), issued pursuant to 16 U.S.C. § 1371(a)(5), authorized the incidental "taking" of a small number of marine mammals under the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1361 *et seq*. The Deputy Secretary of Defense incorporated the mitigation measures imposed by the NMFS into NDE I issued pursuant to 16 U.S.C. § 1371(f), which exempted from the MMPA for a period of six months all military readiness activities employing MFA sonar, including the 2006 RIMPAC exercise. The NDE I imposed different mitigation measures for non-RIMPAC exercises during the six month period, including the prohibition on use of MFA sonar within 12 nautical miles of a coast.

[27]Because the decibel is a logarithmic unit of acoustic power (using the base-10 logarithm), a reduction in sonar level of 6 dB corresponds to a reduction in sound intensity of approximately 75%, and a reduction in sonar level of 10 dB corresponds to a reduction in sound intensity of 90%. *See* Bird decl. ¶ 29.

- the MFA sonar level is reduced by 10 dB if a marine mammal is detected within 500 meters of the sonar dome; and

- the use of MFA sonar is stopped if a marine mammal is detected within 200 meters of the sonar dome.[28]

- In conditions of strong surface ducting—where sonar sound carries over a greater distance than would otherwise be the case—the safety zones will be expanded such that the MFA sonar level is reduced by 6 dB if a marine mammal is detected within 2,000 meters of the sonar dome and by 10 dB if one is detected within 1,000 meters of the dome, and that the use of MFA sonar is stopped if a marine mammal is detected within 500 meters of the sonar dome.

- In conditions of low visibility—*i.e.*, whenever a safety zone is not fully visible—additional detection measures will be used, such as infrared or enhanced passive acoustic detection. If detection of marine mammals is not possible out to the limits of the safety zone, the sonar level will be reduced as if a marine mammal is present immediately beyond the extent of detection.

- With the exception of three specific "choke point" exercises, MFA sonar will not be operated in constricted channels or canyon-like areas or within 25 kilometers of the 200 meter isobath.[29]

[28]As one meter equals 1.094 yards, the sizes of the three safety zones correspond to approximately 1,100 yards, 550 yards, and 220 yards, respectively.

[29]An isobath is a line (either imaginary or on a map) joining places where water has equal depth.

- During the three choke point exercises, additional mitigation measures will be employed, including two hours of pre-exercise monitoring for marine mammals.

Following the 2006 RIMPAC exercise, the Navy issued an "after action report" in which it reported that it had used MFA sonar for a total of 472 hours during the 2006 RIMPAC exercise and that the mitigation measures resulted in a loss of 8 hours of MFA sonar use.[30] Dec. 7, 2006 Rim of the Pacific After Action Report at 9. Although no unusual behavior of marine mammals had been observed, the Navy reported that of the estimated 256 marine mammals potentially affected by the 472 hours of MFA sonar use, approximately 100 of them had been precluded from exposure to MFA sonar as a result of the mitigation measures.

In October 2006, in anticipation of the SOCAL exercises, the Navy submitted a consistency determination to the CCC, seeking the CCC's concurrence in the Navy's determination that the SOCAL exercises were consistent to the maximum extent possible with the enforceable policies of the CCMP, which, for purposes of the CZMA, are contained in the California Coastal Act. *See* Cal. Pub. Res. Code § 30008.[31] The CCC disagreed with the Navy that the use of MFA sonar in the SOCAL exercises would not affect California's coastal resources. Accordingly, the CCC conditioned its concurrence in the Navy's consistency determination on the Navy adopting

[30]The Navy asserted in its "after action report" that 8 hours of lost MFA sonar use translated into a somewhat greater amount of lost exercise time because once the sonar is turned off, simply turning it back on does not usually allow the Navy Commander to continue the exercise where it left off.

[31]The CZMA requires that a federal agency planning to conduct activities that may have reasonably foreseeable effects on California's coastal resources must apply to the CCC for a determination that those activities are consistent to the maximum extent practicable with the enforceable policies of the CCMP. *See* 16 U.S.C. § 1456(c)(1)(C); 15 C.F.R. § 930.36.

fourteen mitigation measures, several of which the Navy had already employed in the 2006 RIMPAC exercise. The Navy agreed to adopt only four of the CCC's measures—all but one of which do not actually prevent the use of MFA sonar from harming marine mammals[32] —and it refused to adopt the remaining ten measures:

- The measures used in the 2006 RIMPAC exercise for reducing sonar levels during conditions of low visibility;

- The measures used in the 2006 RIMPAC exercise in "choke points;"

- Increasing the outer safety zone to 2 kilometers even in conditions not involving strong surface ducting;[33]

- Reducing sonar level by 6 dB during strong surface ducting conditions;

[32]Following the CCC's conditional concurrence, the Navy agreed to adopt two of the CCC's mitigation measures: retrieving inert dropped mine shapes from the water and submitting to the CCC all monitoring results provided to the NMFS. The mitigation measures set forth in the EA, which have been standard operating procedure since 2004, appear to include two other measures proposed by the CCC: requiring passive sonar operators to monitor for marine mammals and report the detection of any such mammals; and providing a report to the NMFS following a major exercise that includes the results of marine mammal monitoring (a measure already employed in the 2006 RIMPAC exercise). The Navy concedes that the measure concerning dropped mine shapes "has nothing to do with MFA sonar usage," Dec. 20, 2007 Declaration of Rear Admiral John M. Bird ¶ 13, and the two reporting requirements do not mitigate actual harm to marine mammals but instead assist in the determination of the impacts of the SOCAL exercises. *See* Feb. 4, 2008 Dist. Ct. Order at 6 n.7. Only the use of passive sonar to monitor for marine mammals mitigates the harm caused by the use of MFA sonar.

[33]As stated above, the Navy had agreed to employ in the 2006 RIMPAC exercise a 2,000 meter safety zone in strong surface ducting conditions.

- Using two marine mammal observers who have received NOAA-approved training for surveillance during use of MFA sonar;

- Requiring aerial monitoring off San Clemente Island throughout exercises involving MFA sonar;

- Monitoring for marine mammals for 30 minutes prior to commencing use of MFA sonar;

- Avoiding training in areas with known high concentrations of marine mammals; and

- Locating and scheduling training outside the migration season for the grey whale.[34]

In January 2007, the Deputy Secretary of Defense issued, pursuant to 17 U.S.C. § 1371(f), a second National Defense Exemption ("NDE II"), which exempted from the requirements of the MMPA all the Navy's military readiness activities employing MFA sonar for the duration of the SOCAL exercises. The Deputy Secretary of Defense conditioned the exemption on the Navy adopting a number of mitigation measures, which already had been standard operating procedure in the Navy's ASW exercises since 2004. As the EA makes clear, it is those mitigation measures, and only those measures, which the Navy adopted for the SOCAL exercises.

While the Navy describes the adopted mitigation measures as consisting of 29 separate measures, the district court found that, in effect, they consist of only four basic measures: "(1) personnel training (providing approved Marine Species Awareness Training materials for lookouts and commanding

[34]The nine bullet points reflect the substance of the ten mitigation measures the Navy refused to adopt; two of the conditions have been consolidated in the fifth bullet point.

officers), (2) on-deck lookouts, armed with binoculars or night vision goggles, to watch for marine mammals, (3) operating procedures to ensure that any sightings of marine mammals are communicated up the chain of command, so that MFA sonar is powered down [(*i.e.*, sonar power is reduced)] when a marine mammal approaches within 1,000 yards, 500 yards, and 'secured' (shut-down) at 200 yards,[35] and (4) coordination and reporting procedures." Feb. 4, 2008 Dist. Ct. Order at 6 n.7. Our review of the EA reveals at most two additional basic measures: that passive sonar will be used to detect marine mammals and that Navy aircraft participating in exercises will conduct surveillance when doing so does not interfere with safety or the "accomplishment of primary operational duties."[36] Notably, the measures adopted by the Navy

[35]We note that the Navy has recently agreed to slightly enlarge its safety zones by applying safety zones of 1,000, 500 and 200 *meters* instead of 1,000, 500 and 200 *yards*. Bird decl. ¶ 58. As a result, those safety zones are now of equal size as those employed in the 2006 RIMPAC exercise. However, the Navy has not agreed to employ expanded safety zones in strong surface ducting conditions.

[36]The Navy also adopted a mitigation measure requiring "increased vigilance" during major ASW exercises using MFA sonar when "critical conditions" are present: a rapid change in bathymetry in areas of a certain depth; where three or more vessels are operating MFA sonar in the same area for six hours or more; where MFA sonar may "cut off" the exit route for marine mammals from a bay or channel; and the historical presence of a significant surface duct. However, in its June 2007 "after action report" the Navy explained that it had assessed the conditions of the Southern California Operating Area and concluded that "the requirements stated in [the aforementioned mitigation measure] do not apply to the physical conditions found in Southern California." Accordingly, this mitigation measure is not being employed in the SOCAL exercises and therefore does not, in fact, mitigate the impact of MFA sonar on marine mammals during those exercises.

Similarly, the Navy adopted as a mitigation measure the requirement that MFA sonar be operated "at the lowest practical level, not to exceed 235 dB, except as required to meet tactical training objectives." However, that requirement, also adopted for the 2006 RIMPAC exercise, has no apparent mitigating effect because (1) it is not clear whether the Navy ever

do not include the ten aforementioned mitigation measures recommended by the CCC, such as increasing the outer safety zone to 2 kilometers, monitoring for marine mammals at least 30 minutes before commencing MFA sonar use, and conducting the SOCAL exercises outside the grey whale's migratory season and outside areas with high concentrations of marine mammals. Moreover, the adopted measures do not include the 2006 RIMPAC measures requiring that MFA sonar not be used in constricted channels and canyon-like areas or within 25 kilometers of the 200 meter isobath. Nor do they include the requirement, imposed by NDE I for non-RIMPAC exercises in 2006, that MFA sonar not be used within 12 nautical miles from the coastline.

Following our November 13, 2007 remand order, the district court set out to determine what narrowly-tailored mitigation measures should be imposed for the remaining SOCAL exercises. In the words of the district court, NRDC proposed "sweeping geographic exclusions" to the Navy's use of MFA sonar, including a 25 nautical mile coastal exclusion, locating exercises to the maximum extent possible in waters deeper than 1,500 meters, and an exclusion in the Catalina Basin, the Westfall seamount, and the Cortez and Tanner Banks. Jan. 3, 2008 Dist. Ct. Order at 13 n.6. The Navy also proposed several mitigation measures. *See id*.

After reviewing the parties' briefs and taking a Navy-guided tour of the *USS Milius*, the district court imposed six mitigation measures in addition to those already required by

assumed higher sonar levels when using its harassment model to predict harm to marine mammals, (2) the Navy's interim report on the Bahamas stranding indicates that sonar levels during the Bahamas exercise did not exceed 235 dB even without the mitigation measure, and (3) the exception that the Navy may exceed the 235 dB limit "as required to meet tactical training objectives" swallows the rule, as tactical training objectives are the only reason for using MFA sonar to begin with, thus allowing the Navy to exceed the 235 dB limit whenever it in fact uses MFA sonar.

NDE II: (1) the Navy shall suspend use of MFA sonar when a marine mammal is detected within 2,200 yards from the sonar source, except where the marine mammal is a dolphin or a porpoise and it appears that the mammal is intentionally following the sonar-emitting naval vessel in order to play in or ride the vessel's bow wave; (2) the Navy shall reduce the MFA sonar level by 6 dB when significant surface ducting conditions are detected;[37] (3) the Navy shall not use MFA sonar within 12 nautical miles from the California coastline; (4) the Navy shall monitor, including by aircraft, for the presence of marine mammals for 60 minutes before employing MFA sonar, shall utilize two dedicated, NOAA- and NMFS-trained lookouts at all times when MFA sonar is being used, shall employ passive acoustic monitoring to supplement visual detection of the presence of marine mammals, and shall use aircraft participating in the training exercises to monitor for marine mammals for the duration of the exercises when MFA sonar is being used; (5) Navy helicopters shall monitor for marine mammals for 10 minutes before employing active dipping sonar; and (6) the Navy shall refrain from using MFA sonar in the Catalina Basin between the Santa Catalina and San Clemente Islands because ingress and egress to the basin are restricted and the basin has a high density of marine mammals. *See* Jan. 10, 2008 Dist. Ct. Order at 1-5.

The district court rejected many of the geographic exclusions proposed by NRDC in favor of a 2,200-yard safety zone, accepted the Navy's representations that the bathymetry off the shores of southern California presents unique training opportunities, *see* Feb. 4, 2008 Dist. Ct. Order at 7, and declined to limit the use of sonar at night or in conditions of low visibility despite the Navy's voluntarily adoption of such limitations for the 2006 RIMPAC exercise, *see* Jan. 3, 2008 Dist. Ct. Order at 7-8.

[37]The parties clarified at oral argument on February 27, 2008, that "significant" is the same as "strong," the term used to modify surface ducting conditions in the mitigation measures for the 2006 RIMPAC exercise.

The Navy takes issue only with the first two of the mitigation measures imposed by the district court, namely the 2,200 yard "shutdown zone" and the "power-down" requirement during significant surface ducting conditions. Specifically, the Navy argues that those two mitigation measures tip the balance of hardships in its favor and are contrary to the public interest.

In support of its argument the Navy has submitted declarations by high-ranking officers attesting to the adverse consequences that those measures will have on the Navy's military readiness. For example, Vice Admiral Locklear, Commander of the U.S. Third Fleet, opines that "imposing a 2200-yard shutdown zone will have crippling implications on Navy's ability to conduct realistic pre-deployment ASW training employing MFA sonar" and will "jeopardize the training and readiness of U.S. THIRD Fleet [strike groups]." Declaration of Vice Admiral Samuel J. Locklear. ¶¶ 9, 13. Likewise, Rear Admiral Bird opines that "[t]raining in surface ducting conditions is critical to effective training." Bird decl. ¶ 52. In their classified declarations, Admiral Gary Roughead and Rear Admiral Ted N. Branch opine that both the 2200-yard shutdown zone and the power-down requirement in significant surface ducting conditions will create an unacceptable risk with respect to the Navy's ability to certify its strike groups as combat ready and will thus profoundly affect national security.

III. Standards of Review

Our review of a district court's grant of a preliminary injunction is "very deferential." *Nat'l Wildlife Fed'n v. Nat'I Marine Fisheries Serv.*, 422 F.3d 782, 794 (9th Cir. 2005). We do not reverse the district court unless it "relie[s] on an erroneous legal premise or abuse[s] its discretion." *Sports Form, Inc. v. United Press Int'l, Inc.*, 686 F.2d 750, 752 (9th Cir. 1982) (internal citations omitted). A court abuses its discretion if it bases its decision on an erroneous legal standard

or clearly erroneous findings of fact. *Earth Island Inst. v. U.S. Forest Serv.*, 442 F.3d 1147, 1156 (9th Cir. 2006) ("*Earth Island II*").

A district court may grant a preliminary injunction if one of two sets of criteria are met. "Under the 'traditional' criteria, a plaintiff must show (1) a strong likelihood of success on the merits, (2) the possibility of irreparable injury to plaintiff if preliminary relief is not granted, (3) a balance of hardships favoring the plaintiff, and (4) advancement of the public interest (in certain cases). Alternatively, a court may grant the injunction if the plaintiff demonstrates either a combination of probable success on the merits and the possibility of irreparable injury or that serious questions are raised and the balance of hardships tips sharply in his favor." *Freecycle Network, Inc. v. Oey*, 505 F.3d 898, 902 (9th Cir. 2007); *see also Earth Island II*, 442 F.3d at 1158.

IV. Discussion

A. Likelihood of Success on the Merits

1. Effect of CEQ's Alternative Arrangements for NEPA Compliance

On January 15, 2008 CEQ purported to approve "alternative arrangements" for the Navy to continue its use of MFA sonar while complying with NEPA, reasoning that "emergency circumstances" prevented normal compliance. CEQ's authority to grant such relief derives from 40 C.F.R. § 1506.11, which provides in full:

> Where emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements. Agencies and the Council will limit

> such arrangements to actions necessary to control the immediate impacts of the emergency. Other actions remain subject to NEPA review.

40 C.F.R. § 1506.11. CEQ's letter of explanation to the Navy stated that the district court's modified injunction "imposes training restrictions . . . that continue to create a significant and unreasonable risk that Strike Groups will not be able to train and be certified as fully mission capable." CEQ Letter to Donald C. Winter at 3. CEQ also stated that "the inability to train effectively with MFA sonar puts the lives of thousands of Americans directly at risk. . . . Therefore, there are urgent national security reasons for providing alternative arrangements under the CEQ regulations." *Id.* at 3-4.

The Navy then petitioned this court to vacate the district court's preliminary injunction, arguing that CEQ's approval of "alternative arrangements" deprived NRDC of the "likelihood of success on the merits" of its NEPA claims, thus eliminating the legal basis for the injunction. We remanded to the district court to allow it to consider in the first instance whether this legal development merited vacatur or a partial stay of the injunction.

On remand, the Navy maintained that the CEQ's "emergency circumstances" determination relieved it of the requirement to prepare an EIS prior to commencing the remaining SOCAL exercises. NRDC argued that CEQ's action was beyond the scope of the regulation and otherwise invalid, and that the preliminary injunction should remain in place. The district court considered these arguments and concluded that its preliminary injunction was "not affected by [CEQ's] approval of emergency alternative arrangements because there is no emergency." Feb. 4, 2008 Dist. Ct. Order at 2. Accordingly, it held that "CEQ's action is beyond the scope of the regulation and is invalid[ ]" and that "[t]he Navy is not, therefore exempted from compliance" with NEPA and the preliminary injunction. *Id.* The district court found that CEQ's

interpretation of "emergency circumstances" to include a court order entered in the course of pending litigation was not authorized by 40 C.F.R. §1506.11, because it was contrary to both the plain meaning of "emergency circumstances" and the drafters' original intent. It also found that CEQ's action was contrary to the governing statute, NEPA.[38]

The Navy makes two basic arguments as to why the district court erred by failing to vacate the preliminary injunction in light of CEQ's approval of "alternative arrangements." First, the Navy argues that the district court lacked subject matter jurisdiction to review CEQ's approval of alternative arrangements because such approval constitutes a superseding agency action that removes as moot any basis for an injunction predicated on plaintiffs' original claims concerning the Navy's EA. Second, the Navy argues that, even if the district court could review CEQ's action, the court erred by not deferring to CEQ's and the Navy's assessment that "emergency circumstances" exist within the meaning of 40 C.F.R. § 1506.11. We address the Navy's arguments in turn.

a. Subject Matter Jurisdiction over NRDC's Challenge to CEQ's Action

[1] The Navy argues that the district court lacked subject matter jurisdiction to consider the validity of CEQ's action because that action allegedly moots the plaintiffs' original claims. Specifically, the Navy contends that the adoption of CEQ's "alternative arrangements" in a superseding Decision Memorandum constitutes a new administrative action, which can only be challenged by a new claim on the merits. *See Rat-*

[38]The district court also noted that CEQ had essentially crafted its own, alternative injunction, which suggested that CEQ, as an executive body, was effectively "sitting in review of a decision of the judicial branch." The district court observed that CEQ's actions raised "serious constitutional concerns under the Separation of Powers doctrine," but it declined, pursuant to the doctrine of constitutional avoidance, to make a finding as to the constitutionality of its action. *See* Feb. 4, 2008 Dist. Ct. Order at 24.

tlesnake Coalition v. EPA, 509 F.3d 1095, 1103-04 (holding that the district court lacked subject matter jurisdiction over new final agency action).[39] The district court implicitly rejected this argument by continuing to exercise jurisdiction over the plaintiffs' NEPA claim. Its decision to do so is firmly grounded in the familiar principle that only a *valid* subsequent action can render a legal claim moot. *See Adarand Constructors, Inc. v. Slater*, 528 U.S. 216, 222-23 (2000); *United States v. Larson*, 302 F.3d 1016, 1020 (9th Cir. 2002) ("The stipulation moots [plaintiff's] challenge to the suppression ruling only if it is valid."). Accordingly, the district court did not rely on an erroneous legal premise or abuse its discretion in concluding that it had jurisdiction to assess the validity of the new action in order to determine whether plaintiffs' original claims could survive. *See Adarand*, 528 U.S. at 222-23.

[2] Nor did the district court abuse its discretion by leaving in place the preliminary injunction after determining that CEQ's action did not require its vacatur. The Navy's contention that the district court issued "an entirely new injunction . . . based on new, ancillary claims" mischaracterizes the posture of this case. The Navy challenged the injunction based on

[39]Notably, none of the cases that the Navy cites in support of this argument involve a plaintiff's challenge to the validity of a new agency action. For example, in *Forest Guardians v. U.S. Forest Serv.*, 329 F.3d 1089, 1096 (9th Cir. 2003), plaintiffs' claims were rendered moot because the superseding and controlling environmental documentation that displaced the earlier agency action did not rely on the challenged assumptions that formed the basis of plaintiffs' claims. In *W. Radio Serv. Co. Inc. v. Glickman*, 113 F.3d 966, 974 (9th Cir. 1997), a challenge to a letter postponing the issuance of certain permits until a fee structure was established was rendered moot by the subsequent issuance of a fee structure. In *Aluminum Co. of Am. v. Bonneville Power Admin.*, 56 F.3d 1075 (9th Cir. 1995), challenges to a 1993 Rule of Decision were moot because augmentations were being issued under a subsequent Rule of Decision. Finally, in *Oregon Natural Res. Council v. Harrell*, 52 F.3d 1499, 1501-02, 1508 (9th Cir. 1995), the district court ordered a challenged ROD withdrawn because it was incomplete, and a subsequent challenge to that non-operative ROD was thus held to be moot.

CEQ's action; NRDC argued only that CEQ's action did not change the merits of its NEPA claims. Thus, the district court here did not "[g]rant[ ] a preliminary injunction based on a showing that the plaintiffs were likely to succeed in establishing a violation of an ancillary court order, rather than a showing that they were likely to succeed on the merits of any of their claims." *Alabama v. U.S. Army Corps of Engineers*, 424 F.3d 1117, 1135 (11th Cir. 2005).

b. The District Court's Assessment of Whether "Emergency Circumstances" Existed

(1) Deference

The district court concluded that CEQ's interpretation of 40 C.F.R. § 1506.11 is not entitled to deference. It reasoned that under the Administrative Procedure Act ("APA"), 5 U.S.C. § 551 *et seq.*, the courts traditionally afford deference to (1) an agency's reasonable interpretation of a statute it administers "if the statute is silent or ambiguous with respect to the specific issue . . . ," citing *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 843 (1984), and (2) an agency's interpretation of its own regulations unless "an alternative reading is compelled by the regulation's plain language or by other indications of the [agency's] intent at the time of the regulation's promulgation," citing *Thomas Jefferson Univ. v. Shalala*, 512 U.S. 504, 512 (1994), and *Bowles v. Seminole Rock & Sand Co.*, 325 U.S. 410, 414 (1945). *See* Feb. 4, 2008 Dist. Ct. Order at 13-14.

NRDC challenged neither the propriety of CEQ's original promulgation of 40 C.F.R. § 1506.11 nor the fact that § 1506.11 allows alternative arrangements for compliance with NEPA under genuine emergency circumstances. Instead, NRDC limited its challenge to CEQ's application of the regulation to the facts of this case. Accordingly, the district court considered whether the term "emergency circumstances" could be afforded so broad an interpretation as to encompass

the Navy's need to continue its long-planned, routine sonar training exercises without the mitigation measures imposed by the district court. The district court concluded that the plain language of the regulation and the limited indicia of the agency's original intent compelled a narrower interpretation of "emergency circumstances" than the one afforded it by CEQ. Accordingly, the district court concluded that it did not owe deference to CEQ's interpretation of § 1506.11 under *Thomas Jefferson* and *Seminole Rock*. We review that conclusion to determine whether in so doing it relied on an erroneous legal premise or abused its discretion; we conclude that it did neither.

[3] The district court followed established Supreme Court precedent in finding that an agency's interpretation of its own regulation is not entitled to deference when it is inconsistent with the regulation itself, conflicts with agency intent at the time of promulgation, and reaches beyond "the limits imposed by the statute," NEPA. *See Auer v. Robbins*, 519 U.S. 452, 461-63 (1997). Next, the district court, after concluding that the meaning of "emergency circumstances" was clear, applied the appropriate legal principles that an agency's interpretation of its own regulation is entitled to deference "only when the language of the regulation is ambiguous." *See Christensen v. Harris County*, 529 U.S. 576, 588 (2000). Accordingly, the district court did not abuse its discretion when it determined not to give deference to CEQ's overly broad interpretation of "emergency circumstances."[40]

[40]The district court also held that *Skidmore* deference is inapplicable because this case involves an agency's interpretation of a regulation, not its informal interpretation of a statute it administers. *See* Feb. 4, 2008 Dist. Ct. Order at 19 n.13 (rejecting plaintiffs' argument that because it does not arise out of formal rulemaking, CEQ's interpretation is entitled to little or no deference under *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944)). While this holding is correct as a matter of law, our determination that the district court neither abused its discretion nor relied on an erroneous legal premise in concluding that no deference is owed CEQ's overly broad interpretation of "emergency circumstances" renders this issue moot.

(2) Plain Meaning and Intent of CEQ Regulation

In finding that no emergency circumstances existed, the district court reasoned that the "Navy's current 'emergency' is simply a creature of its own making, *i.e.*, its failure to prepare adequate environmental documentation in a timely fashion, via the traditional EIS process or otherwise." Feb. 4, 2008 Dist. Ct. Order at 17. In short, it was not a sudden unanticipated event. The district court supported its conclusion by noting that the CEQ letter does not specify an "emergency" other than the district court's mitigation order itself, which, in CEQ's view, creates a "significant and unreasonable risk" that strike groups will not be able to train and be certified as fully mission capable. *Id.* at 16-17.

[4] On appeal, the Navy argues that "no matter its genesis[,] . . . the inability to certify its west coast-based strike groups for deployment to hostile areas overseas during a time of war" is a pressing national emergency. The Navy cites to declarations, including one of the Chief of Naval Operations, that attests to the national security impacts of such a failure at a time when the United States is currently engaged in war in two countries. The Navy contends that the district court's view that the term "emergency circumstances" as used in the regulation *per se* excludes the circumstances presented here is an impermissible substitution of its judgment for that of multiple federal agencies (citing *Ass'n of Pac. Fisheries v. EPA*, 615 F.2d 794, 810-11 (9th Cir. 1980)). We reject this argument and hold, for the reasons explained above, that the district court did not abuse its discretion in determining that the plain meaning of "emergency circumstances" precludes an interpretation so broad as to encompass the Navy's need to continue long-planned, routine training exercises without mitigation measures ordered by the court.

[5] There is ample support for the manner in which the district court exercised its discretion. The district court properly relied on dictionary definitions of "emergency" and "emer-

gency circumstances" to support its conclusion that CEQ's interpretation is not entitled to deference. *See Watson v. United States*, 128 S. Ct. 579, 583 (2007) (noting that terms are construed consistently with their everyday meaning, including by reference to the dictionary absent statutory definition or definitive clue). As the district court observed, the Oxford English Online Dictionary defines "emergency" as "[t]he arising, sudden or unexpected occurrence (of a state of things, an event, etc.)." Oxford English Online Dictionary, *available at* http://dictionary.oed.com. Black's Law Dictionary defines the term "emergency circumstances," through a cross-reference to "exigent circumstances," as "[a] situation that demands unusual or immediate action and that may allow people to circumvent usual procedures, *as when a neighbor breaks through a window of a burning house to save someone inside*." Blacks Law Dictionary 260, 562 (8th ed. 2004) (emphasis added). The district court did not abuse its discretion in concluding that the circumstances in the present case fall outside the scope of these definitions because its preliminary injunction was entirely predictable given the parties' litigation history. Feb. 4, 2008 Dist. Ct. Order at 15.[41]

The Navy urges that the risk to national security created by the preliminary injunction falls squarely within the legal definition of "emergency circumstances." However, the Navy has been on notice of its possible legal obligations to prepare an EIS for the SOCAL exercises from the moment it first

[41]NRDC provides several more dictionary definitions of "emergency," all of which include the terms "unexpected" or "unforseen." The Navy refers us to another source that defines "emergency" as "a situation demanding immediate attention." Random House Dict. of the English Lang. 636 (2d ed. 1987). We do not adjudicate the meaning of the word "emergency" here. Rather, we need conclude only that the district court did not rely on erroneous legal principles or abuse its discretion in reaching its determination as to that term's plain meaning. Because we are not "left with the definite and firm conviction that a mistake has been committed[,]" we leave the district court's determination intact. *Sports Form, Inc.*, 686 F.2d at 752.

planned those exercises. In addition, NRDC filed its complaint almost a year ago, and on August 7, 2007, the district court held that the Navy was likely to lose on the merits of NRDC's claims. We affirmed that ruling in November of 2007. Still, the Navy waited until January 10, 2008, to raise a cry of "emergency" and request the NEPA and CZMA waivers it relies on here, in order to continue its routine, planned training exercises. We find no abuse of discretion in the district court's determination that such a series of events gives rise to a predictable outcome, not an unforeseeable one demanding "unusual or immediate action."

Moreover, the district court's conclusion finds support in CEQ's recent response to Hurricane Katrina. In March 2006, CEQ approved alternative arrangements to allow the Federal Emergency Management Agency to respond on an emergency basis to "[d]amages to the critical physical infrastructure in the New Orleans Metropolitan Area from the impact of Hurricanes Katrina and Rita [that] rendered parts of the city inoperable and uninhabitable." NEPA Alternative Arrangements for Critical Physical Infrastructure in New Orleans, 71 Fed. Reg. 14712, 14713 (March 23, 2006). The alternative arrangements explain that generally, such arrangements are made when "emergency circumstances require taking actions with significant environmental impacts and *there is not sufficient time to follow the regular [EIS] process.*" *Id.* (emphasis added). This language supports the district court's view that the words "emergency circumstances" in 40 C.F.R. § 1506.11 refer to unexpected, suddenly arising situations that require agency action in a shorter time frame than would be required to prepare an EIS. By contrast, the Navy's routine SOCAL exercises were planned well in advance and with "sufficient time to follow the regular [EIS] process."

In concluding that the Navy's failure to comply timely with NEPA does not constitute an "emergency circumstance" within the meaning of 40 C.F.R. § 1506.11, the district court also relied on the limited drafting history of the regulation. As

the district court pointed out, the initial proposed version of the regulation required an agency "*proposing to take*" an emergency action to consult with CEQ regarding alternative arrangements.[42] *See* Proposed Implementation of Procedural Provisions, 43 Fed. Reg. 25230, 25243 (June 9, 1978) (emphasis added). However, the drafters changed "proposing to take" to "taking" in order to remove the inference that consultation must necessarily precede agency action because "such a requirement might be impractical in emergency circumstances and could defeat the purpose of the section." Implementation of Procedural Provisions; Final Regulations, 43 Fed. Reg. 55978, 55988 (Nov. 29, 1978). While the Navy dismisses this drafting history as reflecting only that "the proposed regulation was broadened to allow actions to be taken prior to consultation with CEQ," we find no abuse of discretion in the district court's contrary conclusion that the regulatory history "supports a narrow, rather than a broad interpretation of the phrase 'emergency circumstances' " and that the regulatory history reflects CEQ's intent to use the regulation to accommodate "sudden unanticipated events" but not more predictable events such as provisionally unfavorable litigation results. Feb. 4, 2008 Dist. Ct. Order at 19.

Accordingly, we conclude that the district court did not rely on an erroneous legal premise or abuse its discretion in finding that the Navy's attempt to characterize a federal court injunction as an "emergency circumstance" is contrary to the plain meaning of the language and to the intended purpose of CEQ's emergency circumstances regulation.[43]

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[42]In its analysis of the agency's intent, the district court appropriately declined to consider the declaration of Nicholas C. Yost, CEQ general counsel at the time the regulation was drafted, as "an unreliable guide" to CEQ's intent, comparing the declaration to "subsequent legislative history." Feb. 4, 2008 Dist. Ct. Order at 18-19 (quoting *Chapman v. United States*, 500 U.S. 453, 464 n.4 (1991) (internal citations omitted)).

[43]NRDC makes the additional argument that CEQ's order goes beyond the scope of the regulation because the "alternative arrangements," pre-

(3) Prior Decisions

[6] Prior judicial decisions also support our conclusion that the district court did not rely on erroneous legal premises or abuse its discretion in concluding that CEQ's action is invalid. In each of the cases sustaining an application of 40 C.F.R. § 1506.11, CEQ allowed "alternative arrangements" in response to unanticipated emergencies that required federal agencies to respond quickly to new and changing events.

For example, in *Valley Citizens for a Safe Environment v. Vest*, the court upheld "alternative arrangements" which permitted the Air Force to fly C-5A transport planes into and out of Westover Air Force Base on a twenty-four hour schedule, despite a previously prepared EIS's prohibition of such flights. 1991 WL 330963 (D. Mass. May 30, 1991). The court in *Valley Citizens* denied the plaintiffs' request for an injunction until a supplemental EIS was completed because it concluded that the modified flight schedule was essential to supply military equipment and personnel for Operation Desert Storm, an emergency response to Iraq's sudden invasion of Kuwait that same month. *Id.* at *5-6. The court agreed with the determination of CEQ and the Air Force that Iraq's invasion of Kuwait reasonably constituted an emergency "given the military's operational and scheduling difficulties and the hostile and unpredictable nature of the Persian Gulf region." *Id.* at *5.

Other cases sustaining CEQ's application of 40 C.F.R. § 1506.11 also support the district court's narrow interpretation of the phrase "emergency circumstances." Courts have

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scribed prospectively through January 2009, go beyond those "actions necessary to control the immediate impacts of the emergency," even if there were an emergency. Because we hold that there is no basis for reversing the district court's determination that there were no "emergency circumstances" under 40 C.F.R. § 1506.11, and therefore no basis for CEQ's order, we do not reach the merits of this argument.

routinely given deference to CEQ's finding of "emergency circumstances" in situations where that finding has been used to "avert imminent crises outside the agency's control." *Id.* at 17; *see, e.g.*, *Nat'l Audobon Society v. Hester*, 801 F.2d 405, 405-7 (D.C. Cir. 1986) (giving deference where immediate action was necessary to prevent the extinction of the California condor); *Miccousukee Tribe of Indians of Fla. v. United States*, 509 F.Supp.2d 1288, 1290-91 (S.D. Fla. 2007) (giving deference where immediate deviation from a water delivery method was necessary to avoid pending extinction of the Cape Sable seaside sparrow in the Everglades); *NRDC v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998) (giving deference where immediate action was necessary to secure storage of nuclear materials); *Crosby v. Young*, 512 F.Supp. 1363, 1380, 1386 (E.D. Mich. 1981) (where an immediate response was required for a city to meet a federal funding deadline for a development project to counteract potentially dire economic effects of the closure of a General Motors plant). In looking to prior decisions, the district court certainly did not apply an erroneous legal principle. Rather, it found legal authority that supported its view.

(4) CEQ's Broad Reading of "Emergency Circumstances" and NEPA

The district court also held that CEQ's broad reading of "emergency circumstances" here is *ultra vires* because it subverts NEPA's directive that agencies perform their NEPA duties "to the fullest extent possible."[44] *See* 42 U.S.C. § 4332. The existence of specific Congressional exemptions to NEPA informed the district court's decision not to read the regulation "so broadly as to independently authorize CEQ to do the same, in the absence of a legitimate 'emergency.' " Feb. 4, 2008 Dist. Ct. Order at 21. Moreover, the court noted that

[44]Moreover, NEPA also requires agencies to use "all practicable means and measures" to fulfill their duties under it. 42 U.S.C. § 4331(b).

many of the exemptions granted in other cases involved agencies faced with conflicting Congressional mandates. *Id.* at 22.

NEPA, the statute authorizing 40 C.F.R. § 1506.11, requires federal agencies to prepare an EIS for a major federal action "significantly affecting the quality of the human environment," 42 U.S.C. § 4332(2)(C), or, in the alternative, to implement mitigation measures to minimize impacts to the point where an EIS in not required. *See, e.g.*, *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 734 (9th Cir. 2001). Although CEQ justified its approval of "alternative arrangements" to satisfy NEPA as grounded in "urgent national security" concerns, *see* Jan. 15, 2008 CEQ Letter at 4, the district court noted that, in the absence of a *bona fide* emergency, the "alternative arrangements" "operate[ ] to exempt [the Navy] from the ususal rigors involved in the preparation of an EIS, which forms the 'heart' of NEPA." Feb. 4, 2008 Dist. Ct. Order at 21 n.14 (quoting *Envtl. Def. Fund, Inc. v. Andrus*, 619 F.2d 1368, 1374-5 (10th Cir. 1980)).

Reviewing CEQ's justification in this light, the district court concluded that CEQ's broad reading of "emergency circumstances" has the effect of reading a "national security" or "defense" exemption into NEPA, where none exists.[45] As the

[45]Moreover, the district court's conclusion was grounded in the well-established fact that there is no "national defense" exception to NEPA. *See San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n*, 449 F.3d 1016, 1035 (9th Cir. 2006); *No GWEN Alliance of Lane County, Inc. v. Aldridge*, 855 F.2d 1380, 1384 (9th Cir. 1988). " 'The Navy, just like any federal agency, must carry out its NEPA mandate to the fullest extent possible and this mandate includes weighing the environmental costs of the [project] even though the project has serious security implications.' " *San Luis Obispo*, 449 F.3d at 1035 (quoting *No GWEN*, 855 F.2d at 1384).

Indeed, Congress has included exemptions for "paramount" national security concerns in many environmental statutes, but not in NEPA. *See, e.g.*, Toxic Substances Control Act, 15 U.S.C. § 2621 (compliance waived if the President determines a requested waiver to be necessary "in the

district court pointed out, Congress knows well how to exempt planned Defense Department activities from the requirements of NEPA. *See, e.g.*, Nat'l Defense Auth. Act, Pub. L. No. 106-398, § 317, 114 Stat. 1654, 1654A-57 (2000) (specifically exempting Defense Department from preparing nationwide EIS for low-level flight training). The fact that Congress has not so exempted the Navy's exercises in the Southern California Operating Area further supports the district court's conclusion that 40 C.F.R. § 1506.11 should not be read to exempt the routine SOCAL exercises from NEPA's requirements.

The district court's interpretation also comports with well-established Supreme Court precedent that narrowly interprets NEPA's requirement that agencies comply with its provisions "to the fullest extent possible." The Supreme Court has made clear that the "to the fullest extent possible" language was intended to address only cases in which there is an "irreconcilable and fundamental conflict" between NEPA's require-

interest of national defense"); Coastal Zone Management Act, 16 U.S.C. § 1456(c)(1)(b) (under certain circumstances the President may exempt an activity that is in the "paramount interest of the United States"); Endangered Species Act, 16 U.S.C. § 1536(j) (exemption granted if the Secretary of Defense finds such exemption necessary "for reasons of national security"); Clean Water Act, 33 U.S.C. § 1323(a) (the President may exempt federal effluent source for up to one year if in the "paramount interest of the United States"); Safe Drinking Water Act, 42 U.S.C. § 300j-6(a) (the President may exempt federal facility for up to one year if in the "paramount interest of the United States"); Resource Conservation and Recovery Act, 42 U.S.C. § 6961(a) (the President may exempt federal solid waste management facility for up to one year if in the "paramount interest of the United States"); Clean Air Act, 42 U.S.C. § 7417(b) (the President may exempt federal emission source for up to one year if in the "paramount interest of the United States"); Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9620(j) (the President may issue orders to exempt facilities of the Department of Energy and the Department of Defense "as may be necessary to protect the national security interests of the United States . . ."). *See* Oct. 1, 2007 Brief of Amicus Curiae Law Professors Hope Babcock, et al. at 16 & n.4.

ments and the requirements of another statute. *See Flint Ridge Dev. Co. v. Scenic Rivers Ass'n. of OK*, 426 U.S. 776, 787-88 (1976). Here, as the district court noted, the Navy has never contended that it could not reconcile the district court's injunction with the requirements of NEPA.

Similarly, NEPA regulations interpret the language "to the fullest extent possible" to mean that "each agency of the Federal Government shall comply with that section unless existing law . . . expressly prohibits or makes compliance impossible." 40 C.F.R. § 1500.6. The legislative history of § 1500.6 explains that this language "shall not be used by any Federal agency as a means of avoiding compliance with [NEPA's] directives . . . ." 115 Cong. Rec. (Part 29) 39702-39703 (1969); *see also Calvert Cliffs' Coordinating Comm. Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C. Cir. 1971) ("We must stress as forcefully as possible that this language does not provide an escape hatch for foot-dragging agencies; it does not make NEPA's procedural requirements somehow 'discretionary.' . . . Indeed, [the language] sets a high standard for the agencies, a standard which must be rigorously enforced by the reviewing courts.").

The Navy asserts that national policy requires that it must be confident that its west coast-based strike groups are prepared and certified for deployment to hostile areas overseas during a time of war. However, as the district court noted, nothing prevented the Navy from preparing an EIS prior to commencing the SOCAL exercises; indeed, the fact that the Navy is currently developing an EIS for exercises in the Southern California Operating Area confirms that it is fully capable of meeting NEPA's requirements. *See* Notice of Intent To Prepare an Environmental Impact Statement/ Overseas Environmental Impact Statement for the Southern California Range Complex, 71 Fed. Reg. 76,639 (Dec. 21, 2006).

Although the Navy argues that "NEPA must give way" so that it may proceed with its training and certification unhindered by environmental rules, quoting *Flint Ridge*, 426 U.S. at 788, *Flint Ridge* itself holds that NEPA's procedural requirements are not discretionary and do not give way unless a "clear and unavoidable conflict in statutory authority exists," *id*, here, the district court carefully examined the record, with which it has longstanding familiarity, and determined that there was no such conflict in statutory authority, concluding that conditioning phrases like "consistent with other essential considerations of national policy," 42 U.S.C. §4331(b), and "to the fullest extent possible," *id.* §4332, do not indicate Congressional intent to create a statutory escape hatch. Nor does any intent appear in the implementing regulations, that would allow the Navy to conduct its exercises before completing an EIS.[46] Feb. 4, 2008 Dist. Ct. Order at 22-23.

In reaching these conclusions, the district court examined the various legal rules and applied those that were relevant to this proceeding. Having done so, it acted well within its discretion in determining that CEQ's broad interpretation of "emergency circumstances" is contrary to the dictates of NEPA.

(5) Additional Considerations

We also note that NRDC has raised a serious question as to whether CEQ acted arbitrarily and capriciously in the procedure it used to reach its "emergency circumstances" determination pursuant to 40 C.F.R. § 1506.11. The Navy, arguing

[46]The Navy argues, in the alternative, that CEQ's action comports with NEPA because it actually gives effect to the district court's conclusion that an EIS is likely required and provides "alternative arrangements" as a bridge until the agency completes this EIS. Because we have concluded that the district court did not abuse its discretion in determining that no emergency existed and that CEQ had no authority to issue its order, we need not reach this argument.

that the district court's order created an emergency by compromising its ability to effectively train and certify its strike groups, requested alternative arrangements on January 10, 2008, and submitted evidence supporting that request the following day. Jan. 15, 2008 CEQ Letter at 1. CEQ approved the Navy's request four days later, on January 15, 2008. *Id*. In the intervening time, CEQ held discussions with, and received briefings from, the Navy and NMFS and reviewed the Navy's supporting documents. *Id*. at 4. At no point did CEQ request, nor did the Navy provide it, any of the evidence in the district court record contrary to the Navy's position that the challenged mitigation measures would compromise its ability to train and certify its strike groups. Thus, CEQ reached its "emergency circumstances" determination without considering any of the substantial evidence on which the district court relied in concluding that the mitigation measures it imposed would *not* render the Navy unable to train and certify its strike groups. Where, as here, the basis for an emergency is alleged to be the effect of a district court order, entered after careful review of a full record submitted by both parties, a substantial question exists as to whether CEQ acted arbitrarily and capriciously when it failed to review the full record, and instead considered only one side's views, and on that basis determined that the court's order gave rise to "emergency circumstances."[47]

[47]CEQ's action raises a serious question not only under the APA, but also under the Constitution. The separation of powers doctrine prevents Congress from vesting review of the decisions of Article III courts in the Executive Branch. *See Plaut v. Spendthrift Farm, Inc.*, 514 U.S. 211, 218-19 (1995) (explaining that Article III "gives the Federal Judiciary the power, not merely to rule on cases, but to *decide* them, subject to review only by superior courts in the Article III hierarchy"); *see also Hayburn's Case*, 2 U.S. (2 Dall.) 409, 410 (1792). Here, the Navy represented, and CEQ determined, that "emergency circumstances" existed because the district court's preliminary injunction prevented the Navy from effectively training and certifying its strike groups for deployment. In making this determination, CEQ presumably reviewed the same evidence that the Navy presented to the district court (without, as noted above, the benefit of NRDC's evidence) and concluded, *despite the district court's explicit*

(6) Conclusion

[7] For the foregoing reasons, we hold that the district court did not abuse its discretion or rely on an erroneous legal premise in determining that CEQ's broad interpretation of "emergency circumstances" was not authorized by 40 C.F.R. § 1506.11 because it was contrary to the plain meaning of the regulation and contrary to NEPA and, accordingly, that the Navy remains subject to the traditional requirements of NEPA.

factual finding to the contrary, that the imposed mitigation measures would compromise the Navy's ability to train and certify its forces. We find substantial merit in NRDC's argument that even if the district court's factual findings with respect to the effect of its mitigation measures were erroneous, it was the job of the appellate court—and not the Executive Branch—to so conclude. However, because the district court declined to reach this question, we, too, do not consider the constitutional argument in determining that the district court did not rely on an erroneous legal premise or abuse its discretion when it held that CEQ's action was invalid.

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2. NRDC's NEPA Claim

We next address the district court's conclusion that NRDC has shown probable success on the merits of its claim that the Navy violated NEPA by failing to prepare an EIS for the SOCAL exercises.

In our November 13, 2007 order we concluded that "Plaintiffs have shown a strong likelihood of success on the merits of their claims under [NEPA]." *NRDC*, 508 F.3d at 886. While that conclusion was based on our review of the record underlying the district court's August 7, 2007 preliminary injunction order, the only subsequent developments are CEQ's approval of "alternative arrangements" pursuant to 40 C.F.R. § 1506.11 and the Navy's concession, by virtue of seeking such approval, that the SOCAL exercises will have a "significant environmental impact." *See* 40 C.F.R. § 1506.11 ("Where emergency circumstances make it necessary to take an action *with significant environmental impact* without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements.") (emphasis added). Although we elaborate on our reasons, our original conclusion remains unchanged.

a. Statutory Background

As discussed earlier, NEPA requires a federal agency such as the Navy to prepare a detailed EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). However, if, as here, an agency's regulations do not categorically require the preparation of an EIS, then the agency must first prepare an EA to determine whether the action will have a significant effect on the environment. *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 730 (9th Cir. 2001); *see* 40 C.F.R. § 1501.4. If the action will significantly affect the environment, an EIS must be prepared, while if the project will have only an insignificant effect, the agency issues a Finding of No Significant Impact (FONSI). *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 864 (9th Cir. 2005); *see* 40 C.F.R. §§ 1501.3, 1501.4.

[8] "An EIS must be prepared 'if substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor.' " *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998) (quoting *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998)). Thus, a plaintiff need not show that significant effects on the environment will in fact occur; raising "substantial questions whether a project may have a significant effect" on the environment is enough. *Id*.; *Idaho Sporting*, 137 F.3d at 1150.

NEPA's procedural requirements mandate that an agency take a "hard look" at the environmental consequences of its actions. *Earth Island II*, 442 F.3d at 1159. NEPA is unique in that it does not direct or require any particular substantive action on the part of an agency. Its sole purpose is to require that the agency be fully informed as to the environmental consequences of its actions, the mitigation measures available, and the alternatives to its proposed action. Once fully informed, the agency may make its own final rule or decision.

However, an agency may not avoid preparing an EIS by making conclusory assertions that an activity will have only an insignificant impact on the environment. *Ocean Advocates*, 402 F.3d at 864. If an agency opts not to prepare an EIS, it must put forth a "convincing statement of reasons" to explain why a project's impacts are insignificant. *Blue Mountains*, 161 F.3d at 1212 (quoting *Save the Yaak Comm. v. Block*, 840 F.2d 714, 717 (9th Cir. 1988)).

[9] NEPA challenges are reviewed under the APA, which provides that an agency action may be set aside if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law[.]" 5 U.S.C. § 706(2)(A). The agency's decisions are "entitled to a presumption of regularity. But that presumption is not to shield [the agency's] action from a thorough, probing, in-depth review." *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971) (citations omitted). Thus, in reviewing an agency's decision not to prepare an EIS, a court must "determine whether the agency has taken a 'hard look' at the consequences of its actions, 'based [its decision] on a consideration of the relevant factors,' and provided a 'convincing statement of reasons to explain why a project's impacts are insignificant.' " *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1239 (9th Cir. 2005) (quoting *Nat'l Parks & Conservation Ass'n*, 241 F.3d at 730).

Agencies have wide discretion in assessing scientific evidence, but they "must 'take a hard look at the issues and respond[ ] to reasonable opposing viewpoints.' " *Earth Island II*, 442 F.3d at 1160 (internal quotation omitted, brackets in original). " 'When specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own experts, even if a court may find contrary views more persuasive. At the same time, courts must independently review the record in order to satisfy themselves that the agency has made a reasoned decision based on its evaluation of the evidence.' " *Id.* (quoting *Marsh v. Or. Nat. Res.*

Council, 490 U.S. 360, 378 (1989)). "If an agency has failed to make a reasoned decision based on an evaluation of the evidence, we may properly conclude that an agency has acted arbitrarily and capriciously." *Id*.

b. Substantial Questions about the Environmental Impact of the Exercises

The district court found that NRDC had raised substantial questions as to whether the SOCAL exercises would have a significant impact on the environment. Jan. 3, 2008 Dist. Ct. Order at 6-7. Accordingly, the court concluded that NRDC had demonstrated probable success on the merits of its claim that the Navy's failure to prepare an EIS was arbitrary and capricious and in violation of NEPA and the APA. *Id*. at 7. The district court did not rely on an erroneous legal premise or abuse its discretion in so concluding.

[10] Initially, we repeat our observation that the Navy, by seeking approval by CEQ of "alternative arrangements" pursuant to 40 C.F.R. § 1506.11, has effectively conceded that the SOCAL exercises will have a significant impact on the environment. *See* 40 C.F.R. § 1506.11. As the text of § 1506.11 indicates, the very purpose of the regulation is to provide for the possibility of alternative arrangements where emergency circumstances require the taking of an action "with significant environmental impact" without observing the requirements of NEPA. *See id.* The fact that the Navy sought relief under § 1506.11 is evidence that the Navy recognizes that the SOCAL exercises have a "significant environmental impact."

Moreover, the fact that "[t]he Navy is currently evaluating the environmental impact of MFA sonar training exercises through its development of the SOCAL Range Complex Environmental Impact Statement," Jan. 15, 2008 CEQ Letter at 2, confirms that, at the very least, the Navy acknowledges that substantial questions have been raised as to whether the

SOCAL exercises will have a significant impact on the environment. Accordingly, were we not to review the Navy's EA, we would have little difficulty concluding that the district court did not rely on an erroneous legal premise or abuse its discretion in determining that NRDC has demonstrated probable success on the merits of its NEPA claim. Our own review of the EA leads us to the same conclusion.[48]

The Navy argues that the district court made a clearly erroneous assessment of the evidence of the effect of MFA sonar on marine mammals in the waters of southern California. Specifically, the Navy asserts that the court misunderstood the significance of the EA's reference to the 548 predicted instances of Level A harassments of beaked whales. The Navy explains that it categorized predicted sonar exposures to beaked whales as Level A harassments not because beaked whales were expected to suffer such harassments but rather because such categorization would allow the Navy to analyze the potential impacts of MFA sonar on each beaked whale species in greater detail than it would otherwise.

We find no abuse of discretion in the district court's rejection of the Navy's argument. The Navy's explanation for its categorization of predicted sonar exposures to beaked whales as Level A harassments finds no support in the EA, and counsel for the Navy was unable to explain at oral argument on November 8, 2007, how classifying exposures as Level A harassments would allow the Navy to better analyze the impacts of MFA sonar on various species of beaked whales. Rather, the EA makes clear that the Navy categorized the expected exposures to beaked whales as Level A harassments because it concluded, in light of recent beaked whale strandings linked to the use of MFA sonar, that beaked whales may

[48]The Navy does not reargue the merits of NRDC's NEPA claim in its current appeal brief. We therefore assume that the Navy's current position is the same as set forth in its brief filed with our court on September 14, 2007.

be more sensitive to sonar exposures than other cetaceans. Because the lack of data precluded the Navy from establishing separate impact thresholds for beaked whales, the Navy decided that for beaked whales it would categorize exposures as Level A harassments that would constitute Level B harassments for other cetaceans.

The Navy's decision to do so is supported by ample evidence indicating that beaked whales are particularly vulnerable to MFA sonar. The documented strandings of marine mammals that have been linked to the use of MFA sonar overwhelmingly involve beaked whales.[49] Indeed, according to the International Whaling Commission the evidence associating the use of MFA sonar with beaked whale strandings is "very convincing" and "appears overwhelming." Similarly, a Navy-sponsored study found "completely convincing" the evidence that MFA sonar had caused strandings of beaked whales.

Moreover, to the extent that a paucity of scientific data prevents the Navy from establishing meaningful impact thresholds for beaked whales, that is a reason to conduct further research and prepare an EIS—not a reason to ignore the data that does exist and proceed with the SOCAL exercises with-

[49]We reject the Navy's argument that the district court erred by relying on evidence not included in the Navy's administrative record in reaching its conclusion that NRDC had demonstrated probable success on the merits. While generally a district court's review under the APA is limited to the administrative record before the agency, it may consider evidence beyond the administrative record in certain situations. *See, e.g., Ranchers Cattlemen Action v. USDA*, 499 F.3d 1108, 1117 (9th Cir. 2007). The district court properly considered extra-record evidence here because the Navy never submitted an administrative record to the district court despite having had almost a year to do so since NRDC filed its complaint on March 22, 2007. The Navy has not offered any valid explanation for why it failed to submit an administrative record. We note that the Navy filed a fourteen-volume record in the related litigation concerning the 2006 RIMPAC exercise only two days after NRDC filed its complaint in that case.

out adequate mitigation measures. As we explained in *National Parks*:

> An agency must generally prepare an EIS if the environmental effects of a proposed agency action are highly uncertain. Preparation of an EIS is mandated where uncertainty may be resolved by further collection of data or where the collection of such data may prevent speculation on potential . . . effects. The purpose of an EIS is to obviate the need for speculation by insuring that available data are gathered and analyzed prior to the implementation of the proposed action.

Nat'l Parks & Conservation Ass'n, 241 F.3d at 732 (internal citations and quotations omitted).

The Navy also contends that the district court misunderstood the significance of the nearly 170,000 predicted Level B harassments. First, the Navy argues that this number is an overestimate resulting from conservative assumptions in its model and from the fact that it does not take into account the mitigation measures the Navy would employ. However, the Navy stated in the EA that its prediction of the harm to marine mammals was "consistent with the best available science." And while the Navy "assumed" that its prediction was an overestimate, it acknowledged that the science was "incomplete," which apparently precluded the Navy from even approximating by how much it had overestimated the harm. Likewise, the Navy made no attempt to approximate how many Level B harassments its mitigation measures would prevent.[50] Accordingly, we, like the Navy, must rely on the estimate of nearly 170,000 predicted Level B harassments.

[50]The Navy has estimated that in the 2006 RIMPAC exercise, the employed mitigation measures prevented approximately 100 marine mammals from being exposed to MFA sonar. Even ignoring the fact that the mitigation measures employed in the 2006 RIMPAC exercise were more

Second, the Navy argues that most of the predicted Level B harassments are below the threshold for causing temporary hearing loss and will induce only temporary behavioral responses which can be as minor as causing an animal to avoid the noise source. But according to the Navy's own definition of Level B harassment, those temporary behavioral responses are nevertheless profound, as they cause "disruption of natural behavioral patterns . . . to a point where such behaviors are abandoned or significantly altered."[51] As the NMFS' Biological Opinion makes clear, such disruption of natural behavioral patterns can be lethal for marine mammals.

While the EA also states that it is "highly unlikely" that Level B harassments would cause disturbance to a point where behavioral patterns are abandoned or significantly altered, the EA provides no support for that statement and fails to explain why those harassments are nevertheless classified as Level B under the EA's own definition. The district court did not abuse its discretion in determining that such a conclusory statement does not dispense with the requirement of preparing an EIS. *See Ocean Advocates*, 402 F.3d at 864 ("[An agency] cannot avoid preparing an EIS by making conclusory assertions that an activity will have only an insignificant impact on the environment.").

Next, the Navy argues that it was "entitled to rely" on the

stringent than those the Navy has agreed to employ in the SOCAL exercises, that estimate would suggest that in the fourteen SOCAL exercises the mitigation measures would prevent only 1,400 exposures to marine mammals (14 exercises x 100 prevented exposures). Accordingly, the estimate of 170,000 Level B harassments would hardly be diminished by the Navy's current mitigation measures.

[51]The Navy derived this definition from the MMPA, 16 U.S.C. § 1362(18)(B)(ii), which was amended in 2003 to exclude from the definition those acts that disrupted natural behavioral patterns but not to the point where the behaviors were abandoned or significantly altered. *See* H.R. Rep. No. 99(I), 108th Cong. 1 Sess. 2003 (5/14/03).

conclusion of the NMFS in its Biological Opinion, which the district court held satisfied the NMFS' statutory obligation, *see* 16 U.S.C. § 1536(a)(2), that the SOCAL exercises were not likely to jeopardize the continued existence of threatened or endangered marine mammal species. But the NMFS opined only on the effects of MFA sonar on six species of marine mammal,[52] which do not include several rare or uncommon species of marine mammal that are expected to be exposed to a significant number of sonar harassments.[53] For example, the EA predicts 436 Level A harassments of Cuvier's beaked whales. According to NOAA, as few as 1,121 Cuvier's beaked whales may exist in California, Oregon and Washington combined. Likewise, the EA predicts 1,092 Level B harassments of bottlenose dolphins, of which only 5,271 may exist in the California Coastal and Offshore stocks.

The Navy suggests that the test is whether the continued existence of marine mammal species is jeopardized. This is wrong. An agency action can have "significant effects" on the environment short of threatened extinction. NEPA regulations promulgated by CEQ provide that "significantly" has two components: context and intensity. 40 C.F.R. § 1508.27. Context refers to the setting in which the proposed action takes place, in this case the Southern California Operating Area. *See id.* § 1508.27(a). Intensity means "the severity of impact." *Id*. § 1508.27(b). In considering the severity of the potential

[52]Those six species are the fin whale, humpback whale, sei whale, sperm whale, and Guadalupe fur seal.

[53]While in a recent memorandum—written well after the Navy prepared its EA—the NMFS concluded that the Navy's own mitigation measures "will minimize the likelihood of beaked whales being caught in circumstances that characterize known strandings of beaked whales," Jan. 9, 2008 Memorandum from NMFS to the Under Secretary of Commerce for Oceans and Atmosphere at 3, the NMFS did not conclude that the Navy's measures would prevent direct physical injury (such as tissue damage) to beaked whales. Indeed, the NMFS acknowledged that "the mechanism by which MFA sonar appears to be injurious to beaked whales is poorly understood." *Id.* at 4.

environmental impact, a reviewing agency may consider up to ten factors to help inform the "significance" of a project, including the degree to which the effects on the quality of the human environment are likely to be "highly controversial" and the degree to which the possible effects on the human environment are "highly uncertain or involve unique or unknown risks." *Id.* §§ 1508.27(b)(4), (b)(5). We have held that "one of these factors may be sufficient to require preparation of an EIS in appropriate circumstances." *Ocean Advocates*, 402 F.3d at 865; *see Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 508 F.3d 508, 553 (9th Cir. 2007); *Nat'l Parks & Conservation Ass'n*, 241 F.3d at 731.

Notably, whether an agency action will jeopardize the continued existence of an endangered or threatened species is not among these factors. *See* 40 C.F.R. § 1508.27(b). However, the degree to which the action may "adversely affect" an endangered or threatened species *is*. *See id.* § 1508.27(b)(9). While the NMFS' Biological Opinion concluded that the SOCAL exercises were not likely to jeopardize the continued existence of the six endangered species it studied, it nevertheless acknowledged that the exercises "may adversely affect" those species. Thus, while the Navy was not required to disregard the NMFS' "no jeopardy" opinion, *see Envtl Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1012 (9th Cir. 2006), the Biological Opinion by its own terms makes clear that the SOCAL exercises may "significantly" affect the environment, *see Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1275-76 (10th Cir. 2004) (regarding as not determinative for NEPA purposes the Fish and Wildlife Service's "no jeopardy" opinion as to bald eagles).

The Navy further argues that its finding of no significant impact was not arbitrary and capricious because no sonar-inflicted injuries have been observed in the Southern California Operating Area in almost forty years of MFA sonar use by the Navy. But as explained above, that fact has limited

probative value in establishing whether marine mammals will in fact be harmed by the Navy's use of MFA sonar. Exposure to MFA sonar may physically and behaviorally harm marine mammals even if it does not cause them to strand. And absent stranding, such harm is difficult to observe. That is particularly true for the beaked whale—the marine mammal most vulnerable to MFA sonar—in which a population decline of 50% over 15 years would go undetected as a decline at all in 90% of the beaked whale stocks.

Finally, the Navy claims that the correlation between the past marine mammal strandings and MFA sonar is irrelevant because the combination of environmental conditions "found at the locations of documented marine mammal stranding incidents" is not present in the Southern California Operating Area. But contrary to this claim, the EA indicates that the Navy has studied only the stranding in the Bahamas in 2000 and not any of the other stranding events.

Moreover, while the Navy's study of the Bahamas stranding identified a combination of factors that contributed to the whales' injury—the presence of a strong surface duct, unusual water bathymetry, intensive use of multiple sonar units over an extended period of time, a constricted channel with limited egress, and the presence of beaked whales that appear to be sensitive to the frequencies produced by these sonars—the EA provided no supporting data or analysis for its conclusion that this combination of factors does not exist in the Southern California Operating Area. Thus, we find no abuse of discretion in the district court's conclusion that the Navy has failed to provide the support for its conclusion that NEPA requires. *See* 40 C.F.R. § 1502.24.

In addition, the Navy's Bahamas study acknowledged that combinations of factors different from the one present in the Bahamas "may be *more* or less likely to cause strandings" (emphasis added). Thus, even if the combination of factors present in the Bahamas in fact does not exist in the Southern

California Operating Area, the combination of factors that *does* exist may be even more likely to cause injury to marine mammals. The EA does not explore that possibility.

[11] In sum, the district court did not abuse its discretion in concluding that NRDC raised substantial questions as to whether the SOCAL exercises would have a significant impact on the environment. All of the reasons stated in the EA for why the Navy believed the SOCAL exercises would not have the deleterious effect that the Navy's own model predicted were cursory, unsupported by cited evidence, or unconvincing. Thus, we find ample support for the district court's conclusion that the Navy has not "articulate[d] a rational connection between the facts found and the conclusion[ ] reached." *Earth Island II*, 442 F.3d at 1156-57 (quoting *Midwater Trawlers Co-op* v. *Envtl. Def. Ctr.*, 282 F.3d 710, 716 (9th Cir. 2002)).

c. The Navy's Mitigation Measures

The district court also concluded that NRDC had demonstrated probable success on the merits of its claim that the Navy's mitigation measures were inadequate to obviate the need for preparing an EIS. Again, we find no reliance on an erroneous legal premise and no abuse of discretion in the district court's conclusion.

[12] The Navy correctly points out that "[a]n agency's decision to forego issuing an EIS may be justified in some circumstances by the adoption of [mitigation] measures" and that those measures, if significant, "need not completely compensate for adverse environmental impacts." *Nat'l Parks & Conservation Ass'n*, 241 F.3d at 733-34 (citations and internal quotation marks omitted). However, we have also held that a "perfunctory description" or "mere listing of mitigation measures, without supporting analytical data," is insufficient to support a finding of no significant impact. *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 473 (9th Cir. 2000)

(citations and internal quotation marks omitted). We find no reversible error in the district court's conclusion that the Navy's list of proposed mitigation measures was precisely such a perfunctory description devoid of supporting data.

[13] The explanation contained in the EA as to why the mitigation measures are effective is contained in four short bullet points, stating that whales and dolphins spend extended periods of time on the surface, have relatively short dive periods, tend to move in large groups (pods), and frequently come to the surface and have a high level of activity there. Three of those bullet points in effect state the same thing, namely that whales and dolphins spend little time under water. This explanation is inadequate for several reasons.

[14] First, the Navy's explanation overlooks the fact that beaked whales spend much of their time under water, surface infrequently, and are generally difficult to detect. A study by NMFS scientists observed that "beaked whales are always difficult to see when they are on the surface, spend most of their time below the surface, and are found at low densities over large areas." Likewise, NRDC submitted a declaration by a biologist who opines that visual monitoring by ship-based lookouts would result in the detection of only 2% of beaked whales in the Southern California Operating Area, in part because of the speed at which Navy vessels travel. Declaration of Dr. Robin William Baird ¶ 6.

[15] Second, the Navy's explanation fails to address the effectiveness of the Navy's safety zones—the only measure that directly reduces exposure of marine mammals to MFA sonar. Specifically, the EA fails to explain why a safety zone of only 1,000 yards is adequate, why reducing the sonar level by 6dB and 10dB at the 1,000-yard and 500-yard marks, respectively, is adequate, and why it is effective to halt MFA sonar transmission altogether only at the 200-yard mark.[54] The

[54]As stated earlier, the Navy has recently agreed to adopt safety zones with radii of 1,000, 500 and 200 meters instead of 1,000, 500 and 200

Navy's explanation also does not relate to the effectiveness of the measure requiring passive sonar to be used to detect sounds made by marine mammals.

While the Navy claims in the EA that it is "very likely" that lookouts would detect a group of common dolphins because of "frequent surfacing" and group sizes of "over a thousand animals," it notably makes no such claims about Cuvier's beaked whales, Mesoplodont beaked whales or Ziphiid beaked whales. Indeed, the EA acknowledged that Cuvier's beaked whales and Mesoplodont beaked whales exhibit a range of dives lasting up to 87 minutes.

Moreover, while the EA claims that it is "very likely" that Baird's beaked whales will be detected by lookouts, it states nothing about the frequency with which those whales surface. While it may be that, as the EA states, beaked whales are large in size and travel in groups of between nine and thirteen animals, those facts hardly prove the effectiveness of visual surveillance measures considering that beaked whales generally come to the surface infrequently.

We find further support for the district court's conclusion that the Navy's mitigation measures did not obviate the need to prepare an EIS in the fact that, as explained above, the Navy refused to adopt several of the more aggressive mitigation measures recommended by the CCC, employed in the 2006 RIMPAC exercise, or imposed by the Department of

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yards. However, the radius of the Navy's outer safety zone is still half of the radius recommended by the CCC, resulting in a safety zone that is 75% smaller than the one found necessary by the CCC.

Notably, NRDC has submitted declarations by scientists who state that sonar levels even below the Navy's lowest impact threshold of 173 dB may be fatal and that sonar sound can travel up to hundreds of miles under water, which suggests that the Navy's significantly smaller safety zones are inadequate. *See* Parsons decl. ¶ 13, Weilgart decl. ¶ 10.

Defense for non-RIMPAC exercises in 2006. Specifically, the Navy refused to:

- Expand the outer safety zone to 2 kilometers;[55]
- Reduce sonar power in conditions of low visibility or strong surface ducting;
- Avoid training in areas known to have high concentrations of marine mammals or during the gray whale's migratory season;
- Monitor for 30 minutes prior to commencement of MFA sonar use;
- Restrict operation of MFA sonar within 25 kilometers from the 200-meter isobath;
- Restrict operation of MFA sonar within 12 nautical miles from the coast;[56] and
- Restrict operation of MFA sonar in choke points, constricted channels, or canyon-like areas.[57]

[55]The Navy did not discuss this measure in its EA, let alone explain why it would not be effective. In its "after action report" following the 2006 RIMPAC exercise, the Navy disposed of this mitigation measure simply by declaring it "not prudent" and "without scientific merit."

[56]The Navy asserts on appeal that the SOCAL exercises will occur more than twelve nautical miles from the mainland coastline, but concedes that the exercises will occur within twelve nautical miles of Clemente Island, which falls within the Southern California Operating Area. In its January 3, 2008 preliminary injunction order the district court required the Navy to refrain from using MFA sonar within 12 nautical miles from the California coastline. Jan. 3, 2008 Dist. Ct. Order at 14.

[57]The parties disagree as to whether there are any choke points in the Southern California Operating Area. In its January 3, 2008 preliminary injunction order the district court found that the Catalina Basin poses the same concerns as a choke point: ingress and egress to the basin are restricted and the area has a high density of marine mammals. Jan. 3, 2008 Dist. Ct. Order at 17. Accordingly, the district court ordered the Navy to refrain from using MFA sonar in the Catalina Basin. *Id*. at 17-18.

Notably, as to most of these measures the Navy does not contest that they would be effective. While the Navy claims that some of the measures would adversely affect its ability to achieve the objectives of the exercises, that does not render the measures the Navy *has* adopted adequate to avoid the need for preparing an EIS. Indeed, the Navy states in its "after action report" following the first three SOCAL exercises that in future exercises it intends to incorporate data collection necessary to address the question of how many marine mammals not observed by lookouts may have been exposed to dangerous sonar levels, and will integrate additional monitoring tools and techniques. While the Navy's intent is commendable, it implicitly acknowledges that its current mitigation and data collection efforts are less than adequate.

[16] We conclude that the district court did not abuse its discretion in determining that the Navy's cursory explanation in the EA for why its mitigation measures are effective does not demonstrate that those measures "constitute an adequate buffer against the negative impacts" that may result from the SOCAL exercises. *See Nat'l Parks & Conservation Ass'n*, 241 F.3d at 734. Accordingly, we uphold the district court's conclusion that the Navy's reliance on its incomplete mitigation plan in deciding not to prepare an EIS was likely arbitrary and capricious and affirm its determination that NRDC has demonstrated probable success on the merits of its NEPA claims. *Cf. Wetlands Action Network v. U.S. Army Corps of Eng'rs*, 222 F.3d 1105, 1112 (9th Cir. 2000).[58]

[58]The district court also concluded that NRDC had demonstrated probable success on the merits of its claims that the Navy violated NEPA by preparing an EA that failed to adequately consider reasonable alternatives to its proposed action, *see, e.g., Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1998) (explaining that under NEPA federal agencies must sufficiently study, develop, and describe alternatives as part of the "environmental decisionmaking process"), as well as the cumulative impacts of its actions, *see, e.g., Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994 (9th Cir. 2004) (explaining that an EA must provide a "useful analysis of the cumulative impacts of past,

B. Possibility of Irreparable Injury

In our November 13, 2007 order we affirmed the district court's conclusion that NRDC had met its burden of demonstrating the possibility of irreparable injury. *NRDC*, 508 F.3d at 886. We now explain that decision.

[17] As the district court noted, "[w]here, as here, plaintiffs demonstrate a likelihood of prevailing on the merits of their claims, injunctive relief is appropriate where there is a 'possibility of irreparable harm.' " Jan. 3, 2008 Dist. Ct. Order at 12 (quoting *Faith Ctr. Church Evangelistic Ministries v. Glover*, 480 F.3d 891, 906 (9th Cir. 2007)). NRDC must show the possibility of irreparable harm to its membership. *See Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc.*, 528 U.S. 167, 180-81 (2000). After analyzing the "numerous scientific studies, declarations, reports, and other evidence submitted," the district court concluded that NRDC had established "to a near certainty" that use of MFA sonar in the SOCAL exercises will cause irreparable harm to the environment and to NRDC's membership. Jan. 3, 2008 Dist. Ct. Order at 12.

[18] The Navy argues that the harm resulting to the environment from the use of MFA sonar in the SOCAL exercises is merely "speculative." But the Navy's own EA proves otherwise. The EA estimates that the use of MFA sonar in the SOCAL exercises will result in 564 instances of physical injury including permanent hearing loss (Level A harassment) and nearly 170,000 behavioral disturbances (Level B harassment), more than 8,000 of which would also involve tempo-

present, and future projects"). Jan. 3, 2008 Dist. Ct. Order at 8-10. We decline to address this aspect of the district court's order as we have already concluded that the court did not abuse its discretion in finding that NRDC has demonstrated probable success on the merits of its other NEPA claims.

rary hearing loss. As explained above, while the Navy protests that these figures are overestimates resulting from its conservative approach, the EA makes clear that the figures are "consistent with the best available science." Indeed, the Navy's failure to suggest *by how much* its figures overestimate the actual harm to marine mammals confirms that the EA's figures are the best available estimates. Those estimates, in turn, contradict the Navy's suggestion that the harm caused by MFA sonar in the SOCAL exercises is merely speculative.

Moreover, while the record contains no evidence that marine mammals have been harmed by the use of MFA sonar in the Southern California Operating Area, the scientific consensus that MFA sonar may cause injury and death to marine mammals combined with the evidence that such injury, absent a stranding, is difficult to detect—especially in the case of the vulnerable beaked whale—further disproves the suggestion that the harm caused by MFA sonar in the SOCAL exercises is merely speculative.

The Navy also argues that its use of MFA sonar will cause only temporary harm to marine mammals and therefore will not result in irreparable injury. But the EA again undermines the Navy's argument. The EA's estimate that 564 instances of Level A harassment will occur demonstrates that the use of MFA sonar will also cause permanent harm to marine mammals. Likewise, the EA's own definition of Level B harassment indicates that the nearly 170,000 estimated instances of such harassment may result in the outright abandonment of important behaviors by marine mammals.

Finally, the Navy argues that NRDC failed to meet its burden of demonstrating that marine mammals "will suffer irreparable injury at the species or stock-level." For two reasons, the Navy has not shown that the district court relied on an erroneous legal premise or abused its discretion in rejecting this argument.

First, NRDC had only the burden of demonstrating the "possibility of irreparable injury," *Freecycle Network*, 505 F.3d at 902, not that irreparable injury "will" necessarily occur. *See Earth Island II*, 442 F.3d at 1159 (holding that the district court erred in requiring that the plaintiff show a "significant threat of irreparable injury" because that standard imposes a higher burden of proof than the "mere possibility of irreparable harm" standard).

Second, the Navy has cited no support for the proposition that NRDC was required to demonstrate the possibility of irreparable injury at the species or stock-level. While the Navy relies on *Water Keeper Alliance v. Dep't of Defense*, 271 F.3d 21 (1st Cir. 2001), the court in that case only concluded that the district court did not abuse its discretion in concluding that the "death of even a single member of an endangered species" would be an insufficient basis for the plaintiffs to demonstrate the possibility of irreparable injury. *See id*. at 34. Here, the district court found that, according to the Navy's EA, the SOCAL exercises "will cause widespread harm to nearly thirty species of marine mammals, including five species of endangered species, and may cause permanent injury and death." January 3, 2008 Dist. Ct. Order at 12.

In any event, even if NRDC were required to demonstrate the possibility of irreparable injury at the species or stock-level, it would have satisfied that requirement here. As discussed earlier, the EA predicts 436 Level A harassments of Cuvier's beaked whales, of which, according to NOAA, as few as 1,121 may exist in California, Oregon and Washington combined. Similarly, the EA predicts 1,092 Level B harassments of bottlenose dolphins, of which only 5,271 may exist in the California Coastal and Offshore stocks.

[19] Accordingly, we hold that the district court did not rely on an erroneous legal premise or abuse its discretion in concluding that NRDC has demonstrated the possibility of irreparable injury.

C. Balance of Hardships

[20] Having determined that the district court neither relied on erroneous legal premises nor abused its discretion in determining that NRDC has demonstrated a strong likelihood of success on the merits of its NEPA claim and the possibility of irreparable injury, we turn to the "balance of hardships." *See Freecycle Network*, 505 F.3d at 902. The Supreme Court has held that environmental injury, in addition to often being permanent or of long duration, can seldom, by its nature, "be adequately remedied by money damages"; therefore, "[i]f such injury is sufficiently likely, . . . the balance of harms will usually favor the issuance of an injunction to protect the environment." *Amoco Prod. Co. v. Vill. of Gambell, AK*, 480 U.S. 531, 545 (1987).

The Navy maintains, and the district court did not contest, that its ability to train and certify its west-coast strike groups for combat deployment is critical.[59] The Navy argues that its

[59]For example, Captain Martin M. May states that "[m]odern, quiet submarines . . . pose the primary threat to the littorals, control of strategic maritime choke points, transit through international straits, and protection of sea lines of communication vital to international commerce." May decl. ¶ 19. These submarines are "nearly undetectable to U.S. and allied naval forces without the use of [MFA] sonar." *Id.* at ¶ 20. Captain May also asserts that "[s]onar operators and crews must train regularly and frequently to develop the skills necessary to master the art and processes of identifying submarines in the complex subsurface environment[,]" and that computer simulations are not adequate for teaching these skills. *Id.* at ¶ 22. Captain May maintains that if sonar use is enjoined, the Navy would be unable to gauge a fleet's ability to use active sonar. *Id.* at ¶ 26.

Captain May also contends that "[t]he ranges that comprise the Southern California Operating Area make up a unique area in which strike groups can meet all required training objectives at the same time. *Id.* at ¶ 25. Another significant factor is that many of the operating areas have been surveyed and closely mirror the prospective operating environments in many of the world's 'hot' spots where U.S. Naval forces may be required to fight." *Id.* Training "in our own littorals . . . also build[s] proficiency and experience in our own waters should the enemy attempt to interdict U.S. forces deploying to the area of conflict." *Id.*

ability to engage in these critical activities is severely degraded by: (1) the requirement that it shut down its use of MFA sonar when a marine mammal is detected within 2,200 yards of a sonar-emitting source; and (2) the requirement that it power down its sonar use by 6 dB (75%) when significant surface ducting conditions are detected. Without proper training and certification, the Navy asserts that it will not be able to deploy a sufficient number of combat-ready forces to provide for the national defense.

The district court rejected the Navy's argument that the balance of hardships tipped in its favor. It concluded that although "the imposition of these mitigation measures will require the Navy to alter and adapt the way it conducts anti-submarine warfare training—a substantial challenge," the measures would not preclude the Navy from effectively training and certifying forces for deployment to combat zones in the western Pacific and the Middle East.[60] Feb. 4, 2008 Dist. Ct. Order.

The gravity of the Navy's asserted hardship requires that we review the district court's determination, as well as the affidavits submitted by the Navy, with the utmost care. We have done so here and, for the reasons set forth below, we conclude that the district court did not abuse its discretion in reaching its determination.

We note that any negative impact on the Navy's ability to successfully conduct its exercises under the challenged miti-

[60]The district court crafted its mitigation order after carefully weighing evidence submitted by the parties over a period of "longstanding involvement" with the matters at issue. It took into account the Navy's need for training in certain bathymetry and under certain conditions, and declined to impose several of plaintiffs' proposed "sweeping geographic exclusions" which would have precluded the Navy from training with MFA sonar within 25 nautical miles of the coast, in waters shallower than 1,500 meters to the maximum extent possible, and in the Westfall seamount and the Cortez and Tanner Banks. Jan. 3, 2008 Dist. Ct. Order at 13 n.6.

gation measures is necessarily speculative because the Navy has never before employed these measures in the context of MFA sonar training.[61] The speculative nature of the Navy's asserted harm is reflected in its own characterization of the hardship; the Navy does not claim that the challenged measures will categorically preclude effective training and certification, but rather that they will give rise to an "unacceptable risk" of such a result. Our task, then, is to determine, as best we are able from the record before us, whether the district court erred by giving insufficient weight to the Navy's asserted hardship or by resting its conclusions on clearly erroneous factual findings.

In support of its assessment that the challenged measures will significantly impair its training exercises, the Navy offers the declarations of various high-ranking officers. For example, Admiral John Locklear explains that the 2,200 yard safety zone will in "[his] opinion . . . have crippling implications on Navy's ability to conduct realistic pre-deployment [ASW] training employing MFA sonar" and "will significantly impact ASW training." Locklear decl. ¶¶ 9, 13. The Chief of Naval Operations refers to an unacceptable risk to strike group certification posed by both the safety zone and surface ducting measures. The judgment of these naval officers and, in particular, that of the Chief of Naval Operations, who is charged with the statutory responsibility under 10 U.S.C.

[61]The Navy has not represented that, if the challenged measures are upheld, it will cease its training exercises. Further, the Navy acknowledged at oral argument on February 27, 2008, that it can certify strike groups despite the inability to train in surface ducting conditions. We therefore proceed under the assumption that the exercises will continue to take place, thereby preserving the possibility of successful training and certification of strike groups. Thus, the district court did not err in failing to weigh the hardship to the Navy, and the public, that would result if the Navy stopped training altogether. Rather, the district court did not abuse its discretion and properly considered the hardship that would result if the Navy were required to abide by the challenged mitigation measures during its remaining exercises in 2008 and 2009.

§ 5062 for organizing, training, and equipping the Navy, is entitled to substantial deference. *See Khalsa v. Weinberger*, 779 F.2d 1393, 1400 n.4 (9th Cir. 1985) ("The degree of deference due to factual assertions by the military is proportionate to the need for the application of military experience, judgment, and expertise in evaluating the assertion.").

Nevertheless, a court's deference is not absolute, even when a government agency claims a national security interest. *See, e.g.*, *Campbell v. U.S. Dep't of Justice*, 164 F.3d 20, 30 (D.C. Cir. 1998) ("[D]eference is not equivalent to acquiescence . . . ."). The district court therefore did not abuse its discretion when it considered the Navy's declarations along with the evidence contained in the record as a whole. This evidence, much of it submitted by the Navy itself, supports the district court's conclusion that the challenged mitigation measures will not likely compromise the Navy's ability to effectively train and certify its west-coast strike groups. We address the evidence with respect to each of the challenged mitigation measures in turn.

1. The 2,200 Yard Shutdown Zone

We first consider the requirement that the Navy shut down its use of MFA sonar when a marine mammal is detected within 2,200 yards of a sonar-emitting source.[62] Upon a careful review of the record, we find no clear error in the district court's factual finding that this measure would not compromise the Navy's ability to train and certify its strike groups.

[62]Although our discussion *supra* addresses the evidence contained in the record with respect to the likely impact that the increase in the safety zone's size will have on training and certification, the Navy also contests this measure's application to all sonar sources, including helicopter dipping sonar and sonobuoys which emit less powerful sonar waves. *See, e.g.*, Locklear decl. ¶ 11. Despite the fact that the dipping sonar and sonobuoys have lower energy source levels, they still operate at levels above those shown to pose a danger to marine mammals. *See, e.g.*, Parsons decl. ¶ 13. Accordingly, the district court's decision to include these sonar sources in its mitigation measure was not an abuse of discretion.

[21] The "after action reports" compiled by the Navy following eight prior COMPTUEX and JTFEX exercises in the Southern California Operating Area undermine the Navy's assessment of the significance of the hardship that this mitigation measure would impose.[63] The reports contain several relevant data points. First, the data reveal a relatively low likelihood that a marine mammal will be sighted during a time when the Navy's MFA sonar is in use, thereby triggering implementation of this mitigation measure. During two of the eight exercises, no marine mammals were sighted while MFA sonar was in use. In the remaining exercises, sightings rarely occurred while MFA sonar was in use.[64] In fact, over the course of eight exercises lasting one or more weeks each, the Navy observed marine mammals only 51 times while using MFA sonar, which represents less than 15% of all marine mammal observations (345) during those exercises. Second, the data show that the Navy shut down its MFA sonar twenty-seven times over the course of its eight prior exercises. If the district court's mitigation measure had been in place, the Navy would have had to shut down at most an additional twenty-one times: an increase of only two to three shutdowns per exercise.[65] Moreover, of the twenty-one additional times

[63]During these exercises, the Navy's preferred 1,000 yard safety zone was implemented requiring a 6 dB power-down when a marine mammal was detected within 500-1,000 yards, an additional 4 dB power-down within 200 and 500 yards, and a mandatory shutdown within 200 yards.

We note that the first four of the eight exercises for which the record contains "after action reports" were not part of the current SOCAL exercises.

[64]The low likelihood of a sighting occurring while MFA sonar is being used does not mean it is rare for marine mammals to be exposed to dangerous noise levels. Rather, two facts demonstrate that the number of sightings does not equate to the number of mammals affected by an MFA sonar event: (1) the presence of marine mammals is difficult to detect by "sight" because many spend significant amounts of time submerged underwater; and (2) sound travels long distances in water (in some cases up to many hundreds of miles) creating the potential for adverse effects beyond the range of sight.

[65]The Navy argues that this mitigation measure will result in a five-fold increase in the number of times it is required to shut down during training

that the Navy would have been required to shut down, in eleven of these instances, the Navy powered down its sonar. During these power-downs, the Navy's detection capability was significantly reduced. *See, e.g.*, Bird decl. ¶ 49. Accordingly, if the district court's injunction had been in place, the Navy would have had to compromise detection capability only approximately one more time per exercise. Third, the "after action reports" do not establish any serious, negative effects on operational impact from the smaller safety zone imposed in the eight exercises.[66] Because the broader safety zone likely will not require significantly more shutdowns, the

exercises. The Navy arrives at this higher number by excluding from its calculation shutdowns that occurred beyond the 200 yard mandatory shutdown zone. But this calculation fails to account for the Navy's actual practice of shutting down sonar in a significant number of cases where marine mammals were detected beyond 200 yards, including at distances as far as 3,100, 4,000, and 6,000 yards. In fact, the "after action reports" reveal that of the twenty-seven times the Navy shut down MFA sonar, it did so fifteen times when the observed marine mammals were outside the 200 yard mandatory shutdown zone and four times when the marine mammals were at an "unknown" distance.

There is no dispute that the Navy continued to certify its strike groups throughout these exercises. The Navy defends its exclusion of any non-mandatory shutdowns in its count by claiming that any shutdowns that occurred beyond the 200 yard range "likely occurred during tactically insignificant times." Locklear decl. ¶ 11. The record fails to support this claim. The "after action reports" do not distinguish between shutdown events in evaluating training impacts. Indeed, the very same language is used to describe the loss of detection opportunities during all of the exercises, without regard to whether the shutdowns occurred within or beyond 200 yards.

[66]Indeed, the "after action reports" contain only one instance in which the Navy comments that its operation was actually affected by a safety zone mitigation measure. *See* After Action Report for COMPTUEX 07-01 (19 November-19 December 2006) at 6. All the other reports state that the impact of the safety zone measure was "not determinable in the reactions of the particular units" and only speculate that "the proximity of a submarine in the vicinity meant there was a potential submarine detection opportunity missed by the exercise participants."

district court's conclusion that this mitigation measure does not pose a significant risk of rendering the Navy's training exercises ineffective is well-supported. We cannot, on this record, find that the district court abused its discretion.

In addition to data drawn from "after action reports," the record contains other evidence of the feasibility of mandatory shutdown zones of this size, and even greater, during naval training exercises. Indeed, the size of the district court's imposed shutdown zone was based on the CCC's proposed mitigation measure, which in turn was drawn from the Navy's own imposition of a 2,000 meter shutdown requirement when it uses low-frequency active sonar.[67] While the record does not indicate whether low-frequency active sonar has the same effect on marine mammals as MFA sonar, the Navy offers no explanation as to why a 2,000 meter safety zone is feasible during its operation of low-frequency active sonar but not during its use of MFA sonar.[68]

[67]While we recognize that each Navy has unique operating requirements, the record shows that NATO imposes a 2,000 meter shutdown zone when a marine mammal is detected—the same zone that the district court's preliminary injunction requires. The Australian Navy goes farther, mandating a shutdown of activities if a marine mammal is detected within 4,000 yards of a sonar-emitting vessel.

[68]To the contrary, in its initial submissions to the court, the Navy represented that "[p]rior to [the district court's] requirement, the maximum mandatory shutdown zone the Navy *ever* employed was 200 meters." Jan. 15 Emergency Motion at 16 (emphasis added). This representation is plainly contradicted by the record. In its most recent brief to the court, the Navy clarified that, "Prior to this requirement, the maximum mandatory shutdown zone ever employed *for MFA sonar* was 200 meters." However, the Navy still does not discuss nor defend its ability to implement a 2,000 meter safety zone in its low-frequency, but not in its mid-frequency, sonar activities.

2. The Requirement to Power-Down in Significant Surface Ducting Conditions

[22] We next consider the requirement that the Navy power-down its sonar use by 6 dB when significant surface ducting conditions are detected. Although the Navy stresses the importance of training in surface ducting conditions, it admits—and the record confirms—that such conditions occur relatively rarely in the southern California waters in which the Navy has chosen to conduct its exercises. Indeed, the "after action reports" from JTFEX and COMPTUEX exercises conducted in the Southern California Operating Area in 2006 show that significant surface ducting conditions were not detected during any of those exercises. Yet despite the strike groups' inability to train under such conditions, the Navy certified them. The record, then, undermines the Navy's contention that the district court's mitigation measure regarding surface ducting conditions will significantly impact its ability to certify strike groups.

[23] Thus, although the actual effect of the challenged mitigation measures on the exercises at issue is necessarily speculative, data from past Navy exercises and practices supports the district court's conclusion that the imposition of these measures is not likely to prevent effective training and certification of strike groups. After a thorough review of this record, we are not "left with the definite and firm conviction that a mistake has been committed." *Sports Form, Inc.*, 686 F.2d at 752. To the contrary, there is significant evidence of the Navy's ability to successfully train and certify its strike groups under the conditions imposed by the district court. We therefore conclude that the district court did not abuse its discretion in ordering the Navy to comply with the challenged mitigation measures.

3. Balancing

As explained earlier, the scientific studies, declarations and reports in the record confirm the district court's determination

that irreparable harm to marine mammals will almost certainly result should the Navy be permitted to conduct its remaining exercises without appropriate mitigation measures. *See, e.g.*, Bain decl. ¶ 14 (explaining that "the monitoring and mitigation adopted by the Navy is insufficient to detect, much less prevent, marine mammal injury and mortality"); Declaration of Dr. Thomas A. Jefferson decl. ¶ 4 (describing the link between military sonar and the stranding and deaths of beaked whales and other cetaceans). As the district court observed, the 2,200 yard shutdown zone might protect marine mammals from only "the harshest of sonar-related consequences." Jan. 3, 2008 Dist. Ct. Order at 15.

Further, as the district court noted, the exercises in southern California are only a subset of the Navy's training activities involving active sonar.[69] *Id.* at 12-13. NRDC submitted evidence that the Navy uses active sonar in hundreds of exercises each year throughout the world. The evidence linking several whale strandings to the Navy's use of active sonar in training exercises around the world further confirms that the Navy trains in its use of active sonar in many different areas.

[24] While we are mindful of the importance of protecting national security, courts have often held, in the face of assertions of potential harm to military readiness, that the armed forces must take precautionary measures to comply with the law during its training. *See, e.g.*, *NRDC v. Evans*, 364 F.Supp.2d 1083, 1143 (N.D. Cal. 2003) ("A tailored injunction reconciles the very compelling interests on both sides of

[69]Indeed, the EA shows that the Navy considered as alternatives conducting the exercises in other locations, including Alaska and Hawaii, reducing the number of exercises, and using exercise simulation. While the Navy's EA provides reasonably detailed justifications for why the Southern California Operating Area is uniquely suited to these exercises, and demonstrates that the Navy would suffer a certain hardship if the considered alternatives were employed instead, the EA nonetheless shows the Navy is still able to conduct its exercises in alternate locations, in reduced number, or through simulation.

this case, by enabling the Navy to continue to train with and test [low-frequency active] sonar as it needs to do, while taking some additional measures to better protect against harm to marine life."); *Makua v. Rumsfeld*, 163 F.Supp.2d 1202, 1221 (D. Haw. 2001) ("Although the court recognizes the importance of national security and live-fire training, the potential harm to the Army resulting from a brief preliminary injunction will not be significant."). As in those cases, the district court here carefully balanced the significant interests and hardships at stake to ensure that the Navy could continue to train without causing undue harm to the environment. We review that balance to determine whether it rests on clearly erroneous findings of fact. Having concluded that it does not, we determine that the district court did not abuse its discretion and therefore do not disturb its carefully considered injunction.

We recognize that although the record indicates that the Navy will be able to continue to train and certify strike groups effectively despite the two challenged mitigation measures, there remains the possibility that, when they are actually implemented, it will be unable to do so. In light of the hardship that the Navy and the public would suffer should the imposed measures actually result in an inability to train and certify sufficient naval forces to provide for the national defense, we conclude that, in the unlikely event that such a situation arises, the Navy may return to the district court to request relief on an emergency basis.

D. Advancement of the Public Interest

There are two dimensions to the public interest in this case. The public has an interest both in national security and in protection of the marine environment. The public interest with respect to national security is the same as that discussed in our consideration of the hardship the Navy would suffer if it were unable to effectively train and certify its strike groups. The public interest with respect to protection of the marine envi-

ronment is the same as that discussed in our consideration of the irreparable injury NRDC would suffer if the SOCAL exercises were carried out in the absence of appropriate mitigation measures. As our discussion makes clear, we conclude that the district court did not rely on an erroneous legal premise or abuse its discretion in analyzing either of these interests. Accordingly, there is no need for any additional discussion of the public interest.

V. Conclusion

The district court concluded that plaintiffs have met the necessary burden of proof to demonstrate that preliminary injunctive relief is appropriate. It held that plaintiffs have shown a strong likelihood of success on the merits, as well as the possibility of irreparable injury if relief is not granted. It also held that plaintiffs have shown that the balance of hardships tips in their favor in light of the preliminary injunction's narrowly-tailored mitigation measures which provide that the Navy's SOCAL exercises may proceed as planned if conducted under circumstances that provide satisfactory safeguards for the protection of the environment. Finally, it held that the public interest is advanced by a preliminary injunction that imposes adequate mitigation measures. In reaching these conclusions, the district court neither relied on erroneous legal premises nor abused its discretion. We therefore affirm the district court's preliminary injunction.

AFFIRMED.