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**STAFF REPORT: REGULAR CALENDAR**

**Consistency Determination No.:** CD-0001-18

**Applicant:** Department of the Navy

**Location:** Southern California (SOCAL) Range Complex, a 120,000 square nautical mile (nmi) area including Santa Barbara, Santa Catalina, San Nicolas, and San Clemente Islands, and offshore waters, as well as offshore waters at the Silver Strand Training Complex (SSTC), Coronado (**Exhibits 1-3**)

**Project Description:** California portion of Hawaii-Southern California Training and Testing Program – Continuation of and modifications to ongoing Navy training and testing activities

**Recommendation:** Conditional Concurrence

**SUMMARY OF STAFF RECOMMENDATION**

The U.S. Department of the Navy (Navy) has submitted a consistency determination for the . Navy for 5-Year Military Readiness Training and Testing Program Activities in the California portion of the Hawaii-Southern California Training and Testing (HSTT) Study Area, southern California. The Commission has reviewed three previous Navy consistency determinations for

similar Southern California testing and training activities: CD-008-13 (Commission objection in March, 2013), CD-049-08 (Commission conditional concurrence in October, 2008), and CD-86-06 (Commission conditional concurrence in January, 2007). The first of these reviews (CD-086-06) was for a 2-year period; subsequent authorizations covered 5-year periods. (The Navy's associated NEPA documents and NMFS authorizations are for similar time periods.)

The program involves a very large number of training and testing activities, primarily within existing offshore Navy range complexes and ocean operating areas (OPAREAs), as well as at Navy piers, ports, and shipyards. The program does not include training and testing activities on land (i.e., *onshore* activities at San Clemente Island or the Silver Strand Training Complex).

Briefly, the training elements involve anti-air warfare, amphibious warfare, strike warfare, anti-surface warfare, anti-submarine warfare, electronic warfare, and mine warfare activities. The testing activities involve Naval Air Systems Command Testing, Naval Sea Systems Command Testing, Space and Naval Warfare Systems Command Testing, and Office of Naval Research and Naval Research Laboratory Testing.

Based on the Navy's modeled estimates under the Marine Mammal Protection Act (MMPA), the proposed activities could result in the behavioral harassment (qualifying as "Level B take" under the MMPA) of an annual average of 2.37 million marine mammals/year, and "Level A take" (injury or potential injury) of 576 marine mammals/yr. Despite these modeled numbers, and the large number of "takes" requested in the Navy's application to the National Marine Fisheries Service (NMFS), the Navy concludes that, with the mitigation measures it is including (discussed on pages 26-28 of this report) the activities would not result in population-level effects to any species, and would be consistent with Coastal Act Section 30230. The Navy also asserts that its approach appropriately balances its multiple responsibilities, stating:

*The Navy's responsibility to the American people dictates an efficient use of fiscal resources and an approach that adapts to the evolving security environment, with the ability to make adjustments according to global events, be it humanitarian assistance or disaster relief to deterring war or defeating an adversary. The training and testing under the Proposed Action allows for just that and is balanced with the Navy's commitment to environmental stewardship.*

The staff is recommending the Commission find the activities inconsistent with Section 30230. This recommendation is based on: (1) the limited effectiveness of Navy detection and monitoring measures; (2) uncertainties in assessing whether population-level effects on marine species may be occurring; (3) the fact that the vast majority of marine mammal behavioral harassments will occur outside the preclusion zones adopted by the Navy; and (4) the Navy's unwillingness to limit, in a meaningful way, its sonar and explosives testing and training in areas of special biological significance for certain marine species (blue, fin, and beaked whales).

The staff is further recommending that the Commission concur subject to conditions that would enable the activities to be found consistent with Section 30230. These conditions would:

(1) establish larger shutdown areas (up to 2 km) (i.e., shut down if a marine mammal or sea turtle is detected within 2 km of the mid-frequency sonar source);

(2) prohibit use of mid-frequency sonar and in-water explosives in sensitive areas, which would include Marine Protected Areas, the National Marine Sanctuary, seasonal (June thru October) blue whale areas shown on DEIS Figure K.1.2 (and **Exhibit 6**), year-round beaked and fin whale areas shown on **Exhibit 5**, nearshore areas, and any biologically sensitive area NMFS may designate at a future date;

(3) reduce sound intensity under low-visibility conditions;

(4) limit typical vessel speeds in sensitive areas to 10 knots (unless higher speeds are critical to meet training needs); and

(5) improve observer effectiveness through the use of NMFS-certified marine mammal observers.

The staff is recommending that the Commission find the project as proposed to be consistent with the commercial and recreational fishing, and public access and recreation policies of the Coastal Act.

The staff therefore recommends that the Commission **conditionally concur** with the Navy's consistency determination. The motion and resolution are on **Page 5** of this report. The standard of review for this Commission review of federal consistency determinations is whether the project described in the consistency determination is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program (i.e., with Chapter 3 of the Coastal Act). If the Navy does not agree with the conditions, then the conditional concurrence will be treated as an objection.

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## I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The Department of the Navy has determined the project consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

## II. MOTION AND RESOLUTION

### Motion:

*I move that the Commission **conditionally concur** with consistency determination CD-0001-18 by concluding that that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the Navy agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR §930.4.*

Staff recommends a **YES** vote on the motion. Passage of this motion will result in a concurrence with the determination of consistency, provided the project is modified in accordance with the recommended conditions, and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

### Resolution:

*The Commission hereby **conditionally concurs** with consistency determination CD-0001-18 by the Navy on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the Navy agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR §930.4.*

## III. CONDITIONS

**1. Safety Zones.** The Navy will cease sonar transmissions whenever a marine mammal or sea turtle is detected within a 2 km radius of the sonar dome, unless the sonar is being used at a critical point in the exercise such that the commanding officer determines certification or training effectiveness would be at risk.

**2. Biologically Significant Areas.** The Navy will avoid exposing the following areas to high intensity active sonar and in-water explosives. Avoidance will include a 4 km area around each of the following areas, for the MF1 Class Sonar (and for less intense sonars, a corresponding distance that would be the equivalent to the exposure level an MF1 Class would generate). For in-water explosives, avoidance means prohibiting all in-water explosives for (a) and (b) below, and prohibit explosives categories Bins E-6 thru E-13<sup>1</sup> for (c) thru (f) below:

(a) the Channel Island National Marine Sanctuary (including around Santa Barbara Island);

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<sup>1</sup> See Exhibit 13, last page, for descriptions of explosives bins.

(b) State and federal Marine Protected Areas (the offshore areas shown in red, light blue, and green in **Exhibit 5**);

(c) San Nicolas Basin fin whale and beaked whale high concentration area (the area shown in yellow in **Exhibit 5**);

(d) 1 km from shore (to protect coastal bottlenose dolphins);

(e) seasonally (June 1 – Oct. 31), all four blue whale areas sites designated as Biologically Important Areas (BIAs) (the areas shown in dark blue on **Exhibit 5**), and

(f) any future-NMFS-designated Biologically Important Area (BIA).

**3. Night and low visibility conditions.** Whenever the entire safety zone cannot be effectively monitored (e.g., due to nighttime, high sea state conditions (such as greater than Beaufort Stage 4 sea state), fog or other factors), the Navy will either avoid active sonar use, or will operate mid-frequency sonar under reduced power (i.e., a 6 dB<sup>2</sup> reduction). If the latter, the Navy will use additional detection measures to enhance marine mammal observer capabilities, such as infrared (IR) or enhanced passive acoustic detection.

**4. Vessel Speeds.** Except where higher speeds are critical to military training needs, in the areas listed in Condition 2 (and during the time periods for the ones that are seasonal), vessel speeds shall normally not exceed 10 knots.

**5. Marine Mammal Observers.** The Navy will, to the maximum extent feasible, commit to including at least two experienced, NMFS-certified marine mammal observers on all ships during the deployment of active sonar for training or testing purposes. These marine mammal observers will notify appropriate Navy personnel of all marine mammal detections and will assist in the enforcement of marine mammal safety zones.

## **IV. APPLICABLE LEGAL AUTHORITIES**

### **Standard of Review**

The federal Coastal Zone Management Act (“CZMA”), 16 U.S.C. § 1451-1464, requires that federal agency activities affecting coastal resources be “carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.” *Id.* at § 1456(c)(1)(A). The implementing regulations for the CZMA (“federal consistency regulations”), at 15 C.F.R. § 930.32(a)(1), define the phrase “consistent to the maximum extent practicable” to mean:

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<sup>2</sup> Decibel references in this report are underwater decibels (dB), described as decibels referenced to 1 micropascal, and usually shown as: dB re 1 μPa.

*... fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

This standard allows a federal activity that is not fully consistent with California’s Coastal Management Program (“CCMP”) to proceed, if full compliance with the CCMP would be “prohibited by existing law.” In its consistency determination, the Navy did not argue that full consistency is prohibited by existing law or provide any documentation to support a maximum extent practicable argument. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency. Since the Navy has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the enforceable policies of the CCMP, which are the policies of Chapter 3 of the Coastal Act (Cal. Pub. Res. Code §§ 30200-30265.5).

### **Conditional Concurrences**

The federal consistency regulations (15 CFR § 930.4) provide for conditional concurrences, as follows:

*(a) Federal agencies, ... should cooperate with State agencies to develop conditions that, if agreed to during the State agency’s consistency review period and included in a Federal agency’s final decision under Subpart C ... would allow the State agency to concur with the federal action. If instead a State agency issues a conditional concurrence:*

*(1) The State agency shall include in its concurrence letter the conditions which must be satisfied, an explanation of why the conditions are necessary to ensure consistency with specific enforceable policies of the management program, and an identification of the specific enforceable policies. The State agency’s concurrence letter shall also inform the parties that if the requirements of paragraphs (a)(1) through (3) of the section are not met, then all parties shall treat the State agency’s conditional concurrence letter as an objection pursuant to the applicable Subpart . . . ; and*

*(2) The Federal agency (for Subpart C) ... shall modify the applicable plan [or] project proposal, ... pursuant to the State agency’s conditions. The Federal agency ... shall immediately notify the State agency if the State agency’s conditions are not acceptable; and*

*...*

*(b) If the requirements of paragraphs (a)(1) through (3) of this section are not met, then all parties shall treat the State agency’s conditional concurrence as an objection pursuant to the applicable Subpart.*

## **V. FINDINGS AND DECLARATIONS**

### **A. PROJECT LOCATION AND DESCRIPTION**

The Navy’s Proposed Action is to conduct military readiness activities within existing range complexes and operating areas (OPAREAs) located along the coast of Southern California (**Exhibit 1**). Navy OPAREAs include a transit corridor and designated ocean areas near fleet homeports. These military readiness activities include the use of active sonar and explosives at

sea off the coasts of Southern California, and at select Navy pierside and harbor locations. These military readiness activities are generally consistent with those analyzed in the HSTT Final EIS/OEIS completed in December 2013 and are representative of training and testing that the Navy has been conducting in the Southern California portion of the HSTT Study Area for decades.

The Navy states that the purpose of the Proposed Action: "... is to ensure that the Navy meets its mission, which is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. This mission is achieved in part by conducting training and testing within the Southern California portion of the HSTT Study Area in accordance with established Navy military readiness requirements."

Consistent with past submittals, the Navy divides the project components into "Training" and "Testing" Activities. Briefly, the training elements involve anti-air warfare, amphibious warfare, anti-submarine warfare, electronic warfare, mine warfare, and surface warfare activities. The testing activities involve a broad spectrum of activities in support of the fleet, including (but not limited to), basic and applied scientific research and technology development; testing, evaluation, and maintenance of systems (e.g., missiles, radar, and sonar) and platforms (e.g., surface ships, submarines, and aircraft); and acquisition of systems and platforms to support Navy missions and give a technological edge over adversaries. Testing may also involve use of unmanned systems (both surface and underwater), vessel evaluations, and acoustic and oceanographic research.

The project area is the SOCAL Range Complex, Point Mugu Sea Range Overlap, and the Silver Strand Training Complex (SSTC). The SOCAL Range Complex is an offshore area situated between Dana Point and San Diego, extending more than 600 nautical miles (nm, or nmi) southwest into the Pacific Ocean (**Exhibit 1**). The two primary components of the SOCAL Range Complex are the OPAREAs and the special use airspace. These components encompass 120,000 square nautical miles (nmi<sup>2</sup>) of sea space; 113,000 nmi<sup>2</sup> of special use airspace; and over 56 mi.<sup>2</sup> of land area on San Clemente Island and the SSTC (however, land activities are not part of the proposed activities). Most activities would occur in the eastern portion of the range complex, as they would be closer to established range infrastructure and facilities.

Rather than repeat the descriptions of the voluminous activities proposed under the program, this description summarizes the changes in the current submittal (compared to the 2013 submittal from the Navy), and provides a listing of the numbers of hours per year, by activity, that generate potential effects on marine species (see **Exhibit 13**, which includes these figures in Tables 1-12 to 1-15 – Summary of Acoustic and Explosives Sources Analyzed for Training and Testing). A full description of the proposed activities can be found in Chapter 2, Navy's Draft EIS – Description of Proposed Action and Alternatives<sup>3</sup>.

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<sup>3</sup> [https://hstteis.com/portals/hstteis/files/hstteis\\_p3/deis/HSTT\\_DEIS\\_Volume\\_1\\_October\\_2017.pdf](https://hstteis.com/portals/hstteis/files/hstteis_p3/deis/HSTT_DEIS_Volume_1_October_2017.pdf)



In comparing the proposed activities to those of the last 5-Year period reviewed by the Commission (CD-008-13)<sup>4</sup>, the Navy summarizes the changes as including:

- Refined analysis of anti-submarine warfare activities, resulting in reduced levels of active sonar and fewer hours of sources of underwater sound.
- Reduced number of sinking exercises.
- Increases in training for maritime security operations, such as drug interdiction and anti-piracy operations.
- Increases in testing of some new vessels, aircraft, weapons systems, and unmanned vehicles, and decreases in other testing activities.
- Improved acoustic models, updated marine mammal and sea turtle densities, and updated marine species criteria and thresholds.
- Review of procedural mitigations, where appropriate, and consideration of additional geographic and/or temporal mitigations, where applicable.

The paragraphs below summarize more specifically where the Navy's currently proposed activities would differ from those the Commission reviewed in CD-008-13:

1. Types and levels of activities to be conducted.
2. Reduction in hull-mounted mid-frequency active sonar.
3. New proposed mitigation areas.

### **1. Types and Levels of Activities to be Conducted**

The 2013 HSTT Final EIS/OEIS (for the Southern California portion of the HSTT Study Area) and the 2013 Consistency Determination analyzed at-sea training and testing activities (ongoing activities) that are the baseline for this Consistency Determination. A comparison between the level of proposed activities analyzed in this Consistency Determination and ongoing activities is provided in Appendix A of the Navy's consistency determination (contained in **Appendix B** to this staff report, pp. 137-164) (Navy Training and Testing Activities in the Southern California Portion of the HSTT Study Area), Tables A-1 through A-5. As described in those tables, some activities have increased, some have decreased, and some have remained consistent. In addition, some activities have been discontinued or combined with other activities and some new activities are proposed. The following testing activities have been discontinued and have not been analyzed here:

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<sup>4</sup> The Commission's findings on CD-008-13 can be accessed at on the Commission's website at <https://documents.coastal.ca.gov/reports/2013/4/W13a-4-2013.pdf>

- Decoy Testing
- Pierside Integrated Swimmer Defense
- Shipboard Protection Systems Testing
- Acoustic Communications Testing

Some training and testing activities analyzed in this Consistency Determination may appear as new activities. However, most of these activities are new in name only, and in fact are very similar to activities that have been conducted in Southern California for decades. The only changes that introduce new weapons or new stressors are activities that test: (1) high-energy lasers, (2) large unmanned surface vehicles, and (3) marine vessel stopping systems that use biodegradable polymer to affect a vessel's propulsion system.

## **2. Reduction in Hull-Mounted Mid-Frequency Active Sonar**

To simplify a comparison between the proposed level of activity (referred to as "Phase III") and the amount of training analyzed in the previous consistency determination (referred to as "Phase II"), the Navy focused on the type of sonar source that resulted in the greatest number of exposures to marine mammals: hull-mounted mid-frequency active sonar. The differences between use of this system from Phase II to Phase III are best identified in three ways: (1) completion of some unit-level training via synthetic means (i.e. not involving sonar use in the ocean) or through other training exercises, (2) reduction of total sonar hours associated with each Composite Training Unit Exercise, and (3) reduction in the total number of Composite Training Unit Exercises expected over a five-year period.

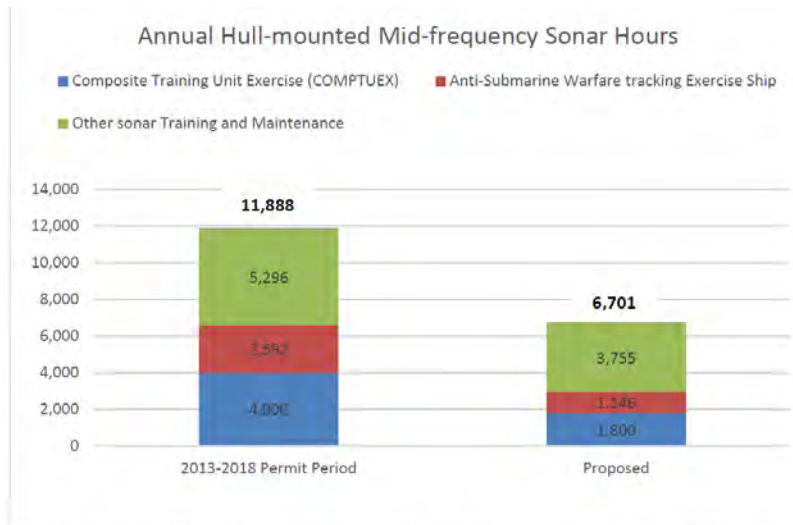
During Phase II, all unit-level training using hull-mounted mid-frequency sonar was assumed to be conducted during discrete training events. However, current practice indicates that up to 50% of unit-level training is completed through synthetic training, as well as concurrent with other training exercises (e.g., unit-level training can be completed simultaneously during an integrated training exercise). The proposed reduced level of activity therefore accounts for this use of synthetic training and concurrent unit-level training within other exercises - although this assumes risk in the event additional live training is necessary.

Composite Training Unit Exercises are major exercises that involve multiple platforms and numerous hours of sonar to meet mission objectives. During Phase II, each Composite Training Unit Exercise was assumed to require 1,000 hours of hull-mounted mid-frequency sonar. Through analysis of data collected during the Phase II permit period, the Navy determined that this assumption overestimated the amount of hull-mounted mid-frequency sonar that was typically used in a Composite Training Unit Exercise by 400 hours. As such, an estimated 600 hours of hull-mounted mid-frequency sonar is included for each Composite Training Unit Exercise.

Comparisons of proposed hull-mounted mid-frequency sonar hours to the hours permitted from 2013– 2018 are depicted in Figure 2-6 and Figure 2-7 (reproduced below).

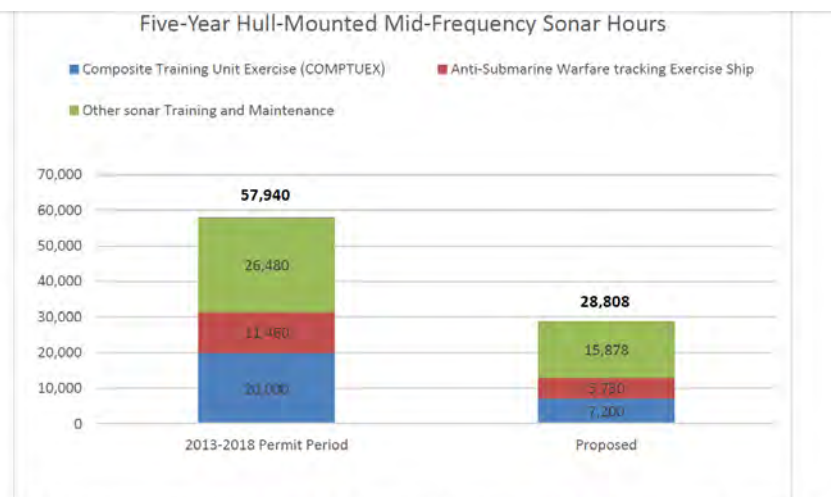
The Fleet Response Plan, in place during Phase II, identified a requirement to conduct four Composite Training Unit Exercises per year in the Pacific Fleet. For Phase III, the number of Composite Training Unit Exercises to be conducted is reduced. The Navy proposes to reduce

(from the 2013 to 2018 permitted level) the number of Composite Training Unit Exercises to be conducted during any five-year period by analyzing representative years (in addition to maximum planned years) of training activity to account for the variability of training cycles and deployment schedules. Over the next five-year period, the analysis considers two years of three Composite Training Unit Exercises (maximum years) and three years of two Composite Unit Training Exercises (representative years) for a total of 12, a 40 percent reduction from the 2013–2018 permit period. A comparison of the number of Composite Training Unit Exercises from the 2013–2018 permitted levels to the proposed level is provided in Figure 2-8.



**Figure 2-6: Proposed Maximum Year of Hull-Mounted Mid-Frequency Sonar Hour Use by Activity During Training Compared to the Number Authorized in the 2013–2018 Marine Mammal Protection Act Permit**

*Note: As represented here, the proposed level of activity assumes three Composite Unit Training Exercises, conducted at a lower level of hull-mounted active sonar used and where 50 percent of requirements are met through synthetic training or other training exercises, and where all annual and non-annual training and testing activities are carried out in any given year of the five-year period.*



**Figure 2-7: Proposed Five-Year Total Hull-Mounted Mid-Frequency Sonar Hour Use by Activity During Training Compared to the Number Authorized in the 2013–2018 Marine Mammal Protection Act Permit**

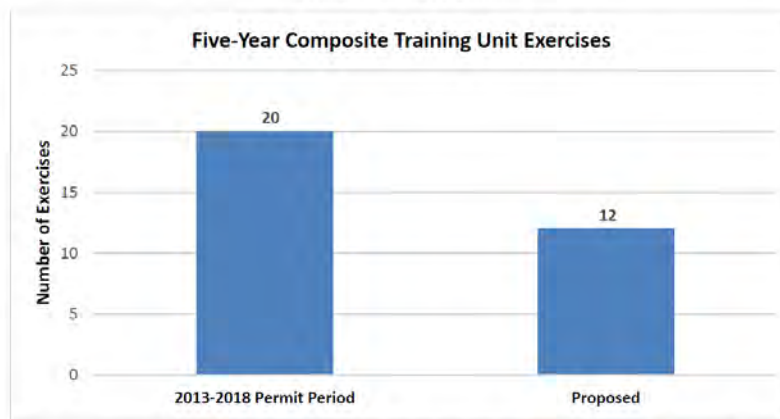


Figure 2-8: Proposed Number of Composite Training Unit Exercises over a Five-Year Period Compared to Number Authorized in the 2013–2018 Marine Mammal Protection Act Permit

### 3. New Proposed Mitigation Areas

In addition to reducing the authorized activities as described above, the Navy has included new mitigation areas compared to those included in the previous review; these include **seafloor avoidance** and minimization measures, and **mitigation areas** for marine mammals. The entire suite of marine resource avoidance, minimization, and monitoring measures is included in Appendix C of the Navy’s consistency determination (**Appendix C** to this report). The Navy’s Environmental Impact Statement (EIS)/Overseas EIS (OEIS)<sup>5</sup> for the proposed activities included an Appendix K (Geographic Mitigation Assessment),<sup>6</sup> which considered additional potential mitigation measures and analyzed their feasibility.

#### Seafloor Resources

The Navy will implement mitigation to avoid impacts on seafloor resources from explosives and physical disturbance and strikes from military expended materials and anchorages in mitigation areas throughout the Southern California portion of the HSTT Study Area. These measures include maintaining a 350 yd. (radius) buffer when using explosives, to avoid damage from vibrations and avoid expendable material being deposited on sensitive seafloor resources. The seafloor mitigation areas are depicted on Consistency Determination Figure 2-9 (**Exhibit 7**). Hard bottom habitats are depicted on **Exhibit 8**.

#### Mitigation Areas

Concerning mitigation areas for marine mammals, the Navy has provided areas of Planning and Cautionary Awareness and Notification, which it notes are “more protective of species than the areas agreed to with the California Coastal Commission in 2016.” In these areas the Navy has committed

<sup>5</sup> See <https://hstteis.com/Documents/2017-Hawaii-Southern-California-Training-and-Testing-Draft-EIS-OEIS/Draft-EIS-OEIS>

<sup>6</sup> [https://hstteis.com/portals/hstteis/files/hstteis\\_p3/deis/HSTT\\_DEIS\\_Volume\\_4\\_October\\_2017.pdf](https://hstteis.com/portals/hstteis/files/hstteis_p3/deis/HSTT_DEIS_Volume_4_October_2017.pdf) (Appendix K begins on page 155 of the Vol. 4 document at this link)

to “implement additional mitigation within these mitigation areas to further avoid or reduce impacts on marine mammals from acoustic and explosive stressors and vessel strikes from the Proposed Action.” These areas are:

- The San Diego Arc
- A 3 nmi area around each island in the Channel Islands NMS; and
- The area within 3 nmi from the mainland between Del Mar northward to the northern boundary of SOCAL (offshore Laguna Beach)

The additional measures to be provided in these areas are discussed on page 27 below, and CD Appendix C (Mitigation ([Appendix C](#) to this staff report) provides a full list of mitigation measures for all activities. The mitigation areas described above are depicted on the map below:

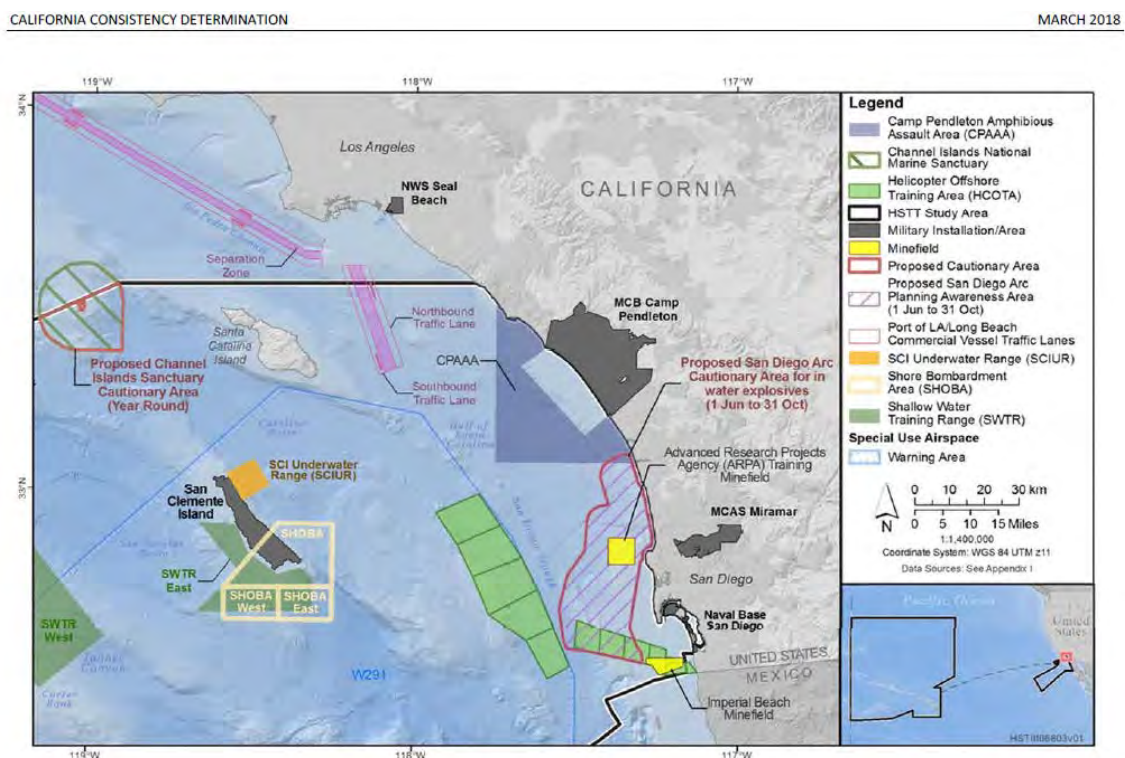


Figure 2-10: Mitigation Areas for Marine Mammals

## B. PREVIOUS COMMISSION ACTIONS

On January 10, 2007, the Commission conditionally concurred with the Navy’s consistency determination for offshore and onshore military training and testing exercises in SOCAL offshore waters for a 2 year period (CD-086-06). The Commission’s conditions focused primarily on the need for additional protection for marine mammals from Navy active sonar use, including increasing the size of the safety zones (including a shutdown zone of at least 2 km) around the sonar source, avoiding sonar use within areas with high concentrations of marine mammals to the maximum extent feasible, and increasing protection (reduced sonar intensity) under low visibility and surface ducting conditions (surface ducting can result in amplification of sound levels or cause sounds to disperse farther than anticipated). That authorization ended in



December 2008. Because the Navy did not agree to comply with most of the Commission's conditions, the Commission's action was treated as an objection under the federal consistency procedures. (See page 5)(15 C.F.R. § 930.4(b).) The Navy informed the Commission it intended to proceed without agreeing to most of the conditions, and in March 2007 the Commission filed a lawsuit in federal court, the outcome of which is described in the following section of this report.

On October 15, 2008, the Commission conditionally concurred with a follow-up Navy consistency determination (CD-049-08) for the next round of Navy SOCAL training and testing exercises, covering the period from January 1, 2009, through December 31, 2013. The Commission adopted conditions similar to those in CD-086-06 (**Exhibit 14**, which contains both sets of Commission conditions). On January 16, 2009, the Navy again indicated its intent to proceed without agreeing to the conditions. By this time the U.S. Supreme Court had published its ruling in the case described below arising from the earlier training and testing, and in this instance the Commission did not file a lawsuit.

On March 8, 2013, the Commission objected to the Navy's consistency determination for the following 5-year period (CD-008-13). The Commission's objection to this consistency determination was based on lack of information:

*...because the Navy's analysis: (1) only looked at population-level effects; (2) arbitrarily limited its analysis to only 10 of the 32 coastal species present in the southern California study area; (3) did not include the type of population-level analysis Pacific Gas and Electric Company had provided in its high energy seismic survey consistency certification (CC-027-12); (4) provided no explanation as to why significant intensification of use of mid-frequency sonar was needed for military training and testing; and (5) failed to analyze and consider alternatives such as implementing "time-area" closures, as well as other mitigation measures previously adopted by the Commission or identified by Commission staff in its report on the present consistency determination.*

The Navy provided additional information to staff following the Commission's objection. Nevertheless, the staff did not agree that the Navy had adequately addressed the concerns raised by the Commission in its objection. On December 17, 2013, the Navy informed the Commission that it intended to proceed despite the objection. In the meantime, litigation brought by other parties challenging the Navy's program proceeded (based on NEPA, MMPA, ESA claims) in Hawaii federal district court. In July 2014, the California Attorney General informed the Navy the Commission intended to pursue its own litigation, and the parties entered into negotiations. On March 31, 2015, while those negotiations were ongoing, the Hawaii district court issued an order granting summary judgment to two of the plaintiffs in that case<sup>7</sup>; however, subsequent to that, the parties entered into a settlement agreement. On May 15, 2016, the Commission and the

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<sup>7</sup> Conservation Council for Hawaii et al. v. NMFS et al. and Natural Resources Defense Council et al. v. NMFS et al.

Navy also agreed to a Settlement Agreement (**Exhibit 11**), under which the Commission agreed not to pursue litigation through the remainder of the 5-Year period (i.e., until late December 2018).

### **Federal Court, CEQ, and Presidential Actions in 2007-2008**

As noted above, litigation arose over the first of the above-described projects, with the Commission challenging the Navy under the CZMA, and environmental groups led by the Natural Resources Defense Council (“NRDC”) challenging the Navy under the Marine Mammal Protection Act (MMPA), the CZMA, the National Environmental Policy Act (NEPA), and the Endangered Species Act (ESA). Over a seven-month period from mid-2007 to early 2008, the Federal District Court and Ninth Circuit Court of Appeals considered more than half-a-dozen orders, mostly related to NRDC’s motion for a preliminary injunction. At the end of that period, the result of these lower court actions was the issuance of a preliminary injunction<sup>8</sup> requiring that the Navy comply with a set of mitigation measures, consisting of: (1) imposing a 12-mile “exclusion zone” from the coastline; (2) using lookouts to conduct additional monitoring for marine mammals; (3) restricting the use of “helicopter-dipping” sonar; (4) limiting the use of mid-frequency active (MFA) sonar in geographic “choke points”; (5) shutting down MFA sonar when a marine mammal is spotted within 2,200 yards of a vessel; and (6) powering down MFA sonar by 6 decibels (dB) during significant surface ducting conditions.

Within days following the district court’s issuance of its revised injunction, the Navy: (1) sought (and received) an exemption from the President under the CZMA<sup>9</sup>; and (2) sought (and received) an emergency authorization from the Council on Environmental Quality (“CEQ”) for “alternative NEPA arrangements”<sup>10</sup>. The Navy moved to vacate the district court’s preliminary injunction in light of these actions, but on February 4, 2008, the district court refused to do so, and the Court of Appeals affirmed, finding, among other things, that the plaintiffs were likely to succeed on the merits of their claims, but focusing solely on the NEPA claims.

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<sup>8</sup> “Modified Preliminary Injunction” issued on January 10, 2008, in the case of *NRDC v. Winter*, N.D. Cal. Case No. 8:07-cv-00335-FMC-FMO.

<sup>9</sup> CZMA §307(c)(1)(B) (16 U. S. C. §1456(c)(1)(B)) provides, in part:

*After any final judgment, decree, or order of any Federal court that is appealable under section 1291 or 1292 of title 28, United States Code, or under any other applicable provision of Federal law, that a specific Federal agency activity is not in compliance with subparagraph (A), and certification by the Secretary that mediation under subsection (h) is not likely to result in such compliance, the President may, upon written request from the Secretary, exempt from compliance those elements of the Federal agency activity that are found by the Federal court to be inconsistent with an approved State program, if the President determines that the activity is in the paramount interest of the United States.*

<sup>10</sup> NEPA (40 CFR §1506.11) provides:

*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.*

In *Winter v. Natural Res. Def. Council, Inc.*, 129 S. Ct. 365 (2008), the U.S. Supreme Court reversed the lower court rulings and vacated the preliminary injunction. The Supreme Court's ruling did not address the merits of the NEPA claims but only addressed the standard for issuance of a preliminary injunction, the application of that standard to the facts of this case, and the appropriate remedy under NEPA. The ruling did not address CZMA grounds.

## **C. OTHER AGENCY APPROVALS AND CONSULTATIONS**

### **National Marine Fisheries Service (NMFS)**

Pursuant to the Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1371(a)(5)), the Navy has submitted a request for two Letters of Authorization (LOA) from NMFS (one LOA for the training and one LOA for the testing) for the incidental taking of marine mammals, under the MMPA (the LOAs would also include species protected under the Endangered Species Act). On October 20, 2017, NMFS published a proposed rule, requesting comments on its proposal to issue regulations and Letters of Authorization to the Navy for the proposed activities (as well as the Hawaii activities, which are not before the Commission). The public comment period closed on November 20, 2017. NMFS has not yet released its proposed rule.

### **U.S. Fish and Wildlife Service (USFWS)**

The Navy is consulting with the U.S. Fish and Wildlife Service under Section 7 of the ESA for three listed seabird species under USFWS' jurisdiction.

### **State of Hawaii**

The Navy has submitted a consistency determination to the Hawaii Coastal Zone Management Program for the portions of the training and testing located off that state.

### **Tribal Consultation**

The Navy sent scoping letters (dated November 12, 2015) to representatives of 18 federally recognized tribes, and two additional tribes on the California Native American Heritage Consultation List. The Tribes contacted were Barona Band of Mission Indians, Campo Kumeyaay Nation (Formerly Campo Band of Mission Indians), Ewiiapaayp Band of Kumeyaay Indians, Iipay Nation of Santa Ysabel, Inaja-Cosmit Band of Mission Indians, Jamul Indian Village, La Jolla Band of Luiseno Mission Indians of the La Jolla Reservation, La Posta Band of Mission Indians, Los Coyotes Band of Cahuilla & Cupeno Indians, Manzanita Band of Mission Indians, Mesa Grande Band of Mission Indians, Pala Band of Luiseno Mission Indians, Pauma Band of Luiseno Mission Indians of the Pauma & Yuima Reservation, Pechanga Band of Luiseno Mission Indians, San Pasqual Band of Diegueno Indians, Soboba Band of Luiseno Indians, Sycuan Band of the Kumeyaay Nation, Viejas Band of Mission Indians, Fernandeano Tataviam Band of Mission Indians, and Gabrielino-Tongva Tribe. The Navy received a letter from one tribe: the Viejas Band of Mission Indians (**Exhibit 12**).



## D. MARINE RESOURCES

Coastal Act Section 30230 states:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

### Overview

The Commission has been consistent for over two decades in expressing concerns over the effects of anthropogenic sounds on the marine environment, particularly on marine mammals. Anthropogenic noise is a recognized, but largely unregulated, form of ocean pollution that can deafen, disturb, injure, and kill marine life. Many species of marine mammals are known to be highly sensitive to sound and rely upon sound to navigate, find food, locate mates, avoid predators, and communicate with one another. A combination of noise sources, including shipping, oil and gas exploration and production, dredging, construction, and military activities, has resulted in dramatic increases in noise levels throughout the oceans. Over the last ten years, a growing body of evidence has shown that some forms of ocean noise can kill, injure, and deafen whales and other marine mammals. In particular, a sequence of marine mammal mass strandings and mortalities has been linked to exposure to mid-frequency sonar. There is also evidence that some affected animals do not strand but die at sea. This has increased public concern about the effects of anthropogenic noise on marine mammals, which has been acknowledged in a variety of domestic and international fora.

Marine mammals have evolved over millions of years and rely on sound for vital life functions and have specialized sensory capabilities to take advantage of the physics of sound in the ocean. Anthropogenic noise in the oceans has increased since the start of the industrial revolution and increases in ambient noise levels, as well as individual sound sources, can cause adverse effects, the extent and type of which are not well understood. Military technology and scientific research using low frequency active acoustics attempting to cover large distances have specifically targeted the ecological sound niches that low frequency specialist whales have evolved to rely on, necessarily competing with those marine mammal species. Peer-reviewed scientific literature indicates that marine mammals are affected by exposure to anthropogenic noise in a variety of ways that can be harmful or even lethal. However, there are significant gaps in information available to understand and manage these effects. This is particularly the case because marine mammals are extremely difficult to study and the marine environment is extraordinarily complex and dynamic. In addition, this is a relatively new field of concern and the amount of research undertaken to date has been limited in scope and duration.

In light of these concerns,<sup>11</sup> during its first two reviews of Navy SOCAL offshore testing and training (CD-049-08 and CD-086-06), the Commission adopted conditions intended to increase protection for marine mammals, seeking, among other things, larger preclusion areas around

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<sup>11</sup> As previously noted by the Commission in CD-008-13, and originally contained in the Commission's December 13, 2005, comments to the Marine Mammal Commission's Advisory Committee on Acoustic Impacts on Marine Mammals.

sonar sources, avoidance of sonar use within biologically sensitive areas, and lowering of maximum sound levels under low-visibility conditions. In its more recent review (CD-008-13), the Commission objected, based on lack of information (see page 13 above,) about a variety of key details, including consideration and analysis of the types of adverse impact avoidance measures identified in the previous sentence. The Commission subsequently settled with the Navy, based on the terms of the settlement agreement attached in **Exhibit 11**. In the agreement the Navy committed to:

1. An agreement on the duration of the agreement (to end Dec. 25, 2018).
2. Identify 3 areas in which hull mounted mid-frequency sonar is “not typically used” during Major Training Events (MTEs) [if they were used, the Navy would notify the Commission (subject to any classification restrictions)]:
  - The San Diego Arc
  - A 3 nmi area around each island in the Channel Islands NMS; and
  - The area within 3 nmi from the mainland between Del Mar northward to the northern boundary of SOCAL (offshore Laguna Beach)
3. Limit explosives >20 lbs. to daytime use, and provide Commission staff with post detonation notifications.
4. Fund research and coordinate annually with the Commission staff over “areas of mutual interest” relating the marine mammals in SOCAL waters.
5. Consider deployment of additional passive acoustic monitoring devices.
6. Provide briefings to Commission staff on related matters
7. Continue participating in and funding CalCOFI oceanographic research.<sup>12</sup>
8. Provide Commission staff with 72 hour courtesy notices of MTE’s in SOCAL.
9. Provide Commission staff with annual exercise and monitoring reports.
10. Provide briefings to Commission staff on Unusual Stranding Events.
11. Consider Commission-recommended reports in ongoing Adaptive Management meetings held with NMFS.
12. Take “appropriate corrective action” if lookout effectiveness study results warrant corrective action.

Notwithstanding the terms of this settlement (which were temporary), the Navy and the Commission have not historically agreed as to the adequacy of the preclusion zones the Navy has proposed around mid-frequency sonar sources, or the scope of activities to be conducted within areas of particular sensitivity (such as areas of seasonal concentrations of marine mammals). In its past and current consistency determinations, the Navy has maintained that its suite of mitigation and monitoring measures are adequate to protect marine mammals (and other marine species). The Navy’s position has been that the lack of documented population-level effects, combined with the mitigation measures it has agreed to implement and the results of its monitoring results (reported annually) - which have not documented significant adverse marine mammal reactions to its activities - support its conclusion that its activities are consistent with Section 30230 of the Coastal Act.

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<sup>12</sup> <http://calcofi.org/about-calcofi.html>

### **Marine Mammal Protection Act (MMPA)**

The Navy has also historically cited its MMPA authorizations issued by NMFS under the MMPA as further evidence of lack of adverse effects on marine resources. The MMPA sets forth the regulatory mechanisms for NMFS' authorizations of "takes" or "harassment" under that law. The Commission notes that the standard NMFS relies on under the MMPA differs from the Coastal Act's marine resource policies. The following excerpts from NMFS' 2013 review of the Navy's activities illustrates the determinations NMFS must make under the MMPA:

- Whether the "taking" will have a negligible impact on the species or stock(s),
- Whether the "taking will have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant),
- Whether the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are set forth.

NMFS defines "negligible impact" in 50 CFR 216.103 as "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

The MMPA was amended in 2004 to modify what constitutes a "take" or "harassment" in the context of "military readiness activities." Under the MMPA, for military readiness activities, the relevant definition of harassment is any act that:

- Injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (also referred to as "Level A harassment"); or
- Disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering to a point where such behavioral patterns are abandoned or significantly altered (also referred to as "Level B harassment") [16 U.S.C. § 1362(18)(B)(i) and (ii)].

### **Navy Consistency Analysis**

The Navy's consistency determination (and supporting DEIS) analyzed a number of marine resources that could be adversely affected by the Proposed Action such as sensitive marine resources and habitats (e.g., eelgrass and kelp), commercial and recreational fish stocks, and protected marine species (i.e., sea turtles, marine mammals, and abalones). For each marine resource analyzed, and with the mitigation, minimization, avoidance, and/or monitoring measures included, "the Navy has determined that there are no long-term consequences for populations of any species of biological or economic significance as a result of the Proposed Action."

### **Marine Mammals and Sea Turtles**

The Navy's consistency determination, lists 30 marine mammal species in the project area, including 7 mysticetes (baleen whales), 18 odontocetes (dolphins and toothed whales), 4 pinnipeds (seals and sea lions), and the southern sea otter. The document further notes the presence of five species of sea turtles (green, hawksbill, loggerhead, olive ridley, and leatherback sea turtles) that may occur off Southern California and are listed as endangered under the Endangered Species Act. (Hawksbill sightings are rare and would most likely occur during an El Niño event, when waters along the California current are unusually warm (NMFS and USFWS 2007).)

The Navy states the stressors that could affect marine mammals and sea turtles include the following:

- Acoustic (sonar and other transducers; air guns; pile driving; vessel noise; aircraft noise; and weapons noise)
- Explosive
- Energy (in-water electromagnetic devices, high-energy lasers)
- Physical disturbance and strikes (vessels and in-water devices; military expended materials; seafloor devices; pile driving)
- Entanglement (wires and cables; decelerators/parachutes; biodegradable polymers)
- Ingestion (military expended materials – munitions; military expended materials other than munitions)
- Secondary (impacts on habitat; impacts on prey availability)

Concerning effects on mysticetes (blue, Bryde's, fin, gray, humpback, minke, and sei whales), which have the best low-frequency hearing, the Navy states (CD, p. 3-71):

#### *Impacts from Sonar and Other Transducers*

##### *Mysticetes*

*A few behavioral reactions in mysticetes resulting from exposure to sonar could take place at distances of up to 20 km. Behavioral reactions, however, are much more likely within a few kilometers of the sound source. The quantitative analysis very likely overestimated the numbers of behavioral reactions due to the underlying nature of the data used to derive the behavioral response functions. Research shows that if mysticetes do respond they may react in a number of ways, depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Behavioral reactions may include alerting, breaking off feeding dives and surfacing, or diving or swimming away. Overall, mysticetes have been observed to be more reactive to acoustic disturbance when a noise source is located directly on their migration route. Mysticetes disturbed while migrating could pause their migration or route around the disturbance. Animals disturbed while engaged in other activities such as feeding or reproductive behaviors may be more likely to ignore or tolerate the disturbance and continue their natural behavior patterns.*

The Navy maintains that:

(1) most behavioral reactions from mysticetes “...are likely to be short-term and low to moderate severity;”

(2) “Behavioral research indicates that mysticetes most likely avoid sound sources at levels that would cause any hearing loss (i.e., TTS [Temporary Threshold Shift]);”

(3) “it is likely that the quantitative analysis overestimates PTS [Permanent Threshold Shift] and TTS in marine mammals because it does not account for animals avoiding sound sources at closer ranges;”

(4) “A single or even a few minor TTS (less than 20 dB of TTS) to an individual mysticete per year are unlikely to have any long-term consequences for that individual;”

(5) most anti-submarine warfare activities are “geographically dispersed and last for only a few hours, often with intermittent sonar use even within this period;” and

(6) while some degree of “masking” (Navy sound interfering with an animal’s ability to perceive other sounds) may occur, “A single or even a few short periods of masking, if it were to occur, to an individual mysticete per year are unlikely to have any long-term consequences for that individual.”

The Navy’s analysis of effects on odontocetes (sperm whales, beaked whales, and dolphins), acknowledges the current understanding that beaked whales have been shown to be particularly sensitive to military sonar worldwide.<sup>13</sup> The DEIS Technical Report (“Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III), June 2017) similarly acknowledges the particular sensitivity of beaked whales:

*Beaked Whales (family Ziphiidae) are a generally cryptic group, difficult to observe at the surface and tending to avoid vessels and underwater noise (Barlow & Gisiner, 2006). Beaked whales are deep divers, diving to depths of over 1-2 km to forage on squid and mesopelagic fish (Reeves et al., 2002; Schorr et al., 2014). Due to several mass stranding events of beaked whales in proximity to Navy training events (D’Amico et al., 2009), this group has been deemed highly sensitive to sonar and other active acoustics and they are considered separately from the other odontocetes. [p. 62]*

The Navy states:

*A few behavioral reactions in odontocetes (except beaked whales) resulting from exposure to sonar could take place at distances of up to 20 km. Beaked whales have demonstrated a high level of sensitivity to human made noise and activity; therefore, the*

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<sup>13</sup> See Marine Mammal Strandings Associated with U.S. Navy Sonar Activities (June 2017) at: <https://hstteis.com/Documents/2017-Hawaii-Southern-California-Training-and-Testing-Draft-EIS-OEIS/Supporting-Technical-Documents>

*quantitative analysis assumes that some beaked whales could experience significant behavioral reactions at distance of up to 40 km and 50 km from the sound source, respectively. Behavioral reactions, however, are much more likely within a few kilometers of the sound source for most species of odontocetes such as delphinids and sperm whales. On the other hand, beaked whales have generally demonstrated a high level of sensitivity to human made sound and disturbance. Even for beaked whales, the quantitative analysis very likely overestimated the numbers of behavioral reactions due to the underlying nature of the data used to derive the behavioral response functions.*

The Navy's conclusions for odontocetes (as well as those for pinnipeds) are similar to those described above for mysticetes, which is that the effect would be temporary and relatively minor. Specifically concerning beaked whales, the Navy states:

*Some odontocetes may avoid larger activities such as a major training exercise as it moves through an area, although these activities typically do not use the same training locations day-after-day during multi-day activities. Sensitive species of odontocetes, such as beaked whales, may avoid the area for the duration of the event. Displaced animals would likely return after the sonar activity subsides within an area, as seen in Blainville's beaked whales in the Bahamas (Tyack et al., 2011) and Hawaii (Henderson et al., 2015; Henderson et al., 2016; Manzano-Roth et al., 2016). This would allow the animal to recover from any energy expenditure or missed resources, reducing the likelihood of long-term consequences for the individual. It is unlikely that most animals would encounter a major training exercise more than once per year. Outside of Navy instrumented ranges and homeports, the use of sonar and other transducers is transient and is unlikely to expose the same population of animals repeatedly over a short period. However, a few behavioral reactions per year from a single individual are unlikely to produce long-term consequences for that individual.*

### **Acoustic Modeling/Estimates of Harassments and Mortalities**

DEIS Pages 3.7-166 et seq. (DEIS Section 3.7.3.1.2) summarize the Navy's approach to estimating impacts on marine mammals from sonar and other active acoustic transducers.<sup>14</sup> Similar to distinctions made during the Commission's past review, the Navy divides impacts into MMPA Criteria for thresholds, which includes mortality, "Level A" harassments, and "Level B" harassments. The Navy also divides marine mammals into four overall groups for purposes of its analysis - odontocetes, mysticetes, beaked whales, and pinnipeds, with differing behavioral response functions for each group, as shown in the graphs below:

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<sup>14</sup> The Navy's acoustic model is described in detail in DEIS Technical Report "Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III), June 2017), which can be found at <https://hstteis.com/Documents/2017-Hawaii-Southern-California-Training-and-Testing-Draft-EIS-OEIS/Supporting-Technical-Documents>.

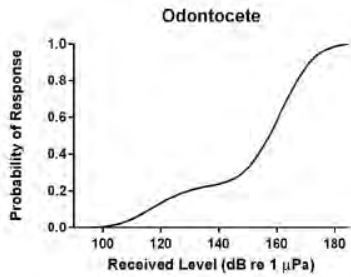


Figure 3.7-7: Behavioral Response Function for Odontocetes.

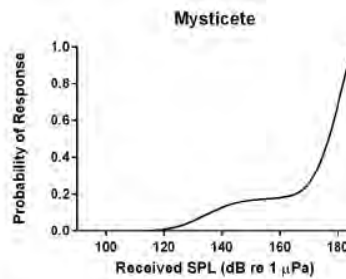


Figure 3.7-9: Behavioral Response Function for Mysticetes.

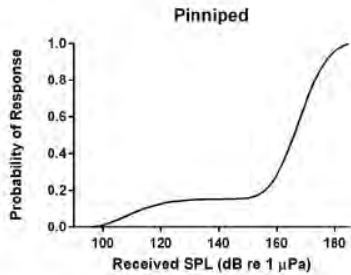
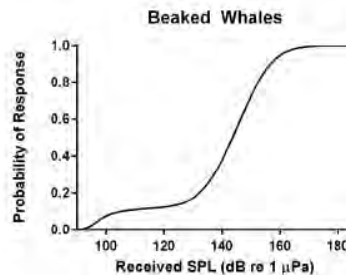


Figure 3.7-8: Behavioral Response Function for Pinnipeds.



The Navy's analysis then differentiates significant from non-significant behavioral responses (DEIS pp. 3.7-172-3.7-174), estimates species affected based on its models of marine mammal spatial density, attempts to account for mitigation (discussed in the following section of this report) by assuming its shut-off criteria will generally reduce "PTS" impacts to "TTS" impacts, and estimates ranges to PTS and TTS impacts from various representative sonar systems (see DEIS Table 3.7-11 on page 41 below for ranges to the most intense mid-frequency sonar (Sonar Bin MF-1)).

Using these data, the Navy has provided several charts, in both its MMPA application to NMFS and in Appendix E of its DEIS ([Exhibit 10](#)), quantifying marine mammals being "harassed" (predominantly due to behavioral, or Level B, harassment). The Navy maintains that its estimates of Level B harassment are "overestimated"; DEIS Page 3.7-189 states:

*Although the statutory definition of Level B harassment for military readiness activities under the MMPA requires that the natural behavior patterns of a marine mammal be significantly altered or abandoned, the current state of science for determining those thresholds is somewhat unsettled. Therefore, in its analysis of impacts associated with acoustic sources, the Navy is adopting a conservative approach that overestimates the number of takes by Level B harassment. ...*

This paragraph concludes with the following statement:

*It is likely that many of the estimated behavioral reactions within the Navy's quantitative analysis would not constitute significant behavioral reactions; however, the numbers of significant versus non-significant behavioral reactions are currently impossible to predict. Consequently, there is a high likelihood that significant numbers of marine mammals exposed to acoustic sources are not significantly altering or abandoning their*



*natural behavior patterns. As such, the overall impact of acoustic sources from military readiness activities on marine mammal species and stocks is negligible, i.e., cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stocks through effects on annual rates of recruitment or survival.*

The Navy’s application (LOA Application) to NMFS (Tables 5-2 and 5-3) (**Exhibit 9**), as well as Appendix E of the DEIS (Tables E-1 through E-14) (**Exhibit 10**), contain a number of charts estimating marine mammal and sea turtle impacts both annually, and over the entire 5-Year. All but the first table shown below (Table 5-1), in both the LOA and Appendix E, separate out California versus Hawaii population stocks affected. The LOA charts divide impacts into Level B and Level A harassment. The Appendix E charts (**Exhibit 10**) divide impacts into Behavioral Responses, TTS, and PTS.

The overall combined Southern California PLUS Hawaii activity authorization request is contained in LOA Application Table 5-1, which lists total numbers of potential mortalities, Level A takes, and Level B takes, for both Hawaii and SOCAL activities, as follows:

In summary, over the 5-year LOA period being requested, the Navy’s quantitative analysis for acoustic and explosive sources in HSTT estimates 10 total mortalities to specific species (see Section 5.1.1 and 5.1.2 for details), 3,335 Level A exposures, and 12,692,365 Level B exposures.

**Table 5-1: Summary of Annual and 5-Year Take Request from Acoustic and Explosive Sources for HSTT Training and Testing Activities**

MMPA Category	Source	Annual Authorization Sought		5-Year Authorization Sought	
		Training Activities <sup>1</sup>	Testing Activities <sup>2</sup>	Training Activities	Testing Activities
Mortality	Explosive	2 Species-specific mortalities discussed in 5.1.1	1 Species-specific mortalities discussed in 5.1.2	7 Species-specific mortalities discussed in 5.1.1	3 Species-specific mortalities discussed in 5.1.2
Level A	Acoustic & Explosive	478 Species-specific shown in Table 5-2	234 Species-specific shown in Table 5-3	2,231 Species-specific shown in Table 5-2	1,095 Species-specific shown in Table 5-3
Level B	Acoustic & Explosive	1,707,014 Species-specific shown in Table 5-2	1,061,143 Species-specific shown in Table 5-3	7,619,879 Species-specific shown in Table 5-2	5,072,486 Species-specific shown in Table 5-3

<sup>1</sup> Take estimates for acoustic and explosive sources for training activities are based on the maximum number of activities in a 12-month period.

<sup>2</sup> Take estimates for acoustic and explosive sources for testing activities are based on the maximum number of activities in a 12-month period.

Since it includes Hawaii activities, the above table includes activities the Commission is not reviewing. However, it is provided here to provide cumulative context for the proposed activity. For the Commission’s purposes, the more relevant data are in Tables 5-2 and 5-3, which separate California from Hawaii activity estimates. When the Level A and Level B takes listed in the LOA Tables 5-2 (Training) and 5-3 (Testing) are combined (i.e., adding Training and Testing activities together, and reducing the totals to exclude the Hawaii stocks), the Commission estimates that the Navy’s LOA to NOAA requests authorization for the following MMPA



“takes” (Level A and Level B) of marine mammals in California waters over the entire 5 year period, based on the Navy’s modeling estimates (note: average annual estimates would be 1/5 of each number below):

<u>Species</u>	<u>Level B</u>	<u>Level A</u>
Blue Whales	9,041	3
Fin Whales	10,141	3
Humpback Whales	5,042	3
Minke Whales	4,229	4
Sei Whales	360	0
Gray Whales	21,137	26
Sperm Whales (Physeteridae family)	11,516	0
Sperm Whales (Kogiidae family)	42,009	172
Baird’s Beaked Whales	9,462	0
Cuvier’s Beaked Whales <sup>15</sup>	0	0
Mesoplodon spp (beaked whale guild) <sup>14</sup>	81,701	0
Bottlenose dolphins (CA coastal)	8,844	0
Bottlenose dolphins (CA/OR/WA offshore)	255,376	13
Killer whale (Eastern N. Pacific)	492	0
Killer whale (Eastern N Pacific Transient/West Coast Transient)	915	0
Long-beaked common dolphin	1,127,560	93
Northern right whale dolphin	451,985	55
Pacific white-sided dolphin	345,882	27
Risso’s dolphin	579,206	45
Short-beaked common dolphin	6,834,714	444
Short-finned pilot whale	8,932	5
Striped dolphin	813,909	13
Dall’s porpoise	282,847	972
CA sea lion	565,006	478
Guadalupe fur seal (Mexico stock CA/HI study area)	6,743	0
Northern fur seal	70,185	4
Harbor seal	24,894	39
Northern Elephant seal	278,269	480
<b>TOTAL (5 Year Total)</b>	<b>11,850,397</b>	<b>2,879</b>

<sup>15</sup> The Navy has clarified that the 2 figures for beaked whales are being revised, and that annual MPA “takes” of Cuvier’s beaked whales would be 11,426, and of Mesoplodon would be 6,152. Over 5 years, the Navy’s revised estimate is 53,104 (Cuvier’s) and 28,591 (Mesoplodon) beaked whales subject to Level B harassment (no Level A).

### Navy Mitigation Measures

The complete suite of mitigation measures the Navy will implement is contained in Appendix C of its consistency determination (**Appendix C** to this staff report). DEIS Table 5.6-1 provides a chart listing the measures, by stressor or activity, including the radius around the activity that will be monitored and avoided (or modified). The most pertinent parts<sup>16</sup> of this chart are reproduced below:

**Table 5.6-1: Summary of Procedural Mitigation to be Implemented**

<i>Stressor or Activity</i>	<i>Summary of Mitigation Requirements</i>	<i>Resource Protection Focus</i>
Environmental Awareness and Education	Afloat Environmental Compliance Training program for applicable personnel	Marine mammals, sea turtles
Active Sonar	Depending on sonar source: 1,000 yd. power down, 500 yd. power down, and 200 yd. shut down; or 200 yd. shut down	Marine mammals, sea turtles
Air Guns	150 yd.	Marine mammals, sea turtles
Pile Driving	100 yd.	Marine mammals, sea turtles
Weapons Firing Noise	30° on either side of the firing line out to 70 yd.	Marine mammals, sea turtles
Explosive Sonobuoys	600 yd.	Marine mammals, sea turtles
Explosive Torpedoes	2,100 yd.	Marine mammals, sea turtles
Explosive Medium-Caliber and Large-Caliber Projectiles	1,000 yd. (large-caliber projectiles), 600 yd. (medium-caliber projectiles during surface-to-surface activities), or 200 yd. (medium-caliber projectiles during air-to-surface activities)	Marine mammals, sea turtles
Explosive Missiles and Rockets	900 yd. (0.6–20 lb. net explosive weight), or 2,000 yd. (21–500 lb. net explosive weight)	Marine mammals, sea turtles
Explosive Bombs	2,500 yd.	Marine mammals, sea turtles
Sinking Exercises	2.5 NM	Marine mammals, sea turtles
Explosive Mine Countermeasure and Neutralization Activities	600 yd. (0.1–5 lb. net explosive weight), or 2,100 yd. (6–650 lb. net explosive weight)	Marine mammals, sea turtles, birds
Explosive Mine Neutralization Activities Involving Navy Divers	500 yd. (0.1–20 lb. net explosive weight for positive control charges), or 1,000 yd. (21–60 lb. net explosive weight for positive control charges and all charges using time-delay fuses)	Marine mammals, sea turtles, birds, fish (hammerhead sharks)

<sup>16</sup> For example, measures to protect coral reefs off Hawaii are not included here.

Underwater Demolition Multiple Charge – Mat Weave and Obstacle Loading	700 yd.	Marine mammals, sea turtles
Maritime Security Operations – Anti-Swimmer Grenades	200 yd.	Marine mammals, sea turtles
Vessel Movement	500 yd. (whales), or 200 yd. (other marine mammals)	Marine mammals
Towed In-Water Devices	250 yd.	Marine mammals
Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions	200 yd.	Marine mammals, sea turtles
Non-Explosive Missiles and Rockets	900 yd.	Marine mammals, sea turtles
Non-Explosive Bombs and Mine Shapes	1,000 yd.	Marine mammals, sea turtles

<b>Mitigation Areas for Seafloor Resources</b>	
Live hard bottom, Artificial reefs, Shipwrecks	<ul style="list-style-type: none"> <li>• The Navy will not conduct precision anchoring (except in designated anchorages).</li> <li>• The Navy will not conduct explosive mine countermeasure and neutralization activities, or mine neutralization activities involving Navy divers.</li> </ul>
<b>Mitigation Areas for Marine Mammals</b>	
San Diego Arc Planning Awareness Area (June 1 – October 31)	<ul style="list-style-type: none"> <li>• The Navy will not conduct more than a combined total of three Major Training Exercises – Large Integrated Anti-Submarine Warfare activities or Major Training Exercises – Medium Integrated Anti-Submarine Warfare activities per applicable season using surface ship hull-mounted mid-frequency active sonar.</li> <li>• If additional activities are required for national security, the Navy will provide NMFS with advance notification and include the information in associated reports.</li> </ul>
San Diego Arc Cautionary Area (June 1 – October 31)	<ul style="list-style-type: none"> <li>• The Navy will not use in-water explosives during large-caliber gunnery, torpedo, bombing, and missile (including 2.75” rockets) activities during unit-level training, major training exercises, or testing events.</li> <li>• If required for national security, naval units will obtain permission from a Command-delegated authority prior to commencement of the activity. The Navy will provide NMFS with advance notification and include the information in associated reports.</li> </ul>
Channel Islands National Marine Sanctuary Cautionary Area	<ul style="list-style-type: none"> <li>• The Navy will not use surface ship hull-mounted mid-frequency active sonar and in-water explosives used in small-, medium-, and large-caliber gunnery; torpedo; bombing; and missile (including 2.75” rockets) activities during unit-level training, major training exercises, or testing events.</li> <li>• If required for national security, naval units will obtain permission from a Command-delegated authority prior to commencement of the activity. The Navy will provide NMFS with advance notification and include the information in associated reports.</li> </ul>

Overall, the measures include: (1) using trained Navy monitors to observe and implement the protection measures; (2) limiting most weapons firing to daytime hours; (3) conducting weapons firing that involve the deployment or retrieval of targets typically during daylight hours in low sea states; (4) recovering targets “and any associated decelerators/parachutes to the maximum extent practicable consistent with personnel and equipment safety”; (5) avoiding collisions during the use of towed in-water devices (6) searching the intended path of the device for any floating debris, objects, or animals (e.g., driftwood, concentrations of floating vegetation, marine mammals) that have the potential to obstruct or damage the device; (7) commencing pile driving using “soft starts”; (8) ceasing or reducing activity as specified in the above charts when marine mammals/sea turtles are present; and (9) observing and implementing the following

“Awareness” and “Cautionary” areas and measures as described above (the areas are depicted on **Exhibit 4** and shown on page 13 above):

- San Diego Arc Planning Awareness Area
- San Diego Arc Cautionary Area
- Channel Islands National Marine Sanctuary Cautionary Area

The Navy will also provide seasonal Awareness Notifications for blue, gray, and fin whales, as follows:

- Blue Whale Awareness Notification Message Area – out to 20 nmi offshore, from June thru October
- Gray Whale Awareness Notification Message Area – out to 10 nmi offshore, from November thru March
- Fin Whale Awareness Notification Message Area – out to 20 nmi offshore, from November thru May

The “Planning Awareness” area would be used by the Navy for a more limited set of activities involving mid-frequency active sonar, unless NMFS is provided with advanced notification. Specifically, the Navy describes the San Diego Arc Planning Awareness Area as follows:

*A San Diego Arc Planning Awareness Area (Figure K.2-3) would be established where the Navy would not conduct more than a combined total of three (3) large or medium integrated anti-submarine warfare major training exercises (e.g., Composite Training Unit Exercise or Fleet Exercise/Sustainment Exercise) using surface ship hull-mounted mid-frequency active sonar per season from June 1 through October 31.*

*If a naval unit needs to conduct additional anti-submarine warfare major training exercises with surface ship hull-mounted mid-frequency active sonar in this area for national security, the Navy would provide NMFS with advance notification and include the activity exceedance information (e.g., total sonar usage) in the annual training and testing reports.*

*This measure is designed to provide additional protection for Endangered Species Act-listed blue whales which have been documented foraging in this area seasonally.*

Within the two proposed “Cautionary” areas, the Navy will limit or avoid the use of in-water explosives and/or mid-frequency active sonar – unless permission is granted by the Naval Command authority and prior notice is provided to NMFS. Specifically, the Navy describes their activities in these two areas as follows:

*A San Diego Arc Cautionary Area (Figure K.2-5) would be established from June 1 to October 31 where the Navy would not use in-water explosives during gunnery (large-caliber), torpedo, bombing, and missile exercises (including 2.75 inch rockets) during testing, unit-level training, and major training exercises.*

*If a naval unit needs to conduct gunnery (large-caliber), torpedo, bombing, or missile exercises (including 2.75 inch rockets) using in-water explosives in this area for national security during testing, unit-level training, and major training exercises, permission shall be required from the appropriate delegated Command authority prior to their use in the Cautionary Area. The Navy would provide NMFS with advance notification and include the activity information (e.g., explosive usage) in the annual training and testing reports.*

*This measure is designed to provide additional protection for Endangered Species Act-listed blue whales which have been documented foraging in this area seasonally.*

...

*A Channel Island Sanctuary Cautionary Area (Figure K.2-6) surrounding Santa Barbara Island out to 6 NM (the only Sanctuary area within the Southern California portion of the HSTT Study Area) would be established where the Navy would not use any surface ship hull-mounted mid-frequency active sonar or in-water explosives used in gunnery (all calibers), torpedo, bombing, and missile exercises (including 2.75 inch rockets) during testing, unit-level training, and major training exercises year round.*

*If a naval unit needs to use surface ship hull-mounted mid-frequency active sonar and in-water explosives in gunnery (all calibers), torpedo, bombing, or missile exercises (including 2.75 inch rockets) during unit-level and major training exercises in this area for national security, permission shall be required from the appropriate delegated Command authority prior to their use in the Cautionary Area. The Navy would provide NMFS with advance notification and include the activity information (e.g., sonar and explosive usage) in the annual training and testing reports.*

*This measure is designed to provide additional protection for all protected marine species in the portion of the Channel Island National Marine Sanctuary that falls within the boundary of the Southern California portion of the HSTT Study Area.*

Conversely, the Navy is not proposing to limit its activities within “Notification” areas, but will be more vigilant and aware of the possible presence of large whales:

*While not specifically mitigation, the Navy will issue awareness notification messages seasonally to alert ships and aircraft to the possible presence of concentrations of large whales in portions of the Study Area. In order to maintain safety of navigation and to avoid interactions with large whales during transit, vessels will be instructed to remain vigilant to the presence of certain large whale species, that when concentrated seasonally, may become vulnerable to vessel strikes. Lookouts will use the information from the awareness notification messages to assist their visual observations of mitigation zones and to aid in implementing procedural mitigation. The Navy anticipates that providing Lookouts additional information about the possible presence of concentrations*

*of large whales in certain locations seasonally will likely help the Navy further avoid interactions with these animals during vessel transits, when training and testing activities are conducted in these areas.*

### **Outgrowth of Settlement Agreement**

These additional “Awareness,” “Cautionary,” and “Notification” measures for the bulleted list above can be considered an extension of the agreements the Navy made during the settlement agreement with the Commission referenced earlier. Part of the settlement agreement involved identification of three areas of SOCAL within which hull mounted mid-frequency sonar during Major Training Exercises (MTE) “is not typically used”:

- The San Diego Arc
- A 3 nmi area around each island in the Channel Islands NMS; and
- The area within 3 nmi from the mainland between Del Mar northward to the northern boundary of SOCAL (offshore Laguna Beach)

Under the terms of the settlement agreement, the Navy agreed to notify the Commission in the event it were to use hull mounted mid-frequency sonar during an Major Training Event within these areas, at least until the Navy’s current authorizations under the Marine Mammal Protection Act and Endangered Species Act expire on December 25, 2018 (or superseding environmental compliance documents are issued).

### **Additional Navy Considerations for Biologically Important Areas**

As noted earlier, as part of the current DEIS the Navy considered these and other areas as potential candidates for “Biologically Important Areas” that may warrant additional protection. Working with the National Oceanic and Atmospheric Administration’s Cetacean Density and Distribution Mapping Working Group, the Navy identified, mapped and considered areas that could have particular biological importance. This was also done as part of a larger scientific effort to synthesize existing information and understanding about whale and dolphin biology and spatial use patterns (as discussed in Ferguson et al. (2015)). DEIS Appendix K, Geographic Mitigation Assessment, analyzes these areas. Areas were deemed “biologically important” if they met one or more of the following criteria:

- 1. Reproductive Areas – Areas and times within which a particular species selectively mates, give birth, or are found with neonates or calves.*
- 2. Feeding Areas – Areas and times within which aggregations of a particular species preferentially feed. These either may be persistent in space and time or associated with ephemeral features that are less predictable but are located within a larger area that can be delineated.*
- 3. Migratory Corridors – Areas and times within which a substantial portion of a species is known to migrate; the corridor is spatially restricted.*

*4. Small and Resident Population – Areas and times within which small and resident populations occupy a limited geographic extent. (Note: for this category, the Cetacean Density and Distribution Mapping Working Group delineated biologically important areas for “populations or stocks whose range spans only a bay, an area around one or several islands, or a portion of what the Cetacean Density and Distribution Mapping Working Group define as a region. ...)*

Based on scoping comments received during the EIS process the Navy considered adding several areas, in addition to those identified above by the Commission, to qualify: beaked whale habitats in the San Nicolas and Catalina Basins, the area west of the Tanner-Cortez Bank, an area for Perrin’s beaked whales in the northern Catalina and San Clemente Basins, and, seasonally when fin whales are most likely to be present - November through February, SOCAL waters between 200m and 1000m isobaths.

Although it identified several Biologically Important Areas designated them as “Awareness” and “Cautionary” areas, the Navy nevertheless cautions in Appendix K (p. 2) that these:

*Biologically important areas as defined in Ferguson et al. (2015b) are not exclusionary zones (closure areas) and are not analogous to marine protected areas or critical habitat under the ESA, but rather were identified as resource management tools to “aid the National Oceanic and Atmospheric Administration and other federal agencies in ... analyses and planning as required under multiple U.S. statutes,” such as the National Environmental Policy Act (NEPA), MMPA and ESA, “to characterize and minimize the impacts of anthropogenic activities on cetaceans and to achieve conservation and protection goals” (Ferguson et al., 2015b). [Emphasis added by CCC staff]*

The Navy amplifies this statement by indicating that “The agreement did not constitute a concession by any party as to the potential impacts of Navy activities on marine mammals, or any other marine species.” Furthermore, the Navy states its agreement “as part of a relatively short-term settlement” is not meant to be interpreted that the Navy concedes “that those restrictions are necessarily supported by the best available science or practicable to implement for the Navy’s military readiness activities in the HSTT study area over a longer term.”

Concerning this last point, the Navy states:

*In summary, further restrictions on the level, number, or timing (seasonal or time of day) of training or testing activities could significantly impact a unit’s ability to meet their individual training and certification requirements; the Navy’s ability to certify strike groups for deployment in support of national security tasking; the Navy’s ability to meet testing program requirements and required acquisition milestones; operational costs due to increased fuel, maintenance, and time required to complete activities. Constraints on training and testing have the potential to increase safety risks by extending activity locations further distances offshore and accelerating the fatigue-life of aircraft and other equipment, and can reduce training and testing realism by limiting access to necessary environmental or oceanographic conditions for proper testing and training in tactics, technics and procedures in the shallow water environment.*

*The Navy's responsibility to the American people dictates an efficient use of fiscal resources and an approach that adapts to the evolving security environment, with the ability to make adjustments according to global events, be it humanitarian assistance or disaster relief to deterring war or defeating an adversary. The training and testing under the Proposed Action allows for just that and is balanced with the Navy's commitment to environmental stewardship.*

The Navy is correct that the Biologically Important Areas designation does not, by itself, carry with it special protections or establish new regulations or restrictions. The designation was created to synthesize decades of scientific research, monitoring and marine mammal surveys and to serve as a tool for resource management agencies responsible for integrating the best available scientific understanding into decision making. Each Biologically Important Area (BIA) was established as a result of a four year long process involving scores of scientific experts and decades of research results and data on marine mammal biology, behavior, and spatial use trends. The BIA sites represent spatially explicit migratory corridors, feeding grounds, breeding aggregations, and critical habitats for small resident populations of marine mammals. The only sites that received the designation are those for which an overwhelming amount of data and scientific consensus is available. As noted in the report describing the BIA designation process and intent of the designation (Calambokidis et al, 2015):

*The goal of identifying BIAs is to synthesize existing biological information in a transparent format that is easily accessible to scientists, managers, policymakers, and the public for use during the planning and design phase of anthropogenic activities for which U.S. statutes require the characterization and minimization of impacts on marine mammals.*

As such, the BIAs identified off the coast of California represent areas of special biological significance under Section 30230 of the Coastal Act and are therefore required to be provided with special protection.

### **Beaked Whale Habitats Considered for Biologically Important Areas**

Concerning beaked whale habitat areas analyzed in Appendix K (pp. K-236 – K-257), the Navy concludes that despite over a decade focused on studying Navy impacts on beaked whales in the Southern California Range Complex, “beaked whales reacting to and leaving the vicinity of a Navy training or testing activity would seem to be within the variation of their otherwise normal movements as documented by tagging data.” The Navy believes these research results “do not support the need for ‘habitat-based management’ on the Navy’s ranges to address impacts on the Cuvier’s beaked whale population” because “no population-level impacts from Navy training and testing activities are evident.” The Navy further states:

*Documented identification and multi-year residency by over 100 individual Cuvier’s beaked whales in the Southern California Range Complex seems to counter the notion that the whales are affected by Navy activities and argues against the suggestion that implementing some type of habitat-based management would benefit the population of*



*Cuvier's beaked whales in southern California waters. The continued presence of the whales supports an assessment that the Navy's ongoing mitigation measures are effective and that additional mitigation as suggested in the scoping comments is not merited.*

### **Beaked Whale Population Trends/Recent Studies**

During its last review (CD-008-13), the Commission cited a then recently-published study from which the above quote was taken, "Declining Abundance of Beaked Whales (Family Ziphiidae) in the California Current Large Marine Ecosystem" (Moore and Barlow, 2013). That study posed a hypothesis that military sonar could be resulting in potential population-level effects for several species of beaked whales, which are the SOCAL species *most* sensitive to mid-frequency sonar, most likely to incur mortalities by stranding, and most difficult to detect by on-board observers.

In its DEIS, the Navy contends that the 2013 Moore and Barlow study has been called into question by newer data that raise "...uncertainties over whether a decline in the beaked whale population occurred off the U.S. west coast between 1996 and 2014 (Barlow, 2016)." (DEIS, p. 3.7-163) The Navy continues:

*Photo identification studies in the Southern California Range Complex have identified approximately 100 individual Cuvier's beaked whale individuals, with 40 percent having been seen in one or more prior years and re-sightings up to 7 years apart (Falcone et al., 2009; Falcone & Schorr, 2014). These results indicate long-term residency by individuals in an intensively used Navy training and testing area, which may suggest a lack of long-term consequences as a result of exposure to Navy training and testing activities, but could also be indicative of high-value resources that exceed the cost of remaining in the area. Long-term residency does not mean there has been no impact to population growth rates and there are no data existing on the reproductive rates of populations inhabiting the Navy range area around San Clemente Island as opposed to beaked whales from other areas.*

New data since the last Commission review also includes publications of the results of Southern California Behavioral Response Studies (BRS) (SOCAL-10 thru 14), which included controlled exposure experiments, animal tagging, and measuring responses to simulated (as well as, opportunistically, actual Navy) sonar. (The Commission authorized this study in NOAA consistency determination CD-029-10.) The Navy's DEIS, Chapter 3-7, summarizes the results of these (and other relevant) studies and their implications for beaked whales on pages 3.7-143 to 3.7-149. In this discussion the Navy acknowledges that these studies support conclusions reached in previous studies regarding greater beaked whale sensitivity to military sonar:

*Behavioral response studies have been conducted on odontocete species since 2007, with a focus on beaked whale responses to active sonar transmissions or controlled exposure playback of simulated sonar on various military ranges .... Through analyses of these behavioral response studies, a preliminary overarching effect of greater sensitivity to most anthropogenic exposures was seen in beaked whales compared to the other odontocetes studied ....*

*Observed reactions by Blainville's, Cuvier's, and Baird's beaked whales to mid-frequency sonar sounds have included cessation of clicking, termination of foraging dives, changes in direction to avoid the sound source, slower ascent rates to the surface, and other unusual dive behavior ... A similar response was observed in a northern bottlenose whale, which conducted the longest and deepest dive on record for that species after the sonar exposure and continued swimming away from the source for over 7 hours (Miller et al., 2015). Responses occurred at received levels between 95 and 150 dB re 1  $\mu$ Pa; although all of these exposures occurred within 1-8 km of the focal animal, within a few hours of tagging the animal, and with one or more boats within a few kilometers to observe responses and record acoustic data. ...*

*In addition, Williams et al. (2017) note that in normal deep dives or during fast swim speeds, beaked whales and other marine mammals use strategies to reduce their stroke rates, including leaping or wave surfing when swimming, and interspersing glides between bouts of stroking when diving. They determined that in the post-exposure dives by the tagged Cuvier's beaked whales described in DeRuiter et al. (2013b), the whales ceased gliding and swam with almost continuous strokes. This change in swim behavior was calculated to increase metabolic costs about 30.5 percent and increase the amount of energy expending on fast swim speeds from 27 to 59 percent of their overall energy budget. This repartitioning of energy was detected in the model up to 1.7 hours after the single sonar exposure. Therefore while the overall post-exposure dive durations were similar, the metabolic energy calculated by Williams et al. (2017) was higher.*

The DEIS summary of recent research also analyzed a previously-articulated hypothesis that beaked whale responses to Navy sonar could be an “antipredator response.” The Navy states:

*Tyack et al. (2011) hypothesized that beaked whale responses to sonar may represent an anti-predator response. To test this idea, vocalizations of a potential predator—a killer whale—were also played back to a Blainville's beaked whale. This exposure resulted in a similar but more pronounced reaction than that elicited by sonar playback, which included longer inter-dive intervals and a sustained straight-line departure of more than 20 km from the area (Allen et al., 2014; Tyack et al., 2011). This anti-predator hypothesis was also tested by playing back killer whale vocalizations to pilot whales, sperm whales, and even other killer whales, to determine responses by both potential prey and conspecifics (Miller et al., 2011; Miller et al., 2012). Results varied, from no response by killer whales to an increase in group size and attraction to the source in pilot whales (Cure et al., 2012).*

The conclusion the Navy reaches for implications of the latest research (stated in the DEIS, page 3.7-148) is that:

*Behavioral responses by odontocetes to sonar and other transducers appear to run the full gamut from no response at all to responses that could potentially lead to long-term consequences for individual animals (e.g., mother-calf separation). This is likely in part*

*due to the fact that this taxonomic group is so broad and includes some of the most sensitive species (e.g., beaked whales and harbor porpoise) as well as some of the least sensitive species (e.g., bottlenose dolphins). This is also the only group for which both field behavioral response studies and captive controlled exposure experiments have been conducted, leading to the assessment of both contextually-driven responses as well as dose-based responses. This wide range in both exposure situations and individual- and species-sensitivities makes reaching general conclusions difficult. However, it does appear as though exposures in close proximity, with multiple vessels that approach the animal lead to higher-level responses in most odontocete species regardless of received level or behavioral state. In contrast, in more “real-world” exposure situations, with distant sources moving in variable directions, behavioral responses appear to be driven by behavioral state, individual experience or species-level sensitivities. These responses may also occur more in-line with received level such that the likelihood of a response would increase with increased received levels. However, these “real-world” responses are more likely to be short-term, lasting the duration of the exposure or even shorter as the animal assesses the sound and (based on prior experience or contextual cues) determines a threat is unlikely. Therefore, while odontocete behavioral responses to Navy sonar will vary across species, populations, and individuals, they are not likely to lead to long-term consequences or population-level effects.*

### **Navy Conclusion – Marine Mammals**

Concerning marine mammals overall, notwithstanding the large number of marine mammal harassment authorizations the Navy has requested from NMFS (nearly 13 million), the Navy believes the mitigation measures it has committed to are adequate to protect all populations of marine mammals. The Navy therefore concludes:

*Based on a detailed stressor analysis presented in the 2017 HSTT Draft EIS/OEIS, Chapter 3.7 (Marine Mammals), specifically section 3.7.3 (Environmental Consequences) and as summarized above, the Navy has determined that the Proposed Action would be carried out in a manner that would maintain marine resources and sustain the biological productivity of coastal waters, and no population-level impacts would be anticipated to marine mammals. As evident from the standard operating procedures and mitigation measures discussed above, the Navy’s Proposed Action provides special protection to marine mammals. Therefore, the Proposed Action would be consistent to the maximum extent practicable with Section 30230 of the California Coastal Act.*

### **Sea Turtles and Other Marine Species**

Concerning potential effects to the five sea turtle species in the project area (all listed as endangered under the Endangered Species Act (ESA)), the Navy predicts impacts to only one species, the green sea turtle [*Chelonia mydas*]. Based on modeling, in Table E-14, Appendix E (**Exhibit 10**, Last page of exhibit), the Navy predicts its activities involving use of explosives would, over the 5 year period, subject 98 Green Sea Turtles to Temporary Threshold Shift (TTS), 35 to Permanent Threshold Shift (PTS), and 3 to injury. While it was unclear from the table whether these numbers represent California or Hawaii stocks, the Navy recently clarified that these would be from Hawaii, not California stocks.

As is the case described above for marine mammals, to minimize the potential for harm during activities potentially affecting sea turtles (including use of explosives, and use of mid-frequency sonar within the hearing range of sea turtles (i.e., <2 kHz), the Navy will implement mitigation measures involving monitoring and avoidance (i.e., cessation of the stressor until such time as an animal has left the area (or is believed to have left based on assumptions concerning its speed, direction and movement). With these measures, the Navy concludes:

*Based on a detailed stressor analysis presented in the HSTT Draft EIS/OEIS, Chapter 3.8 (Reptiles), specifically section 3.8.3 (Environmental Consequences) and as summarized above, the Navy has determined that the Proposed Action would be carried out in a manner that would maintain marine resources and sustain the biological productivity of coastal waters, and no population-level impacts would be anticipated to sea turtles. As evident from the standard operating procedures and mitigation measures discussed above, the Navy's Proposed Action provides special protection to sea turtles. Therefore, the Proposed Action would be consistent to the maximum extent practicable with Section 30230 of the California Coastal Act.*

In analyzing other marine habitats (e.g., sensitive marine vegetation (e.g., kelp beds), seabirds (including several listed species), and commercial and recreational fish stocks), the Navy also anticipates that impacts would be low. As noted earlier, the Navy has designated seafloor mitigation areas to further protect these habitats.

### **Commission Analysis**

The Commission will begin its analysis by reiterating its previous findings concerning activities the Commission has found meet the “effect” test of the CZMA.<sup>17</sup> In CD-008-13, the Commission found:

*[T]he Commission takes a broad ... view ... as to which activities may affect the coastal zone. Many of the species ... potentially affected by the proposed training activities spend some portions of their life cycles within coastal waters....*

*To support this position, during ... review[of CD-86-06] the Commission cited the NOAA letter dated March 10, 1995, responding to the Commission's request from the Office of Coastal Resource Management (OCRM) to review the effects of the “ATOC” sound source<sup>18</sup>, located 48 nmi offshore of San Mateo County. In that letter NOAA affirmed that “sounds emanating from the ATOC sound source can be reasonably expected to affect marine mammals that are resources of both the outer continental shelf (“OCS”) and the coastal zone...” and “OCRM has determined that the marine animals at issue that ply the waters of the coastal zone and the OCS are coastal resources.”*

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<sup>17</sup> It should be noted that the Navy has not, in this consistency determination, taken any positions contrary to the Commission's historic position over the interpretation of the “effects” test of the CZMA.

<sup>18</sup> ATOC is the acronym for Scripps Institution of Oceanography's Acoustic Thermometry of Ocean Climate, reviewed by the Commission as Consistency Certification CC-110-94.

*... the Commission's position [is] that ... virtually all of the marine mammal species identified by the Navy as present in the SOCAL area are also present within the coastal zone at some point in their life cycle, and certainly at least "occasionally." Regarding the length of time a species must be present within the coastal zone to be considered a coastal resource, the Commission is in agreement that occasional observed or recorded presence is sufficient to establish this standard. Due to the significant challenges associated with wildlife observation in the marine environment (i.e. the cost of surveys, the short period of time most species are observable at the surface, the large areas, variable climactic and weather conditions, etc.) marine mammal surveyors typically assume that the number of animals successfully observed represent a small fraction of the actual number that are likely present. As such, the Commission considers even infrequent and seemingly rare sightings of particular marine wildlife species within the coastal zone as verification of that species' status as a coastal resource.*

*Finally, similar to the Commission's long held position regarding effects to commercial fishing that occur in federal waters, but which affect the coastal economy, the Commission takes a comparable position that effects on whale watching, even if occurring in federal waters outside the coastal zone, should also be considered coastal zone effects, since whale watching tours are also an important segment of the California coastal economy, as well as an important component of coastal recreation. Whale watching tours regularly ply federal waters and commonly include sightings of many of the marine mammals present in the SOCAL area.*

As will be discussed below, the Commission's predominant concerns over the Navy's conclusions involve: (1) the limited effectiveness of Navy detection and monitoring measures; (2) uncertainties in assessing population-level effects on marine species that may be occurring; (3) the fact that the vast majority of marine mammal behavioral harassments will occur outside the 1000 m detection/source reduction zones adopted by the Navy around its sonar sources; and (4) the Navy's unwillingness to limit, in a meaningful way, its sonar and explosives testing and training in areas of special biological significance for certain marine species (blue, fin, and beaked whales).

### **Marine Mammal Observers**

During the Commission's review of CD-018-13, the Commission staff had recommended a condition (which was not adopted, because the Commission did not adopt the recommended conditional concurrence, but instead objected)<sup>19</sup> requesting that the Navy "continue its Lookout Effectiveness Study in the SOCAL range to compare the abilities of Navy vessel-based lookouts and experienced, NMFS-certified marine mammal observers in detecting marine mammals." Under the recommended condition, if the results showed less than a 20% difference in effectiveness in observing marine mammals, the Commission would request that the Navy "... to the extent feasible, commit to including at least two experienced, NMFS-certified marine

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<sup>19</sup> Although the objection was based on lack of information, as previously noted, among the information requested was "other mitigation measures previously adopted by the Commission or identified by Commission staff in its report on the present consistency determination." (CCC findings, page 3)

mammal observers on all ships during the deployment of active sonar for training or testing purposes.” In response to this concern, in the settlement discussions the Navy agreed to the following language:

*If the Navy’s lookout effectiveness study demonstrates the effectiveness of Navy lookouts is inadequate, NAVY will assess the root cause of the deficiency and take appropriate remedial action, which may include changes to the lookout training/qualification process, awareness and procedures; and/or investigating new/improved equipment or technology.*

The Navy also submitted an updated report dated January 2016, entitled “Cruise Report, Marine Species Monitoring & Lookout Effectiveness Study, Submarine Commanders Course, February 2015, Hawaii Range Complex.” The results in this report are similar to those from four previous studies (Watwood 2012, Watwood 2013, Vars et al. 2014, Shoemaker et al, 2014) and appear to show that the effectiveness of Navy lookouts is well below that of NMFS-trained marine mammal observers (MMOs). The 2016 study indicates that:

*In total, 36 unique sightings comprising at least 61 individual marine mammals were recorded during the 2 days of observation. Of the 36 sightings, humpback whales (Megaptera novaeangliae) were the only species positively identified, accounting for 31% of sightings. Unidentified large whales (most likely humpback whales) accounted for 58% of sightings. MMOs made 26 sightings independent of the ship's watchstander team. There were 7 sightings made concurrently by both the MMO and watchstander team. There were 3 sightings by the watchstander team independent of the MMOs.*

In other words, nearly 2/3 of whales and dolphins sighted by MMOs during the 2016 effort were missed by the Navy watchstander team. Combining these results with those from the four previous efforts, MMOs made 111 of 120 sightings (92%) while the Navy watchstanders made only 29 (24%). Although the Navy teams did make several sightings that the MMOs did not, the specialized training and extensive experience of the MMOs clearly provided them with a significant advantage in detecting marine mammals.

However, the effectiveness and ability of these trained MMOs should not be overstated. As discussed in Moore and Barlow (2017) and Barlow (2016), even the most highly trained and experienced scientific observers are likely to miss the vast majority of potential sightings of many marine mammals. For example, the “detection probability” (or likelihood that a particular whale or dolphin will be observed when it is present) is below 60% for 24 of the 30 types of whale or dolphin targeted during marine mammal population surveys. This means that even experienced MMOs typically miss seeing roughly half of the animals that are present. For some species, such as most beaked whales, the detection probability is 16% or less; meaning that 84% of the time beaked whales are present, they are not being seen.

DEIS Table 3.7-11 (see page 42 below) shows the range to the likelihood of behavioral effects from the most intense of the mid-frequency sonars (Sonar Bin MF-1). At 1000 m distance, which is the distance at which the Navy’s protocol would first mandate a reduction in sonar intensity (by 6 dB), if a marine mammal is observed, this table shows that the vast majority of marine mammals would likely respond in a significant behavioral manner (including 100% of beaked

whales and over 90% of odontocetes in general). When these virtual certainties of a response are combined with the above-cited difficulties in detection, the data do not inspire confidence that adequate protection for marine mammals will be assured by the Navy's agreed-upon detection and avoidance measures.

### **Population-Level Effects**

The Commission disagrees with the Navy that a conclusion can be drawn that the proposed activities would not have population-level effects on marine mammals, for several reasons. First, for all the populations of affected marine mammals, it is simply impossible to establish whether population level effects have been occurring, or would occur with the increased levels, given that the Navy has been using this technology in this area consistently for the past 40 years. As the study the Commission cited in 2013 (Moore and Barlow 2013) noted:

*High densities are not obviously consistent with a hypothesis that declines are due to military sonar, but they do not refute the possibility that declines have occurred in these areas (i.e., that densities were previously even higher)*<sup>20</sup>

The Commission previously noted that that study posed a hypothesis that military sonar *could* be resulting in potential population-level effects for several species of beaked whales, which are the SOCAL species *most* sensitive to mid-frequency sonar, *most* likely to incur mortalities by stranding, and *most* difficult to detect by on-board observers. The abstract of this Moore and Barlow study states that the existing data "... provide strong evidence of declining beaked whale abundance in the study area," which consists of the eastern Pacific (i.e., off the coasts of California, Oregon, and Washington). The study considered three potential hypotheses to explain such declines: (1) mortality from fishing; (2) Navy sonar and other anthropogenic noise; and (3) ecosystem change. The study ruled out mortality from fishing as an "unlikely" cause, due to low bycatch rates. The study acknowledges the previously-discussed known links between beaked whale strandings and military sonar, but stated that:

*Although the threats from naval acoustic activity have been described, population-level impacts have not been quantified. Mass strandings of beaked whales throughout the Northern Hemisphere have been associated with offshore military activity, but estimates of total mortality associated with these types of impacts do not exist. Certainly they exceed levels that have been recorded, however, since the probability of observing dead whales is generally low, especially for deep-water species [46]–[48].*

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<sup>20</sup> "Declining Abundance of Beaked Whales (Family Ziphiidae) in the California Current Large Marine Ecosystem" (Moore and Barlow, January 2013).

As noted above, the Navy has provided more recent Moore and Barlow studies (Barlow 2016, Moore and Barlow 2017) in which the authors refine their statistical analysis and indicate that previously noted declines may be levelling off. As the Navy noted, the most recent Moore and Barlow study (August 2017)<sup>[2]</sup> indicates:

*Cuvier's beaked whales appear to have decreased in abundance from high values in 1991-93, but that decline now appears to have leveled off.*

*There is some weak evidence of an increasing trend in Baird's beaked whales.*

*Mesoplodon beaked whales showed markedly higher abundance in 2014, reversing a declining trend from 1991-2008 that had been noted in a previous analysis. The increase may have been driven by an influx of tropical species of Mesoplodon during the unusually warm ocean conditions in 2014.*

The study also notes that temporary modifications to stock assessment due to warm water influxes may further complicate assessment of accurate long-term trends (as noted in the previous quote above concerning Mesoplodon beaked whales). For example, concerning Mesoplodon, the study states:

*Interpreting results for Mesoplodon is difficult because this is a multi-species group that includes warm- and cold-water species, so temporal trends for one species can mask trends of another. We hypothesize that the 2014 abundance increase may reflect an influx of warm-water animals into the study area. During the 2014 survey, California Current water temperatures were anomalously high ...*

In addition, the first of the indented quotes on this page concerning the decline of Cuvier's beaked whales needs to be looked at in light of the broader statement in the study in which it is included, which is that:

*These metrics continue to provide some evidence that Cuvier's beaked whale abundance in the study area declined from 1991 to 2014. Specifically, it appears that numbers decreased between the 1993 and 1996 survey but have remained stable at this lower level since then. As noted above, because different [detection probability] estimates were used in the current analysis, population size estimates are lower than reported by Moore and Barlow (2013).*

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<sup>[2]</sup> POPULATION ABUNDANCE AND TREND ESTIMATES FOR BEAKED WHALES AND SPERM WHALES IN THE CALIFORNIA CURRENT FROM SHIP-BASED VISUAL LINE-TRANSECT SURVEY DATA, 1991 – 2014 (August 2017)(NOAA technical Memorandum NOAA-TM-NMFS-SWFSC-585).



Specifically, the current population size estimates (Moore and Barlow 2017) are now 40% lower than those included in NOAA’s most recent (Moore and Barlow 2013 in NOAA 2013) stock/population assessment for this species along the west coast (3,928 rather than 6,590). Even though it identified a much higher abundance of Cuvier’s beaked whales, that 2013 assessment nevertheless made particular note of the declining condition of the population and its likely status as being below carrying capacity and depleted. Considering that the population is now being estimated as significantly smaller than was assumed in 2013, its status would appear to be even more depleted than previously thought.

### **Biologically Significant Areas and Adequacy of Mitigation Measures**

Even if the Navy’s conclusion *were* supportable concerning a lack of population-level effects, the Commission notes that it is only one of the tests of Section 30230. The Commission finds, as it did in 2008, that compliance with Section 30230 also requires enhancement (and where feasible restoration) of the overall marine environment, as well as special protection for areas and species of special biological or economic significance. These requirements have led the Commission to previously determine that they require the avoidance of the use of very loud active acoustics in biologically important and sensitive areas, in particular areas of high, or seasonally high, concentrations of marine mammals.

DEIS Table 3.7-11 (see page 42 below) shows the range to probable effect from the most intense of the mid-frequency sonars (Sonar Bin MF-1). The Navy’s mitigation measures include reducing sonar by 6 dB if an animal is observed within 1000 yds., by 10 dB (or 4 additional dB) if within 500 yds., and shut down if an animal is within 200 yds. As noted earlier (page 28 above) this measure for all mid-frequency sonar would be supplemented by designation of yearly or seasonal “awareness” “cautionary” and “notification” areas, as follows:

San Diego Arc (seasonal) and Channel Islands National Marine Sanctuary (year-round) Cautionary and Awareness Areas, in which the Navy would limit “Major Training Exercises using hull-mounted mid-frequency sonar” to three per season (during June 1 – Oct. 31), limit use of explosives in this season and area, (with potential exceptions for both if needed for national security and with notification to NMFS).

Channel Islands National Marine Sanctuary (year-round) prohibition on hull-mounted mid-frequency sonar, and explosives and missiles.

Blue, Gray, and Fin whale “awareness notification zones, in which the Navy will issue awareness notification messages to ships and aircraft to be alert for whales seasonally as follows:

Blue Whales – June 1 – Oct. 31  
 Gray Whales – Nov. 1 – March 31  
 Fin Whales – Nov. 1 – May

At 1000 m distance, which is the first protocol the Navy would implement in reducing sonar intensity (by 6 dB) if a marine mammal is observed, this tables shows that the vast majority of marine mammals would likely respond in a significant behavioral manner (including 100% of

beaked whales and over 90% of odontocetes in general). When these virtual certainties of a response are combined with the above-noted difficulties in detection, only a small percentage of mammals will be protected under the Navy’s protocols (which partially explains why the estimates of “take” (see page 25) are so high). Note that for beaked whales, which are most difficult to detect, the range at which the probability of a behavioral response exceeds 80% is in the order of 10s of kilometers. As noted previously, even highly trained and experienced scientific marine mammal surveyors have less than a 16% chance of observing beaked whales when they are present within four kilometers.

**Table 3.7-11: Ranges to a Potentially Significant Behavioral Response for Sonar Bin MF1 over a Representative Range of Environments within the Study Area**

Received Level (dB re 1 µPa)	Minimum and Maximum Range (m)	Probability of Behavioral Response			
		Odontocete	Mysticete	Pinniped	Beaked Whale
196	109 (100–110)	100%	100%	100%	100%
190	239 (190–250)	100%	98%	99%	100%
184	502 (310–575)	99%	88%	98%	100%
178	1,024 (550–2,025)	97%	59%	92%	100%
172	2,948 (625–5,775)	91%	30%	76%	99%
166	6,247 (625–10,025)	78%	20%	48%	97%
160	11,919 (650–20,525)	58%	18%	27%	93%
154	20,470 (650–62,025)	40%	17%	18%	83%
148	33,048 (725–63,525)	29%	16%	16%	66%
142	43,297 (2,025–71,775)	25%	13%	15%	45%
136	52,912 (2,275–91,525)	23%	9%	15%	28%
130	61,974 (2,275–100,000*)	20%	5%	15%	18%
124	66,546 (2,275–100,000*)	17%	2%	14%	14%
118	69,637 (2,525–100,000*)	12%	1%	13%	12%
112	73,010 (2,525–100,000*)	6%	0%	9%	11%
106	75,928 (2,525–100,000*)	3%	0%	5%	11%
100	78,899 (2,525–100,000*)	1%	0%	2%	8%

dB re 1 µPa: decibels referenced to 1 micropascal; m: meters

\* Indicates maximum range to which acoustic model was run, a distance of approximately 100 kilometers from the sound source.

Note: Cells are shaded if the mean range value for the specified received level exceeds the distance cutoff range for a particular hearing group. Any impacts within the cutoff range for a criteria group are included in the estimated impacts. Cut-off ranges in this table are for activities with high source levels and/or multiple platforms (see Table 3.7-3 for behavioral cut-off distances).

Thus, even setting aside the concern over areas warranting special protection, the Commission has a number of concerns over the adequacy of the mitigation measures. These concerns are over the uncertainties inherent in marine mammal detection, the uncertainties over population trends, the fact that the detection areas observed by the Navy are insufficient to protect marine mammals from significant behavioral impacts, the overall limited scientific understanding of the effects of mid-frequency sonar on marine mammals, and the extremely large number of harassments of marine mammals offshore of California expected under the Navy’s activities, which, on an annualized average are estimated at 2.37 million marine mammals/year subject to Level B annual harassment, and 576 marine mammals/year subject to Level A harassment.

Moreover, while the Navy currently acknowledges that biologically significant areas are present within the southern California training and testing areas, the Navy's conclusions regarding the proposal's consistency with Section 30230 rest on the question of whether the Navy believes that any measures to protect these areas must be balanced against military security needs, and, ultimately, whether population effects can be documented.

As noted above, the Commission does not believe definitive conclusions can be drawn based on available data concerning whether the activities would or would not result in reductions in populations of marine species. The Commission does, however, believe sufficient information exists to determine that "areas of special biological significance" warranting strict protection under Section 30230 of the Coastal Act are present, and that the levels of protection offered by the Navy are insufficient. Accordingly, the Commission finds the activities, as proposed, would be inconsistent with the provision of Section 30230 that requires that "Special protection shall be given to areas and species of special biological or economic significance."

In order to bring the activities into consistency with Section 30230 of the Coastal Act, the Commission concludes that **Conditions 1-5** (see pages 5-6) are needed to: (1) establish larger shutdown areas (up to 2 km) when marine mammals or other species are detected; (2) avoid use of mid-frequency sonar and in-water explosives in sensitive areas, which would include Marine Protected Areas and Marine Sanctuaries, seasonal blue, beaked, and fin whale areas shown on **Exhibit 5**, nearshore areas, and any BIA NMFS may designate at a future date; (3) reduce sound under low-visibility conditions; (4) limit typical vessel speeds in sensitive areas to 10 knots (unless higher speeds are necessary for training); and (5) improve observer effectiveness through the use of NMFS-certified marine mammal observers.

#### *Shut-down Areas*

The larger shutdown areas around sound sources are necessary because they would allow sound levels to attenuate further before being received, thus helping increase the likelihood that elevated levels of underwater sound are reduced or halted before they significantly affect marine mammal behavior. Compared to the one kilometer distance that the Navy is proposing, a two kilometer distance would reduce the probability of a behavioral reaction in many marine mammal species. Although an even greater distance would further reduce this probability, it may not be significantly more effective due to the fact that the likelihood of detecting a marine mammal at sea declines sharply as distance increases.

#### *Mid-frequency Sonar Avoidance Areas*

The establishment of mid-frequency sonar avoidance areas – MPAs, National Marine Sanctuary, designated Biologically Important Areas (BIAs), and other areas of likely high marine mammal concentration – is also a critical protective measure because it would help insulate marine mammals in these areas from disturbance, harassment, and take due to elevated sonar levels. The areas specified in Condition 2 are all sites known to have special biological significance. In the case of the state and federal MPAs and the National Marine Sanctuary, these sites were established at specific locations based on many years of scientific research, monitoring, and survey work that confirmed the presence of sensitive marine habitats and oceanographic features

(highly productive persistent upwelling zones, seamounts, unique underwater canyons, etc.) and documented high levels of use by culturally, economically, and ecologically important species of marine wildlife (including protected seabirds, marine mammals, fish and invertebrates).

The BIAs within this area were also identified through a years-long, extensive, science-based, process focused on demarcating sites of persistent high-use and high-density of marine mammals. In many respects, the process used to identify and designate these sites was similar to that used to identify MPAs, with the primary difference being the more singular focus on whale and dolphin use rather than the wider range of habitat and wildlife use documented in the MPAs. The BIAs included within Condition 2 are particularly focused on blue whale use and their biological importance and the rationale for their designation is described in detail in the 2015 report that accompanied their establishment (Calambokidis et al. 2015, available in a special edition of the peer reviewed journal Aquatic Mammals: [https://www.aquaticmammalsjournal.org/images/files/AM\\_41.1\\_Complete\\_Issue.pdf](https://www.aquaticmammalsjournal.org/images/files/AM_41.1_Complete_Issue.pdf)).

In addition to the MPAs, National Marine Sanctuary, and BIAs, Condition 2 also includes an area centered on the San Nicolas Basin that has a strong research and observational record of high use by both fin whales and beaked whales (including in Calambokidis et al. 2015, Schorr et al. 2014, Falcone and Schorr 2013). This area's importance for fin whales specifically was considered as part of the BIA designation process due to this evidence of consistent use but ultimately not carried forward in the initial round of BIA designations due to a comparative lack of information in relation to the other BIA sites and a lack of agreement between the deep ocean areas of high modeled or predicted fin whale density and those in which large numbers of fin whales have been observed closer to shore (such as the San Nicolas Basin). Nevertheless, the evaluation provides strong evidence for this area's status as one of the most common and highest use sites for fin whales within California's coastal waters.

In addition, there is also a strong record showing the importance of the San Nicolas Basin for beaked whales – in particular, for one of the species most sensitive to underwater sound - Cuvier's beaked whales. Despite the difficulty of observing and detecting this deep-diving and cryptic whale, research such as that carried out by Schorr et al. (2014) and Falcone and Schorr (2013) successfully document the high number and concentration of Cuvier's beaked whales that use the San Nicolas Basin on a consistent basis. As described by the Natural Resources Defense Council (NRDC) in its comment letter submitted in response to the DEIS:

*Satellite telemetry data and eight years' worth of photo-identification and mark-recapture data indicate that San Nicholas Basin represents an area of high site fidelity, and possible residency, for a small population of Cuvier's beaked whales associated with San Clemente Island.<sup>52</sup> Data also indicate that the population is relatively small, with abundance estimated at 235 individuals, and that its sex ratio is skewed towards adult females, including individuals with calves.<sup>53</sup> The population's primary habitat overlaps directly with the Southern California Anti-submarine Warfare Range ("SOAR"). At times, Cuvier's beaked whale occur in higher densities on SOAR than have been reported anywhere else along the US West Coast, the region across which this population is managed;<sup>54</sup> its secondary habitat, apparently used, in part, when the whales are excluded from their primary range, consists of Tanner Canyon to the south and Santa Cruz Basin*

*to the north.<sup>55</sup> Eight Cuvier's beaked whales tagged off the Southern California coast for periods up to three months were present within the San Nicolas Basin on 53% of days tags transmitted, and spent 71% of their time within the boundaries of SOAR when in the Basin.<sup>56</sup> One individual occurred inside the San Nicolas Basin on 74% of days over the three months the tag was active (see Figure 1).<sup>57</sup>*

#### *Low-Visibility Conditions*

As described earlier in this report, even under daylight hours with calm sea-state conditions, it is extremely difficult to detect many species of marine mammals. This likelihood of detection declines sharply as sea-state conditions and visibility deteriorates. Therefore, under these types of low-visibility conditions, the effectiveness of ship-board marine mammal observers cannot be relied on as a meaningful impact avoidance or minimization measure. As such, Condition 3 calls for sonar levels to be reduced during such situations in order to help prevent marine mammals from being exposed to high-intensity levels of underwater sound.

#### *Vessel Speed Limit*

The relationship between vessel speed and the likelihood and consequences of collisions with large whales has been closely evaluated in recent years as a result of the significant threat posed by ships to the highly endangered North Atlantic right whale and the series of ship strike mortalities recorded within the Santa Barbara Channel in 2007 (five blue whale mortalities from ship strikes within two months). This research has shown that a 10-knot speed limit reduced the risk of fatal ship strikes to right whales by 57% (Wiley et al. 2011) and that generally, vessel speed restrictions reduced total ship strike mortality risk levels to whales by 80–90% (Conn and Silber 2013). The need for the issue of ship strikes to be comprehensively and consistently addressed is increasingly recognized. For example, recent research modeling ship strike mortality for blue, fin, and humpback whales in U.S. West Coast waters indicates that even under the most conservative assumptions, “estimated mortality [is] 7.8x, 2.0x and 2.7x the U.S. recommended limit for blue, humpback and fin whales, respectively, suggesting that death from vessel collisions may be a significant impediment to population growth and recovery” (Rockwood et al. 2017). While work is currently underway to investigate opportunities for addressing ship strikes involving commercial vessels - including efforts by the Marine Shipping Working Group convened by the Channel Islands National Marine Sanctuary (CINMS) and the Voluntary Ship Speed Reduction Program developed by CINMS, the Santa Barbara County Air Pollution Control District and the Environmental Defense Center – Condition 4 would expand them to incorporate another significant source of marine traffic, the Navy’s proposed training and testing program.

#### *NMFS-certified Marine Mammal Observers*

For several years, the Navy has been periodically including trained non-Navy marine mammal observers (MMOs) on its vessels during training operations to study their effectiveness at detecting marine mammals compared to teams of Navy watchstanders. Six of these “lookout effectiveness studies” were been carried out between 2011 and 2016 and the results unequivocally show that trained MMOs are significantly more likely to detect marine mammals. Pooling the results of the five reports that Commission staff were able to access shows that out of 120 separate marine mammal observations, Navy watchstanders missed 91 of them. Given the heavy reliance placed on detecting and reacting to the presence of marine mammals as an

adverse impact avoidance and minimization measure, it is clear that if this approach is to continue to be used, it must be combined with observers that are more likely to make successful detections. As such, Condition 5 calls for the Navy to commit to using NMFS-certified MMOs on all ships during the deployment of active sonar for training or testing purposes. These marine mammal observers will notify appropriate Navy personnel of all marine mammal detections and will assist in the enforcement of marine mammal safety zones.

As provided in 15 CFR § 930.4(b), in the event the Navy does not agree with the Commission's conditions of concurrence, then all parties shall treat this conditional concurrence as an objection.

## **E. COMMERCIAL AND RECREATIONAL FISHING/ACCESS AND RECREATION**

Section 30234.5 states:

*The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

Section 30220 states:

*Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Section 30212 states, in part:

*(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,*

Concerning fishing, the Navy's consistency determination notes that it has been conducting its training and testing activities in this area for decades, and that has taken and will continue to take measures to prevent interruption of commercial and recreational fishing activities. To minimize potential military/civilian interactions, the Navy publishes scheduled operation times and locations on publicly accessible Navy websites, and through U.S. Coast Guard issued Notices to Mariners, up to six months in advance. In addition, if the Navy discovers nonparticipants present in an exclusion zone, the Navy would halt or delay (and reschedule, if necessary) all potentially hazardous activity until the nonparticipants have exited the exclusion zone.

The Navy further states:

*Commercial and recreational interests such as fishing, boating, and beach use are only restricted temporarily. Temporary closing of areas within the Southern California portion of the HSTT Study Area (typically areas in the vicinity of San Clemente Island) for security and safety does not limit public access to surrounding areas. Areas that are temporarily closed are only closed for the duration of the activity and are re-opened at the completion of the activity.*

The only fishing-related issue the Commission has previously expressed concerns over were the need to complete and respond to a 2009 Southern California Fisheries Study, which had contained several recommendations to improve communications between the Navy and commercial and recreational fishers. The Navy has since the completion the implementation of these recommended measures, which will assist in avoiding conflicts between civilian and military activities during potentially hazardous training and testing events off of San Clemente Island.

The Commission therefore concludes that the proposed training and testing activities would be consistent with the commercial and recreational fishing policies (Section 30234.5), and public access and recreation policies (Sections 30212 and 30220) of the Coastal Act.