

CALIFORNIA COASTAL COMMISSION

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W12a

DATE: August 30, 2018

TO: Commissioners and Interested Persons

FROM: Alison Dettmer, Deputy Director
Mark Delaplaine, Manager, Energy, Ocean Resources and Federal
Consistency Division

SUBJECT: Navy Response to Commission Objection to Consistency Determination
CD-0001-18 - Navy Southern California Testing and Training Program

Background

On June 6, 2018, the Commission objected to the Navy's Consistency Determination for the southern California portion of its 5-Year Military Readiness Training and Testing Program Activities in the California portion of the Hawaii-Southern California Training and Testing (HSTT) Study Area. On August 8, 2018, the Commission adopted findings supporting its action. In accordance with the federal consistency regulations (15 CFR 930.43(a)(3)), the Commission's findings identified measures which, if adopted by the Navy, would allow the activity to proceed in a manner consistent to the maximum extent practicable with Section 30230 of the Coastal Act. The findings also urged the Navy to consider additional or alternative measures that had been recommended by the Natural Resources Defense Council (NRDC). During the June 6, 2018, hearing (and after the Commission acted), the Navy indicated its willingness to further consider the measures identified by the Commission and NRDC. The measures were summarized in the findings as follows:

Commission identified measures:

(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)¹, 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;

¹ The Exhibits, as well as the full set of Commission findings, can be found on the Commission's website at: <https://www.coastal.ca.gov/meetings/agenda/#/2018/8>.

- (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.

NRDC-recommended measures/information:

Information Requests:

- (1) determine sub-populations of Cuvier's beaked whales;
- (2) provide data used in the measurements of "effectiveness training";
- (3) provide greater specificity identifying areas in which training occurs; and
- (4) provide analyses of potential population-level impacts on marine mammals from cumulative injuries and behavioral disruptions, such as by using the methodology employed by the State Lands Commission, in 2012, in assessing the Central Coastal California Seismic Imaging Project.

Mitigation Measures:

- (1) replace the Commission staff recommended exclusion area west of San Clemente Island with three beaked whale "refuge" areas to the north of the SOAR range;
- (2) extend the blue whale exclusion season to the end of December, prohibit hull-mounted mid-frequency sonar (except for system checks), and prohibit helicopter/aircraft "dipping" sonar, within the San Diego Arc during the blue whale season;
- (3) observe 10 knot speed restrictions, seasonally, within the San Diego Arc and the blue whale habitat at Tanner-Cortez Bank;
- (4) add seasonal fin whale cautionary measures within the 200 to 1000 meter isobaths, from November 1 to May 31;
- (5) increase protection for gray whales by limiting vessel transit speeds to 10 knots, within 10 n mi of the mainland, from December 1 to May 20;
- (6) exclude testing and training from all NM Sanctuaries and Marine Protected Areas;
- (7) allow for "derogation" (i.e., provide for deviations from the marine species protection measures where the Navy determines, "at the highest command authority" that national defense

needs necessitate such deviation, including a “transparency” procedure that would involve reporting to the Commission of any such deviation determinations);

(8) avoid in-water detonations in low-visibility conditions, and with annual reporting to the Commission of any non-compliance;

(9) use SOAR passive acoustic instruments to monitor marine mammal vocalizations, with reporting to trainers/testers using sonar or in-water detonation activities;

(10) establish a pilot “thermal monitoring” marine mammal detection program;

(11) conduct research on sonar signal modifications having the potential to reduce the severity or onset of behavioral responses; and

(12) conduct research to further delineate beaked whale habitats.

Navy Response

On August 24, 2018, the Navy submitted a cover letter and accompanying enclosure in which it considered the above measures (**Attachment A**). In its enclosure, the Navy went through the above recommendations one-by-one, and explained its rationale for why it would or would not agree to each measure. The Navy continues to maintain that its position that the above measures are not necessary to find the activities consistent to the maximum extent practicable with the marine resource protection policy of the Coastal Act.

Nevertheless, in its response, the Navy has identified two new areas for which it can provide additional protection; the Navy’s cover letter states:

With regard to the geographic mitigation measures, the Navy is thoroughly evaluating all the area in the measures including subsequent Endangered Species Protection Act consultations with the national Marine Fisheries Service that occurred after the June 6, 2018 hearing. The enclosure offers, subject to final approval, new mitigation areas in Southern California for: (1) two additional blue whale Biologically Important Areas (BIA) in addition to the currently proposed San Diego Arc BIA, and (2) agreeing that training activities with active sonar or explosives are not conducted in specific state Marine Protected Areas....

The attached enclosure also indicates the Navy’s willingness to further conduct research in some of the areas recommended by NRDC, such as thermal monitoring and beaked whale habitats, as well as, possibly, alternative sonar signals. Concerning this third research area, the Navy states:

If future studies indicate this could be an effective approach, then Navy will investigate the feasibility and practicability to modify signals, based on tactical considerations and cost, to determine how it will affect the sonar’s performance.

In addition, while the Navy’s Enclosure indicates it can avoid training in all but one of the Marine Protected Areas the Commission requested be protected, the Commission staff acknowledges a mapping error made in the original Exhibit 5 of the Commission staff

recommendation (and carried over to the Commission’s adopted findings). The Exhibit had incorrectly depicted an MPA directly off the Silver Strand Training Complex. As a consequence of this mapping error, the Navy is able to avoid all the MPAs that actually exist in its project area. It should further be noted that this avoidance should not be considered a “new mitigation,” since the Navy had not previously proposed testing and training within any MPAs.

Attachment A – Navy Response, Cover Letter and Enclosure

Attachment B – Page 17 of Navy Enclosure, Depicting Additional Blue Whale BIAs

Attachment A



DEPARTMENT OF THE NAVY

COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N465/1218
August 24, 2018

Mr. Mark Delaplaine
Manager, Energy, Ocean Resources,
and Federal Consistency Division
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105-2219

Dear Mr. Delaplaine:

**SUBJECT: CONSISTENCY DETERMINATION FOR PROPOSED MILITARY READINESS
ACTIVITIES IN SOUTHERN CALIFORNIA**

The Navy received the Commission's August 8, 2018 adoption of findings regarding the Commission's objection at the June 6, 2018 hearing for the Navy's Consistency Determination (CD) for proposed military readiness activities within the southern California portion of the Hawaii-Southern California Training and Testing (HSTT) Study Area. The Navy maintains that the proposed activities are fully consistent with the enforceable policies of California's Coastal Management Program. However, as the Navy is committed to working with Commissioners and staff to resolve the Commission's objection, the Navy's team of biologists, marine mammal scientists, environmental protection specialists, and Naval operators and officers again thoroughly reviewed and considered the measures previously proposed by staff, along with the additional measures adopted on August 8.

As stated at the June hearing and in the Navy's 19 July 2018 letter, the Navy desires to resolve the differences relating to the specific measures that have now been adopted, in accordance with 15 C.F.R. §930.43 (d). To facilitate resolving these differences the Navy is submitting the enclosed responses to each of the measures in the adopted findings. The detail in these response offers discussion of the Navy's position on each measure and rationale on why the measure is not necessary for consistency, as well as an explanation of why the Navy is unable to implement some of these measures. With regard to the geographic mitigation measures, the Navy is thoroughly evaluating all the areas in the measures including subsequent Endangered Species Protection Act consultations with the National Marine Fisheries Service that occurred after the June 6, 2018 hearing. The enclosure offers, subject to final approval, new mitigation areas in Southern California for: (1) two additional blue whale Biologically Important Areas (BIA) in addition to the currently proposed San Diego Arc BIA, and (2) agreeing that training activities with active sonar or explosives are not conducted in specific state Marine Protected Areas – see the enclosure for detail. The Navy does not agree that additional new geographic mitigation areas other than those listed above are necessary for consistency.

The Navy carries out training and testing activities to be able to protect the United States against its potential adversaries, to protect and defend the rights of the United States and its allies to move freely on the oceans, and to provide humanitarian assistance. The purpose of the proposed action is to ensure that the Navy meets its statutory requirement under Title 10 United States Code Section 5062 to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and

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maintaining freedom of the seas. This mission is achieved in part by conducting training and testing within the Study Area in accordance with established Navy military readiness requirements. Failure to properly conduct training and testing unacceptably places Sailors' lives and the Nation's security at risk.

The Navy also takes pride in our stewardship of the environment, especially of our oceans where our Sailors work and live. The Navy's environmental stewardship programs contribute both to the success of the military mission and the preservation of the ocean environment for future generations. The Navy sponsors extensive marine species research and in Southern California. For instance, for key species such as beaked whales mentioned in many of the Commission's adopted findings, the Navy has been funding extensive occurrence, population, and effects studies in Southern California since 2006 with plans to continue this research and monitoring through 2022. The Navy is proud of our partnership with National Marine Fisheries Services, which includes an adaptive management program that analyzes and incorporates the latest developments in science on an annual basis into Navy's programs.

The Navy looks forward to continuing to work with the Commissioners and staff to resolve differences, and believe the enclosure is useful to that process. We appreciate the open dialogue as we work together and request consideration of these responses at the September Commission meeting. Specifically, we believe with this additional information you will find that the Navy's proposed action is fully consistent with the enforceable policies of California's Coastal Management Program.

Sincerely,



L. M. FOSTER
By direction

Enclosure: Navy Responses to California Coastal Commission Adopted Findings of August 8, 2018

Copy to:
Chief of Naval Operations (N454)
Commander, Navy Region Southwest (N40)

August 24, 2018

PROCEDURAL MITIGATION MEASURES

CCC Adopted Findings Measure	Counter Proposal/Position discussion
<p>Safety Zones. (1) establishment of 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)</p>	<p>Navy Response [1]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, the measure provides no significant improvements over existing mitigation ranges. The Navy mitigation zones represent the maximum surface area the Navy can effectively observe based on the platform involved, number of personnel that will be involved, and the number and type of assets and resources available. As mitigation zone sizes increase, the potential for observing marine mammals and thus reducing impacts decreases, because the number of observers can't increase although the area to observe increases. For instance, if a mitigation zone increases from 1,000 to 2,000 yd., the area that must be observed increases four-fold. The Navy mitigation measures balance the need to reduce potential impacts with the ability to provide effective observations throughout a given mitigation zone. In this way, while it is technically feasible to instruct lookouts to attempt to cover double the range, it would not have mitigation value. Therefore, it does not advance Coastal Act Section 30230 to the maximum extent practical in CZMA terms. However, the following information is provided to elaborate on several key points supporting the Navy's position.</p> <p>As described in Chapter 5 of the EIS/OEIS, the Navy evaluated the effectiveness and practicability of a number of potential mitigation measures. Through careful exploration of mitigation measures to determine which were the most effective, the Navy has chosen the most appropriate measures that will mitigate potential impacts to marine mammals while still allowing the Navy to meet its statutory readiness requirement. The Navy's overall approach to assessing potential mitigation measures was based on two principles: (1) mitigation measures will be effective at reducing potential impacts on the resource; and (2) from an operational perspective, the mitigations are practical and executable while not compromising safety and readiness. Through extensive discussion, NMFS and Navy have identified mitigation measures that are practical and reasonably effective. The mitigation zones proposed will reduce the likelihood of physiological harm, the number of marine mammals exposed, and the intensity of those exposures.</p> <p>To implement these mitigation zones, Navy lookouts are trained to use a combination of unaided eye and optics as they search the surface around a vessel. In addition, the other Navy personnel on a given bridge watch in addition to designated lookouts are also constantly watching the water for safety of navigation and marine mammals.</p> <p>Sonar shutdowns or power down at longer mitigation ranges would degrade the Navy's ability to effectively meet its training and testing requirements. Furthermore, existing Navy mid-frequency active sonar</p>

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	<p>mitigation ranges (200-yard shutdown, 500-yard power down, 1000-yard power down) are already sufficiently protective of potential marine mammal impacts such as PTS or TTS (HSTT Chapter 5). For instance, for a hull-mounted surface ship sonar, range to PTS is 71 yards for low-frequency cetaceans such as baleen whales and 17 yards for mid-frequency cetaceans such as a beaked whales or dolphins. Range to TTS for low-frequency cetaceans is 987 yards and for mid-frequency cetaceans 230 yards.</p>
<p><u>Night and low visibility conditions.</u> Reduction in sound intensity under low-visibility conditions.</p> <p>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 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.</p>	<p><u>Navy Response [2].</u> The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. Training and testing must occur in a realistic manner under conditions similar to those that might be encountered in operations. Presently, no effective and practical thermal imaging equipment for marine mammal detection is available for Navy ship use, although the Navy has invested in significant research on such equipment. The Navy plans to continue researching thermal detection systems for marine mammal detection to determine their effectiveness and compatibility with Navy applications. If the technology matures to the state where thermal detection is determined to be an effective mitigation tool during training and testing, the Navy will assess the practicability of using the technology during training and testing events and retrofitting its observation platforms with thermal detection devices, if practical.</p> <p>Anti-submarine warfare training involving the use of mid-frequency active sonar typically involves the periodic use of active sonar to develop the “tactical picture,” or an understanding of the battle space (e.g., area searched or unsearched, presence of false contacts, and an understanding of the water conditions). Developing the tactical picture can take several hours or days, and typically occurs over vast waters with varying environmental and oceanographic conditions. Training during both high visibility (e.g., daylight, favorable weather conditions) and low visibility (e.g., nighttime, inclement weather conditions) is vital because sonar operators must be able to understand the environmental differences between day and night and varying weather conditions and how they affect sound propagation and the detection capabilities of sonar. Temperature layers move up and down in the water column and ambient noise levels can vary significantly between night and day, affecting sound propagation and how sonar systems are operated. Reducing or securing power in low-visibility conditions as a mitigation would affect a commander’s ability to develop the tactical picture and would prevent sonar operators from training in realistic conditions. Further, during integrated training multiple vessels and aircraft may participate in an exercise using different dimensions of warfare simultaneously (ex., submarine warfare, surface warfare, air warfare, etc.). If one of these training elements were adversely impacted (e.g., if sonar training reflecting military operations were not possible), the training value of other integrated elements would also be degraded. Additionally, failure to test such systems in realistic military operational scenarios increases the likelihood these systems could fail during military operations, thus unacceptably placing Sailors’ lives and the Nation’s</p>

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	<p>security at risk. Some systems have a nighttime testing requirement; therefore, these tests cannot occur only in daylight hours. Reducing or securing power in low visibility conditions would decrease the Navy's ability to determine whether systems are operationally effective, suitable, survivable, and safe for their intended use by the fleet even in reduced visibility or difficult weather conditions.</p> <p>In regard to new marine mammal detection technologies, the Navy has been investigating the use of thermal detection systems with automated marine mammal detection algorithms for future mitigation during training and testing, including on autonomous platforms. Thermal detection technology being researched by the Navy, which is largely based on existing foreign military grade hardware, is designed to allow observers and eventually automated software to detect the difference in temperature between a surfaced marine mammal (i.e., the body or blow of a whale) and the environment (i.e., the water and air). Although thermal detection may be reliable in some applications and environments, the current technologies are limited by their: (1) low sensor resolution and a narrow fields of view, (2) reduced performance in certain environmental conditions, (3) inability to detect certain animal characteristics and behaviors, and (4) high cost and uncertain long term reliability.</p> <p>Thermal detection systems for military applications are deployed on various Department of Defense (DoD) platforms. These systems were initially developed for night time targeting and object detection such as a boat, vehicle, or people. Existing specialized DoD infrared/thermal capabilities on Navy aircraft and surface ships are designed for fine-scale targeting. Viewing arcs of these thermal systems are narrow and focused on a target area. Furthermore, sensors are typically used only in select training events, not optimized for marine mammal detection, and have a limited lifespan before requiring expensive replacement. Some sensor elements can cost upward of \$300,000 to \$500,000 per device, so their use is predicated on a distinct military need.</p> <p>One example of trying to use existing DoD thermal system is being proposed by the U.S. Air Force. The Air Force agreed to attempt to use specialized U.S. Air Force aircraft with military thermal detection systems for marine mammal detection and mitigation during a limited at-sea testing events. It should be noted, however, these systems are specifically designed for and integrated into a small number of U.S. Air Force aircraft and cannot be added or effectively transferred universally to Navy aircraft. The effectiveness remains unknown in using a standard DoD thermal system for the detection of marine mammals without the addition of customized system-specific computer software to provide critical reliability (enhanced detection, cueing for an operator, reduced false positive, etc.)</p> <p>Finally, current DoD thermal sensor are not always optimized for marine mammal detections verse object detection, nor do these systems have the automated marine mammal detection algorithms the Navy is</p>
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	<p>testing via its ongoing research program. The combination of thermal technology and automated algorithms are still undergoing demonstration and validation under Navy funding.</p> <p>It would not be effective or practical for Navy lookouts to conduct observations over large swaths of water (i.e., throughout mitigation zones) using the Navy's current infrared targeting sensors due to their narrow fields of view and technological design specific to fine-scale targeting.</p> <p>In summary, thermal detection systems specifically for marine mammal detection have not been sufficiently studied both in terms of their effectiveness within the environmental conditions found in the Study Area and their compatibility with Navy training and testing (i.e., polar waters vs. temperate waters). As discussed below, the effectiveness of even the most advanced thermal detection systems with technological designs specific to marine mammal surveys is highly dependent on environmental conditions, animal characteristics, and animal behaviors. At this time, thermal detection systems have not been proven to be more effective than, or equally effective as, traditional techniques currently employed by the Navy to observe for marine mammals (i.e., naked-eye scanning, hand-held binoculars, high-powered binoculars mounted on a ship deck). The use of thermal detection systems would compromise the Navy's ability to observe for marine mammals within its mitigation zones in the range of environmental conditions found throughout the Study Area. Furthermore, thermal detection systems are designed to detect marine mammals and do not have the capability to detect other resources for which the Navy is required to implement mitigation, including sea turtles. Focusing on thermal detection systems could also provide a distraction from and compromise to the Navy's ability to implement its established observation and mitigation requirements. The mitigation measures discussed in Section 5.3 (Procedural Mitigation to be Implemented) of the Draft EIS include the maximum number of lookouts the Navy can assign to each activity based on available manpower and resources; therefore, it would be impractical to add personnel to serve as additional lookouts. For example, the Navy does not have available manpower to add lookouts to use thermal detection systems in tandem with existing Lookouts who are using traditional observation techniques. Thermal detection systems are more useful for detecting marine mammals in some marine environments than others. Current technologies have limitations regarding water temperature and survey conditions (e.g., rain, fog, sea state, glare, ambient brightness), for which further effectiveness studies are required. Thermal detection systems are generally thought to be most effective in cold environments, which have a large temperature differential between an animal's temperature and the environment.</p> <p>Current thermal detection systems have proven more effective at detecting large whale blows than the bodies of small animals, particularly at a distance. The effectiveness of current technologies has not been demonstrated for small marine mammals. Thermal detection systems exhibit varying degrees of false positive detections (i.e., incorrect notifications) due in part to their low sensor resolution and reduced</p>
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	<p>performance in certain environmental conditions. False positive detections may incorrectly identify other features (e.g., birds, waves, boats) as marine mammals. In one study, a false positive rate approaching one incorrect notification per 4 min. of observation was noted. The Defense Advanced Research Projects Agency funded six initial studies to test and evaluate infrared-based thermal detection technologies and algorithms to automatically detect marine mammals on an unmanned surface vehicle. Based on the outcome of these initial studies, follow-on efforts and testing are planned for 2018-2019. The Office of Naval Research Marine Mammals and Biology program funded a project (2013-2018) to test the thermal limits of infrared-based automatic whale detection technology. This project is focused on capturing whale spouts at two different locations featuring subtropical and tropical water temperatures, optimizing detector/classifier performance on the collected data, and testing system performance by comparing system detections with concurrent visual observations. The program is also funding studies that use unmanned aerial vehicles to assess marine mammal behaviors and body conditions.</p> <p>The Navy plans to continue researching thermal detection systems for marine mammal detection to determine their effectiveness and compatibility with Navy applications. If the technology matures to the state where thermal detection is determined to be an effective mitigation tool during training and testing, the Navy will assess the practicability of using the technology during training and testing events and retrofitting its observation platforms with thermal detection devices, if practical. The assessment will include an evaluation of the budget and acquisition process (including costs associated with designing, building, installing, maintaining, and manning equipment that is expensive and has a relatively short lifecycle before key system components need replacing); logistical and physical considerations for device installment, repair, and replacement (e.g., conducting engineering studies to ensure there is no electronic or power interference with existing shipboard systems); manpower and resource considerations for training personnel to effectively operate the equipment; and considerations of potential security and classification issues. New system integration on Navy assets can entail up to 5 to 10 years of effort to account for acquisition, engineering studies, and development and execution of systems training. The Navy will provide information to NMFS about the status and findings of Navy-funded thermal detection studies and any associated practicability assessments at the annual adaptive management meetings.</p>
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<p>Vessel Speeds. Limitations on typical vessel speeds in sensitive areas to 10 knots (unless higher speeds are critical to meet training needs);</p> <p>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.</p>	<p>Navy Response [3]. The Navy is unable to incorporate the CCC proposed condition because it would not be practical for the Navy to implement preventing the Navy from meeting testing and training requirements. However, the following information is provided to elaborate on several key points supporting the Navy's position. A vessel speed restriction is not practical, because of the constraints of training, testing, and scheduling. Median speed of all Navy vessels within Southern California is typically already low, with median speeds between 5 and 12 knots.</p> <p>The main driver for ship speed reduction is the reducing the possibility and severity of ship strikes to large whales. However, even given the wide ranges of speeds from slow to fast that Navy ships must use to meet training and testing requirement, the Navy has a very low strike history to large whales in Southern California with no whales struck by the Navy from 2010-2018. Furthermore, no Navy ship strike of a marine mammal on record in Southern California has occurred in the coastal area (~40 nm from shore) which is where speed restrictions are most requested. Finally, the most recent model estimate of the potential for civilian ship strike risk to blue, humpback, and fin whales off California found the highest risk near San Francisco and Long Beach associated with commercial ship routes to and from those ports (Rockwood et al. 2018). There was no indication of a similar high risk to these species off San Diego, where the HSTT Study Area occurs.</p> <p>The Navy requires flexibility for use of variable ship speeds for training, testing, operational, safety, and engineering qualification requirements. Navy ships typically use the lowest speed practical given individual mission needs. Previously, the Navy commissioned a vessel density and speed report for based on an analysis of Navy ship traffic in the HSTT Study Area between 2011 and 2015. Median speed of all Navy vessels within Southern California is typically already low, with median speeds between 5 and 12 knots. Slowest speeds occurred closer to the coast including the general approaches to San Diego Bay and other coastal areas. Further, the presence and transits of commercial and recreational vessels, annually numbering in the thousands, poses a more significant risk to large whales than the presence of Navy vessels. [Draft EIS Section 3.7.3.4.1 (Impacts from Vessels and In-Water Devices) and Section K.4.1.6.2 (San Diego [Arc] Blue Whale Feeding Area Mitigation Considerations), state the important differences between most Navy vessels and their operation and commercial ships that individually make Navy vessels much less likely to strike a whale.]</p> <p>When developing Phase III mitigation measures, the Navy analyzed the potential for implementing additional types of mitigation, such as vessel speed restrictions within the HSTT Study Area. The Navy determined that based on how the training and testing activities will be conducted within the HSTT Study Area under the Proposed Action, vessel speed restrictions would be incompatible with practicability criteria for safety, sustainability, and training and testing missions, as described in Section 5.3.4.1 (Vessel</p>
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	<p>Movement). Navy vessels, like all commercial vessels, operate in accordance with the navigation rules established by the U.S. Coast Guard in accordance with international law formalized in the Convention on the International Regulations for Preventing Collisions at Sea, 1972. Applicable navigation requirements include, but are not limited to, Rule 5 (Lookouts) and Rule 6 (Safe Speed). These rules require that vessels proceed at a safe speed so that proper and effective action can be taken to avoid collision including collisions with marine mammals, and be stopped within a distance appropriate to the prevailing circumstances and conditions.</p> <p>The Navy will continue implementing practical mitigation to avoid interactions with marine mammals during activities that involve vessel movements with the intent to reduce strike to large whales to the maximum extent possible.</p> <p>Current Navy Standard Operating Procedures and mitigations require a minimum of at least one lookout on duty while underway (in addition to bridge watch personnel) and, so long as safety of navigation is maintained, to <u>keep 500 yards away from large whales and 200 yards away from other marine mammals (except for bow-riding dolphins and pinnipeds hauled out on shore or structures).</u></p>
<p><u>Marine Mammal Observers.</u> Improvement of observer effectiveness through the use of NMFS-certified marine mammal observers.</p> <p>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.</p>	<p><u>Navy Response [4].</u> The Navy is unable to incorporate the CCC proposed measure because it would not be practical for the Navy to implement and is not necessary for consistency with Coastal Act Section 30230.</p> <p>The Navy currently requires at least 1 qualified lookout on watch at all times a vessel is underway. In addition, on surface ships with hull-mounted sonars during sonar events, the number increases with 2 additional lookouts on the forward portion of the vessel (i.e., total of 3 lookouts). Furthermore, unlike civilian commercial ships, there are additional bridge watch standers on Navy ships viewing the water during all activities. The Navy's Marine Species Awareness training that all bridge watchstanders including lookouts take has been reviewed and approved by NMFS. This training is conducted annually and prior to major training events. Note, Navy visual monitoring from lookouts and bridge watchstanders as well as unit-based passive acoustic detection when available and appropriate.</p> <p>Mandating NMFS-certified marine mammal observers on all ships would require setting up and administering a certification program, providing security clearance for certified people, ensuring that all platforms are furnished with these individuals, and housing these people on ships for extended times from weeks to months. This would be an extreme logistic burden on realistic training. The requirement for additional non-Navy observers would provide little additional benefit, especially at the near ship mitigation ranges for mid-frequency active sonars on surface ships (<1,000 yards), nor be significantly better than the current system developed by the Navy in consultation with NMFS. Therefore, the Navy's current system is already consistent to the maximum extent practical with Coastal Act Section 30230</p>

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	<p>However, the following information is provided to elaborate on several key points supporting the Navy's position.</p> <p>The purpose of Navy lookouts is to provide sighting information for other boats and vessels in the area, in-water debris, and other safety of navigation functions. During active sonar use, additional personnel are assigned for the duration of the sonar event. In addition, the other Navy personnel on a given bridge watch along with designated lookouts are also constantly watching the water for safety of navigation and marine mammals.</p> <p>Inclusion of additional non-Navy marine mammal observers (MMO) would have only limited benefit given the need for personnel to only reliably report marine mammal within discrete mitigation zones relatively close to the ship (<1000 yards). As mentioned previously, there is already adequate visual observation around the ship for safety and marine mammal mitigation purposes from existing lookouts and bridge watch standers. Furthermore, the logistics of extended ship deployments for civilian MMOs (from weeks to often months at sea), berthing space availability, security classification requirements, and numbers of observers needed for every sonar equipped ship in the Navy are very problematic. Navy training and testing activities often occur simultaneously and in various regions throughout the Study Area, with underway time that could last for days or multiple weeks at a time. The pool of certified marine mammal observers across the US West Coast is rather limited, with many already engaged in regional NMFS survey efforts. Relative to the number of dedicated MMOs that would be required to implement this condition, as of July 2018, there are approximately 22 sonar-equipped Navy ships (i.e., surface ships with hull-mounted active sonars) stationed in San Diego. Six additional vessels from the Pacific Northwest also transit to Southern California for training (28 ships times 2 observers per watch times 2 watches per day = minimum of 112 observers).</p> <p>Senior Navy commands in the Pacific continuously reemphasize the importance of lookout responsibilities to all ships. Further, the Navy has an ongoing study where certified Navy civilian scientist observers embark periodically on Navy ships in support of a comparative lookout effectiveness study. Results from this study will be used to make recommendations for further improvements to lookout training.</p>
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GEOGRAPHIC MITIGATION

In developing the HSTT EIS/OEIS, the Navy reanalyzed existing mitigation areas and considered new habitat areas suggested by the public, NMFS, CCC, and other non-Navy organizations. The Navy worked collaboratively with NMFS to develop mitigation areas using inputs from the operational community, the best available science, published literature, predicted activity impact footprints, and marine species monitoring and density data. The Navy is continuing to work with NMFS to finalize its mitigation areas through the consultation processes. A detailed discussion of individual mitigation areas is provided in Section 5.4 (Mitigation Areas to be Implemented) of the HSTT EIS/OEIS. The Navy considered a mitigation area to be effective if it met the following criteria: (1) The mitigation area is a key area of biological or ecological importance or contains cultural resources, and (2) The mitigation would result in an avoidance or reduction of impacts. A full technical analysis of the mitigation areas that the Navy considered for marine mammals is provided in Appendix K (Geographic Mitigation Assessment for Areas under Consideration within the Hawaii-Southern California Training and Testing Study Area). The appendix includes background information and additional details for each of the areas considered, which include mitigation areas developed for Phase II, biologically important areas identified by Calambokis et al. (2015), provisional 2015 prohibited or restricted areas derived from the 2015 HSTT Phase II-related lawsuit, areas identified by the California Coastal Commission, and areas identified during the National Environmental Policy Act scoping process.

CCC Measure	Counter Proposal/Position discussion
<p>Biologically Significant Areas. Prohibition on 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;</p>	<p>Navy Response [5]. Specific areas are addressed below and shown in Figure 1. Regarding a buffer around mitigation areas, the Navy is unable to incorporate a 4-km buffer because it would not be practical for the Navy to implement, preventing the Navy from meeting its statutory training and testing mission. Existing Navy mitigation measures for sonar and explosives already protect against the more severe effects (mortality, PTS, TTS). These effects however are generally confined to areas much closer to the source than 4-km [i.e., <~200 yards for surface ship sonar (MF1)]. Behavioral effects at longer ranges are already accounted for in the Navy’s DEIS analysis and have been determined to not cause significant individual or population level long-term effects.</p>

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<p><i>(a) the Channel Island National Marine Sanctuary (including around Santa Barbara Island);</i></p>	<p>Navy Response [6]. The Navy’s currently proposed mitigation area is consistent with the CCMP without any further changes or additions.</p> <p>BACKGROUND: The Navy’s currently proposed HSTT Santa Barbara Island Mitigation Area (year-round) already covers the Channel Island National Marine Sanctuary within the HSTT Study area. The remaining parts of the Sanctuary are north of and outside of HSTT Study Area (See Figure 1). Only approximately 8 percent of the sanctuary, occurs within the Southern California portion of the Study Area. The Study Area overlaps with the sanctuary at Santa Barbara Island. To provide additional protective measures for all protected marine species in the Channel Islands National Marine Sanctuary, the Navy is proposing a Channel Islands Sanctuary Cautionary Area surrounding Santa Barbara Island out to 6 NM. This mitigation will be established to restrict the use of surface ship hull-mounted mid-frequency active sonar and in-water explosives used in gunnery (all caliber), torpedo, bombing, and missile exercises (including 2.75-inch rockets) during unit-level training, testing, and major training exercises year round. If a naval unit needs to use surface ship hull-mounted mid-frequency active sonar or in-water explosives in gunnery (all caliber), torpedo, bombing, and missile exercises (including 2.75-inch rockets) during unit level training and major training exercises in this area for national security, permission shall be required from the delegated Command authority, prior to their use in the Cautionary Area. The Navy will also provide NMFS with advance notification and include the information in the annual training and testing reports</p> <p>Existing conditions include:</p> <p><i>“The Navy will not use surface ship hull-mounted mid-frequency active sonar (MF1 only) and explosives used in small-, medium-, and large-caliber gunnery; torpedo; bombing; and missile (including 2.75” rockets) activities during unit-level training or major training exercises.</i></p> <p><i>– Should national security present a requirement for the use of mid-frequency active anti-submarine warfare sensor MF1 or explosives in small-, medium-, and large-caliber gunnery; torpedo; bombing; and missile (including 2.75” rockets) activities during unit-level training or major training exercises for national security, naval units will obtain permission from the appropriate designated Command authority prior to commencement of the activity. The Navy will provide NMFS with advance notification and include the information in its annual activity reports.”</i></p>
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(b) State and federal Marine Protected Areas (the offshore areas shown in red, light blue, and green in Exhibit 5);

Navy Response [7]. As stated in the HSTT EIS, the Navy will avoid conducting sonar and explosive training and testing activities in the majority of the Southern California Marine Protected Areas (see Table 6.1-2 from the HSTT DEIS and **Table 1** and **Figure 1** of this document) within the HSTT Study Area.

BACKGROUND: The Navy discusses Marine Protected Areas (MPA) in Section 6.1.2 of the HSTT DEIS, in which it analyzed potential overlap between Navy activities and MPAs. In accordance with Executive Order 13158, the Navy has considered the potential impacts of its proposed activities to the national system of marine protected areas that contain marine waters within the Study Area, factoring in Navy standard operating procedures and mitigation when applicable to the stressor and resource. Such mitigation efforts will, to the maximum extent practical, avoid or minimize harm to natural and cultural resources for which these marine protected areas were designated. Relative to potential effects to marine species, excluding marine mammals, most if not all MPA associated fish and invertebrates would not be able to hear mid- and high-frequency Navy sonar systems.

Santa Barbara Island MPA

This area is already encompassed by the Navy's new proposed Santa Barbara Island Mitigation Area which restricts all sonar (not just MF1) and explosives during unit-level training and major training exercises year-round.

Catalina Island MPAs & Mainland California Coast MPAs (excluding any MPA portion in the proposed new San Diego Arc Mitigation Area and any in or adjacent to Silver Strand Training Complex)-

As stated in the Table 6.1-2 there are no activities proposed in these areas that would include the use of sonar or explosives.

Mainland California Coast MPAs In Or Adjacent to Silver Strand Training Complex-

The Navy is unable to incorporate the CCC proposed condition for this area because it would not be practical for the Navy to implement because of the ongoing and proposed critical activities conducted in this area. The Navy is unable to commit to any further geographic mitigations to area in or immediately adjacent to the Silver Strand Training Complex. This area has significant training and testing requirements with a variety of systems and activities.

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

Navy Response [8]. The Navy is unable to incorporate the CCC proposed condition because it would not be practical for the Navy to implement, preventing the Navy from meeting testing and training requirements. This position is based on practicability and biological justifications discussed in detail in Appendix K, and mentioned briefly above. The Navy will include language about San Nicolas Basin fin whale occurrence within a proposed Fin Whale Awareness message to be distributed annually to all Navy units operating in Southern California. This message along with similar ones for blue whales and gray whales is intended to identify likely areas whales could be found, along with seasonality if applicable, and emphasize Navy unit adherence to existing mitigation measures and safe navigation. In addition, as discussed below, the Navy has formally committed to NMFS to continued beaked whale and fin whale research and monitoring within San Nicolas Basin as well as other areas of Southern California that have not be surveyed as frequently. The scope of this effort spans 2019-2023.

BACKGROUND: San Nicolas Basin contains one of only two Navy instrumented ranges in the Pacific Ocean, and represents an extensive fiscal and logistic investment in infrastructure. The range consists of an array of 178 bottom-mounted hydrophones covering an area of about 1800 km². This area is a critical Navy focal area for in-water training and testing that cannot be duplicated or shifted anywhere else. A more detailed discussion of the importance of San Nicolas Basin to the Navy is contained in Appendix K.

The concept of this one basin being the only area where fin whales occur is a misconception based on limited small boat surveys and medium duration satellite tracking (multiple days-multiple weeks). Fin whales are widely distributed along the US West Coast including numerous locations in Southern California. From recent Navy-funded fin whale satellite tracking (2014-2017) using long-term (multiple weeks-multiple months) tags, fin whales have been documented moving significant distances daily along the US West Coast (up to 20 miles or more per day). New US West Coast modeling used in a ship strike risk analysis also shows more fin whales north of Southern California. Therefore, San Nicolas Basin is shown with only a small potential fin whale abundance compared to the rest of their distribution (shown at the end of this discussion).

Cuvier's beaked whales have been studied extensively by the Navy in San Nicolas Basin from 2004 through 2018. While there is a documented population of Cuvier's beaked whales that use parts of San Nicolas Basin, research to date has not demonstrated any population level effects even after some of the most extensive survey effort for any species. Navy field studies have documented many important population parameters including repeated sightings of the same individual, and observations of mother-calf pairs including repeated sightings of females with new calves after the first calf has weened. Furthermore, analysis of passive acoustic data from the Navy instrumented range is ongoing with approximately a decade of beaked whale echolocation detections (an indication of foraging for this species). In a new data review conducted in 2018, there has not been any significant change in Cuvier's beaked whale echolocation within San Nicolas Basin over an 8-year period from 2010-2017 in an area heavily used by the Navy. Finally, in a 2018 adaptive management meeting with the National Marine Fisheries Service, the Navy formally committed to continued beaked whale and fin whale research and monitoring within San Nicolas Basin as well as other areas of Southern California that have not be surveyed as frequently. The scope of

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this effort spans 2019-2023. Past and future reports on this monitoring are or will be available on the Navy's public monitoring web page.

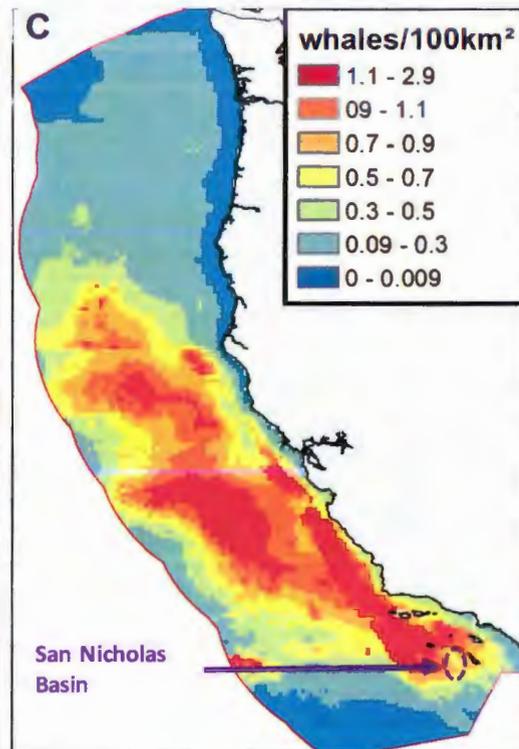


Figure C from Rockwood et al. (2018) shows modeled fin whale occurrence along the U.S. West Coast

Base figure from: Rockwood RC, Calambokidis J, Jahncke J. 2017. High mortality of blue, humpback and fin whales from modeling of vessel collisions on the U.S. West Coast suggests population impacts and insufficient protection. PLoS ONE 12(8): e0183052. <https://doi.org/10.1371/journal.pone.0183052> * (Navy added small circle indicating approximate location of San Nicholas basin)

* While title and paper suggests concerns for ship strikes to whales in California, locations of greatest concern are all non-Navy areas including shipping lanes off San Francisco and Los Angeles/Long Beach, with main stressor and risk being civilian commercial ship traffic. There have been no Navy ship strikes along the U.S. West Coast for the period 2010-2018. The last Navy strikes were in 2009 (far offshore, south of the circle shown in figure above), and the next previous ship strike in 2006 (again, far offshore).

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<p><i>(d) 1 km [0.5 nm] from shore (to protect coastal bottlenose dolphins);</i></p>	<p>Navy Response [9]. This condition is not necessary for Navy consistency with California’s enforceable policies. In addition, the Navy is unable to incorporate the CCC proposed condition.</p> <p>The California Coast stock of bottlenose dolphins does not appear to be in peril from any human factors including civilian and Navy coastal activities. Navy does not predict any significant effects to this stock in the HSTT DEIS, nor has there has been Navy caused mortality to this stock since Navy activities begin in Southern California over 40 years ago. Finally, the actual overlap between the stock and Navy small boat and mine warfare activities near Camp Pendleton and the Silver Strand Training Complex represents only a small fraction of the species total home range between central California and Baja Mexico. Therefore, additional geographic mitigations are unwarranted. The Navy already has existing mitigations in place and proposed in the HSTT DEIS which are based on activity specific conditions. These include the use of lookouts and observers before-during- and after an event, protective mitigation ranges where events can be paused while marine mammals transit, standoff distances where practical, etc. These measure are designed to be protective for all marine mammal species, including the California Coast stock of bottlenose dolphins.</p> <p>BACKGROUND: The California Coast stock of bottlenose dolphin, between 400-500 individuals, forages and transits within 1-km (0.5 nm) from the shoreline along the mainland coast of California and Baja Mexico (Marin County California to Ensenada, Mexico). NMFS’ latest stock assessment report for the 2017 reporting year suggests the population may be growing. Annual mortality rate from civilian anthropogenic sources (ex., civilian fishery interaction) is very small. Further, there has not been any previous Navy caused death or injury to this stock. Base on acoustic impact modeling in the HSTT DEIS, the Navy does not predict any mortality or significant injury (lung injury, PTS) to this stock from sonar or explosives.</p> <p>The coastal range of this dolphin species would only interact with Navy training and testing activities in the nearshore waters of Camp Pendleton (mostly small boat maneuvering), and with a very limited subset of Navy small boat and unmanned underwater vehicle mine warfare activities in the Silver Strand Training Complex off of San Diego (Figure 1). Limited water depth where these dolphins typically transit at these locations (surface zone to < 0.5 nautical miles) precludes approach by larger Navy vessels such as surface ships with the more powerful sonar systems. The remainder of the stock’s range between Point Loma and the southern boundary of Camp Pendleton, and from the northern boundary of Camp Pendleton to the northern boundary of the HSTT Study Area in addition to the depth limitations mentioned previously, are often bounded on the seaward side with extensive kelp beds through which Navy ships would not cross, as well as frequent civilian recreational use (pleasure boating, commercial and recreational fishing, paddleboarding and kayaking, swimming, etc.). Therefore, the probability for Navy activities in the non-Camp Pendleton and non-Silver Strand portions of their range through the HSTT Study Area is so low as to be discountable.</p>
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(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)

Navy Response [10]. The Navy is unable to incorporate the CCC proposed condition for the Tanner Bank blue whale BIA because it would not be practical for the Navy to implement preventing the Navy from meeting training and testing missions. The Navy, in consultation with the NMFS and after review of new as yet unpublished blue whale data available to the Navy in the spring 2018, has reevaluated the Santa Monica to Long Beach and San Nicolas BIAs. The Navy will combine the Santa Monica to Long Beach and San Nicolas BIAs with the currently proposed San Diego Arc BIA. The Navy's intent would be to apply the current San Diego Arc mitigation language to all three areas combined with one exception

BACKGROUND: There are two blue whale BIA that fall totally within HSTT SOCAL (San Diego and Tanner Bank) and two blue whale BIAs that only have a small extension into the northern portion of SOCAL (Santa Monica to Long Beach with only 14% of the full BIA in the HSTT Study Area and San Nicolas BIA with only 24% of the full BIA in the HSTT Study Area) (See **Figure 1**).

As discussed in detail in Appendix K, during the Navy's practicability and biological review of the Tanner Bank BIA, it was concluded that implementation of a mitigation area was not practical for this species. The area in and around Tanner Banks is a core high priority training and testing venue for SOCAL combining unique bathymetry and existing infrastructure (see **Figure 1**). This includes an existing bottom training minefield adjacent to Tanner Banks, future Shallow Water Training Range (SWTR West) expansion as well as proximity to critical tactical maneuver areas to the south and the Navy's underwater instrumented range to the northeast. Furthermore, the general area is in or adjacent to critical Navy training areas that cannot be done at other locations due to available, existing infrastructure, operationally relevant bathymetry, sea space, proximity to San Clemente Island and San Diego, etc.).

Furthermore, of all the blue whale BIAs designated, the Tanner Banks BIA had the fewest blue whale sighting records supporting its designation. New science since designation funded by the Navy further highlights how little Tanner Bank is used by blue whales as compared to the rest of their movements in SOCAL. Out of 73 blue whales tagged with satellite transmitters, only a few transits through Tanner Banks were documented during between 2014-2017. The longest cumulative time any individual whale stayed within the boundaries of the Tanner Banks BIA was less than one and a half days. Typical average blue whale daily movement along the U.S. West Coast is often up to 13-27 nautical miles a day (Oregon State University, unpublished data). Most blue whale area restricted foraging occurred around the northern Channel Islands, north of and outside of the HSTT SOCAL Study Area.

a) **Tanner Bank BIA**: The Navy is unable to incorporate the CCC proposed condition for the Tanner Bank blue whale BIA because it would not be practical for the Navy to implement preventing the Navy from meeting training and testing missions. This position is based on practicability and biological justifications discussed in detail in Appendix K, and mentioned briefly above. The Navy already has a new proposed mitigation area for the San Diego blue whale BIA (San Diego Arc Mitigation Area, Seasonal June 1 – October 31), which is designed to limit sonar hours for the more impactful active sonar source (MF1) and explosives which will provide additional protections for the same blue whale stock that would transit Tanner Bank. In addition, the Navy will be adding similar protections to two other blue whale BIAs described in (b) below.

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	<p>b) Santa Monica to Long Beach & San Nicolas BIAs: The Navy, in consultation with the NMFS and after review of new as yet unpublished blue whale data available to the Navy in the spring 2018, has reevaluated the Santa Monica to Long Beach and San Nicolas BIAs (Figure 1). The Navy will combine the Santa Monica to Long Beach and San Nicolas BIAs with the currently proposed San Diego Arc BIA for the purposes of limiting the number of hours of MF1 use in the BIAs and restrictions on specific explosives during some training and testing as described below. While the naming convention has yet to be promulgated (ex., San Diego-Santa Monica- San Nicolas Mitigation Area, SOCAL Blue Whale Mitigation Area, etc.), the Navy would apply the current San Diego Arc mitigation language to all three areas combined with one exception. Under this mitigation proposal:</p> <ul style="list-style-type: none"> - The Navy would not exceed 200 hours of surface ship hull-mounted mid-frequency active sonar (MF1) from June 1 through October 31 in the combined <i>San Diego, Santa Monica to Long Beach and, San Nicolas Blue Whale BIAs</i> within the HSTT Study Area, excluding normal maintenance and systems checks. -The Navy will not use explosives during large-caliber gunnery, torpedo, bombing, and missile (including 2.75" rockets) activities during <u>training and testing</u> within the <i>San Diego Arc BIA</i>. -The Navy will not use explosives during mine warfare, large-caliber gunnery, torpedo, bombing, and missile (including 2.75" rockets) activities during <u>training and testing</u> within the <i>Santa Monica to Long Beach BIA</i>. -The Navy will not use explosives during mine warfare, large-caliber gunnery, torpedo, bombing, and missile (including 2.75" rockets) activities during <u>training</u> within the <i>San Nicolas BIA</i>. (The Navy's Point Mugu Sea Range overlaps the HSTT Study Area in this area; based on potential future testing requirements, the Navy cannot agree to a total explosive exclusion for testing in this BIA). -Should national security present a requirement to conduct more than 200 hrs of MF1 sonar per year, with the exception of active sonar maintenance and systems checks, or use explosives during mine warfare, large-caliber gunnery, torpedo, bombing, and missile (including 2.75" rockets) activities, from June 1 – October 31, naval units will obtain permission from the appropriate designated Command authority prior to commencement of the activity. The Navy will provide NMFS with advance notification and include the information (e.g., hours or items of usage) in its annual activity reports.
<p>(f) any future-NMFS-designated Biologically Important Area (BIA)</p>	<p>Navy Response [11]. The Navy can commit to continued interaction with NMFS on future BIA evaluation during the adaptive management process.</p> <p>BACKGROUND: The Navy and NMFS meet annually to discuss the state of the HSTT permit, new science if applicable, and other issues related to the HSTT consultation. If NMFS proposes new BIAs to the Navy during this process, the Navy will conduct the same detailed practicability and biological analysis that was done for other areas within HSTT including Southern California (see Appendix K). Once NMFS formally establishes a new BIA area, the Navy would reassess mitigation.</p>

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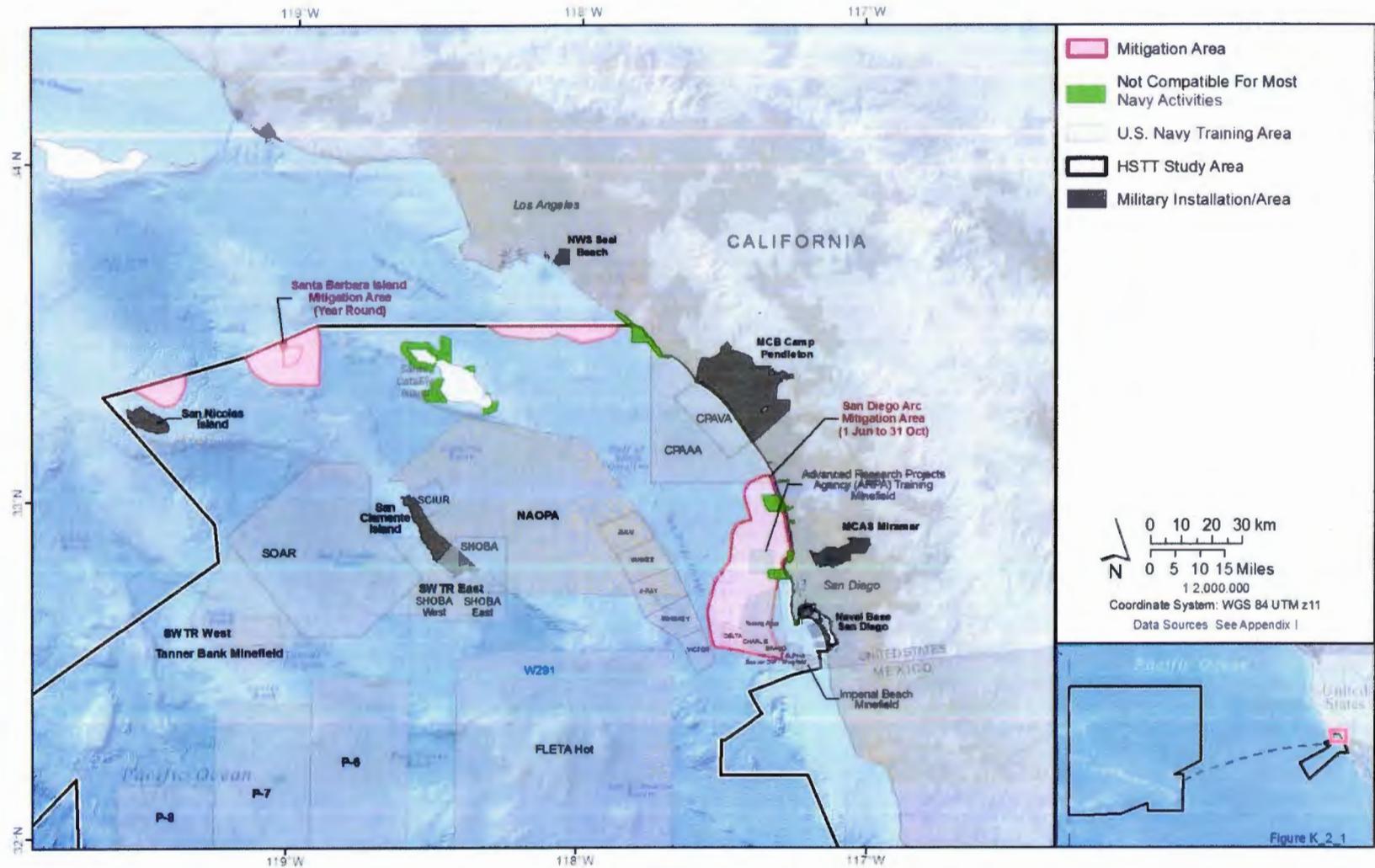


Figure 1. Southern California Range Complex With Proposed Mitigation Areas

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Table 1. Marine Protected Area Conclusions From HSTT DEIS Chapter 6

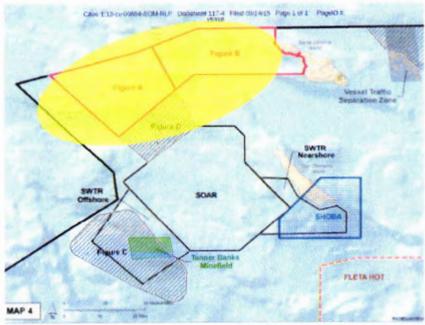
Marine Protected Area (Ecosystem Focus)	Summary of Relevant Regulations	Navy Proposed Activities And Marine Protected Area Considerations
Catalina Island MPAs		
Arrow Point to Lion Head Point State Marine Conservation Area (established 2012, 1.6 km ²)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for commercial and/or recreational purposes. However, all commercial and recreational takes are allowed in accordance with current regulations, except the recreational take of invertebrates which is prohibited (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Arrow Point to Lion Head Point (Catalina Island) State Marine Conservation Area.
Blue Cavern State Marine Conservation Area (established 2012, 6.8 km ²)	Take of all living marine resources is prohibited except for take pursuant to activities authorized under subsections of 14 California Code of Regulations 632(b)(124) (subsections 632[b][102][D] and 632[b][102][E]). Except as pursuant to Federal law, emergency caused by hazardous weather, or as provided in subsection 632(b)(102)(D), it is unlawful to anchor or moor a vessel in the Catalina Marine Science Center Marine Life Refuge (Section 10932, Fish and Game Code)(California Department of Fish and Game, 2012).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Blue Cavern State Marine Conservation Area.
Bird Rock State Marine Conservation Area (established 2012, 19.9 km ²)	Take of all living marine resources is prohibited, except by fishing activities, which are restricted, (California Department of Fish and Game, 2012).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Bird Rock State Marine Conservation Area.
Long Point (Catalina Island) State Marine Reserve (established in 2012, 4.3 km ²)	Take of all living marine resources is prohibited (California Department of Fish and Game, 2012).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Long Point State Marine Reserve.
Lover's Cove (Catalina Island) State Marine Conservation Area (established 2012, 0.2 km ²)	Take of all living marine resources is prohibited except by fishing activities that are exempt of the prohibitions and maintenance of artificial structures, (California Department of Fish and Game, 2012).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Lover's Cove (Catalina Island) State Marine Conservation Area.
Northwest Santa Catalina Island Area of Special Biological Significance State Water Quality Protection Area (established 1974, 53.6 km ²)	Waste discharges are prohibited.	The Navy does not discharge waste in or near this area. Sonar-related activities and other training and testing activities are not likely to harm the area's protected natural resources. No explosives are used in this marine protected area. A detailed analysis of Water Quality impacts in the Study Area is included in Section 3.2 (Sediments and Water Quality). Therefore, no impacts are expected within the Northwest Santa Catalina Island ASBS1 State Water Quality Protection Area.
Southeast Santa Catalina Island Area of Special Biological Significance State Water Quality Protection Area (established 1974, 11.2 km ²)	Waste discharges are prohibited.	The Navy does not discharge waste in or near this area. Sonar-related activities and other training and testing activities are not likely to harm the area's protected natural resources. No explosives are used in this marine protected area. Therefore, no impacts are expected within

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		the Southeast Santa Catalina Island ASBS State Water Quality Protection Area
Western Santa Catalina Island Area of Special Biological Significance State Water Quality Protection Area (established 1974, 9.1 km2)	Waste discharges are prohibited .	The Navy does not discharge waste in or near this area. A detailed analysis of Water Quality impacts in the Study Area is included in Section 3.2 (Sediments and Water Quality). Therefore, no impacts are expected within the Western Santa Catalina Island ASBS State Water Quality Protection Area.
California Coast MPAs		
Cabrillo State Marine Reserve (established 2012, 1 km2)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Cabrillo State Marine Reserve.
Laguna Beach State Marine Conservation Area (established 2012, 9 km2)	is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Laguna Beach State Marine Reserve.
Matlahuayl State Marine Reserve (established 2012, 2.7 km2)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource. Boats may be launched and retrieved only in designated areas and may be anchored within the reserve only during daylight hours (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Matlahuayl State Marine Reserve.
San Diego-Scripps Area of Special Biological Significance State Water Quality Protection Area (established 1974, 0.4 km2)	Waste discharges are prohibited .	Sonar-related activities and other training and testing activities, are not likely to harm the area's protected natural resources in this marine protected area. Therefore, no impacts are expected within the San Diego-Scripps Coastal State Marine Conservation Area.
South La Jolla State Marine Conservation Area (established 2012, 6.4 km2)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for recreational and/or commercial purposes, unless following the specified exceptions (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the South La Jolla State Marine Conservation Area.
South La Jolla State Marine Reserve (established 2012, 13.1 km2)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the South La Jolla State Marine Reserve.
Swami's State Marine Conservation Area (established 2012, 32.8 km2)	is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for recreational and/or commercial purposes, unless following the specified exceptions (California Department of Fish and Wildlife, 2016).	No proposed activities are expected to occur in the area. Therefore, no impacts are expected within the Swami's State Marine Conservation Area.
San Diego Bay National Wildlife Refuge (established 1988, 17.2 km2)	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for recreational or commercial purposes. Swimming, operating personal watercraft (e.g., jet ski), and water skiing are not allowed on the refuge (U.S. Fish and Wildlife Service, 2014).	No activities are proposed within the San Diego Bay National Wildlife Refuge. Activities in the bay would not injure, damage, take, or possess any living, geological, or cultural marine resource in the Refuge. Therefore, no impacts are expected within the San Diego Bay National Wildlife Refuge.

ADDITIONAL MITIGATION (from CCC adopted findings of 8 August 2018 – from NRDC)

Measure	Counter Proposal/Position discussion
<p data-bbox="236 358 719 526">(1) Beaked Whale Refuge Areas. Replace the Commission staff recommended exclusion area west of San Clemente Island with three beaked whale “refuge” areas to the north of the SOAR range.</p>  <p data-bbox="236 906 719 987">Established through December 2018 on September 2015 Settlement Agreement and Order in the Conservation Council</p>	<p data-bbox="740 358 1949 456">Navy Response [12]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, this condition is not required to further Navy consistency with CCMPs.</p> <p data-bbox="740 477 1949 574">The Navy received numerous comments recommending various geographic restrictions from a few non-governmental organizations and analyzed each one in the HSTT EIS/OEIS. Analysis of these areas in Southern California is contained in Appendix K of the HSTT DEIS/OEIS.</p> <p data-bbox="740 596 1949 1375">The beaked whale species detected most frequently in Southern California is Cuvier’s beaked whale. Beaked whales are not Endangered under the Endangered Species Act and have not been subject to large scale commercial hunting as was the case for many baleen species. Therefore, beaked whales likely are at and maintain stable populations at levels supportable by the current environment. Cuvier’s beaked whales are widely distributed within Southern California and across the Pacific with almost all suitable deep water habitat >800 m conceivably containing Cuvier’s beaked whales. In new unpublished Navy funded data, beaked whales have even been detected over deep water, open abyssal plains (>14,000 feet). Only limited population vital rates exist for beaked whales, covering numbers of animals, populations vs. subpopulations determination, and residency time for individual animals. All of this effort has been Navy funded in Southern California since 2004. The science of passive acoustic monitoring is positioned to answer some questions on occurrence and seasonality of beaked whales, but cannot as of yet address all fundamental population parameters including individual residency time. Furthermore, while Navy-funded passive acoustic monitoring within Southern California has been ongoing for 28 years, not all sites have been consecutively monitored every year. Deployment of single bottom-mounted passive acoustic devices have been the primary tools used to date and form the basis for erroneous claims of beaked whale refuges. For instance, these single devices have been deployed and removed from various locations with some sites having multiple years of data, others significantly less, perhaps just a few months out of a year. While Cuvier’s beaked whales have been detected north and west of Tanner and Cortes Banks, as noted above this species is also detected in most all Southern California locations > 800 m in depth. Furthermore, the Navy has been training and testing in and around Tanner and Cortes Banks and San Nicolas Basin west of San Clemente Island with the same basic or similar activities for over 40 years, with no evidence of any adverse impacts having occurred. Further, there are no indications that Navy training and testing in the Southern California portion of the HSTT Study Area has had any adverse</p>

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	<p>impacts on populations of beaked whales in Southern California. In particular, a re-occurring population of Cuvier’s beaked whales co-exists within San Nicolas Basin, an area with significantly more in-water sonar use than those proposed by the CCC condition. The Navy’s Marine Mammal Monitoring on Navy Ranges (M3R) program has documented continual Cuvier’s beaked whale presence on SOAR over 8-years from 2010-2017 with slight abundance increases through 2017 (DiMarzio et al. 2018¹).</p> <p>The NGO text used to support this condition is correct when it states: <i>“Eight Cuvier’s beaked whales tagged off the Southern California coast for periods of up to three months were present within the San Nicholas Basin on 53% of the days transmitted; one individual occurred inside the San Nicholas Basin on 74% of days over three months the tag was active”</i>. Data supporting this statement is from Navy-funded beaked whale efforts in Southern California from 2006 through 2014; similar Navy-funded effort has continued from 2015-2018 and planned through 2022]. A more up to date summary as of August 2018 from researchers conducting this work is provided below:</p> <p>“Navy-funded research on Cuvier’s beaked whales within the Southern California (SoCal) Range Complex began in 2006. In 2008, researchers began deploying satellite tags as a part of this research. To date, 27 Low- Impact Minimally-Percutaneous External-electronics Transmitting (LIMPET) tags have been deployed within the complex. Twenty-five of those whales were tagged within the San Nicolas Basin and two were tagged in the Catalina Basin. Average transmission duration was 36.6 days (sd = 29.8), with the longest transmitting for 121.3 days. Movement data suggest that Cuvier’s beaked whales have a high degree of site-fidelity to the Southern California Range Complex, and the San Nicolas basin in particular. Overall, there were 3,207 filtered location estimates from the 27 tagged whales, 91% of which were within the SoCal Range Complex. 54% of all location estimates were within the San Nicolas Basin, with twelve tagged whales spending more than 80% of their transmission duration within the basin. The two whales tagged in the Catalina Basin never entered the San Nicolas Basin. Only three whales tagged in the San Nicolas Basin crossed into the Catalina Basin (1.3% of all locations); two of those whales had just one Catalina Basin location each, though the remaining whale had 28% of its locations there. Five whales tagged in the San Nicolas Basin moved into the Santa Cruz Basin for anywhere from 1-62% of their time (6% of all locations). In contrast, 20 of 25 whales tagged in the San Nicolas Basin moved south of the basin at some point. Of these 20 whales, most remained within either Tanner Canyon or the San Clemente Basin immediately to the south, but one traveled north to near San Miguel Island and four traveled south towards Guadalupe Island. Three of these whales have not been documented in the San Nicolas basin since, though to date at least six whales tagged in the San Nicolas Basin have been re-sighted there a year or more after the deployment. Additionally, one of the whales that was south of San Nicolas when the tag stopped transmitting has since been sighted three times since.”</p>
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¹ DiMarzio, N., Jones, B., Moretti, D., Thomas, L., Oedekoven, C. 2018. Marine Mammal Monitoring on Navy Ranges (M3R) on the Southern California Offshore Range (SOAR) and the Pacific Missile Range Facility (PMRF)- 2017. Naval Undersea Warfare Center, Newport RI. 34 pp.

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	<p>In summary, the majority of satellite tagged Cuvier’s beaked occurred on the instrumented range (SOAR) in San Nicolas Basin. The erroneous claim for refuge area north of San Nicolas Basin is not supported by the majority of these tracks. It is true some individuals traveled north into Santa Cruz basin (“A” in the figure) for a short period: 5 of the 27 tagged to date out of estimated population that probably numbers in the low hundreds (Moore et al. 2017)². It should be remembered, this is a small sample sized (n=5 of 27), was based on medium term tags which only stay on for multiple weeks so therefore long term occurrence across multiple months to a year is not obtained, and should be taken in context that other individuals from those tagged at San Nicolas basin went south as well. There is no scientific information that the indicated northern areas are more or less important than San Nicolas basin. Movements in and around San Nicolas basin including forays north to Santa Cruz basin could be part of cyclic prey availability or other as yet unknown natural life history function. Additional satellite tagging information from the Navy’s Cuvier’s beaked whale population study from 2013 through the 2016-2017 field season information is shown in Figure 2.</p> <p>Given that there is no scientific evidence that Navy training and testing activities are having population level impacts to beaked whales anywhere in the Southern California portion of the HSTT Study Area, the uncertainty of current residence of Cuvier’s beaked whales in the areas north and west of SOAR, the fact that general occurrence of beaked whales in Southern California may not necessarily equate to factors typically associated with biologically important areas (i.e., one area not more important than another), and consideration of the importance of Navy training and testing in the areas around SOAR and Tanner and Cortes Banks as discussed in Appendix K (Geographic Mitigation Assessment), additional geographic mitigation to create a “refuge” in the recommended area is not scientifically supported or warranted.</p>
<p>(2) Blue Whale Temporal Extension. Extend the blue whale exclusion season to the end of December, prohibit hull-mounted mid-frequency sonar (except for system checks), and prohibit helicopter/aircraft “dipping” sonar, within the San Diego Arc during the blue whale season.</p>	<p>Navy Response [13]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, this condition is not required to further Navy consistency with CCMPs. However, the Navy does plan to implement additional mitigation within the San Diego Arc, as discussed below, to further avoid or reduce impacts on marine mammals from acoustic and explosive stressors and vessel strikes from Navy training and testing in this location</p>

² Moore, J., J. Barlow, E. Falcone, G. Schorr, D. Morretti, K.A. Curtis. 2017. Final Report- A power analysis and recommended study design to directly detect population level consequences of acoustic disturbance. Prepared for: Office of Naval Research, Washington DC. Award Numbers: N0001415IP00088/ N0001415WX01764/ N000141512899

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1) Seasonality Extension to the end of Dec. Analysis of the San Diego Arc and its consideration for additional geographic mitigation is provided in the EIS/OEIS in Appendix K, Section K.4.1.6 (San Diego (Arc) Blue Whale Feeding Area; Settlement Areas 3-A through 3-C, California Coastal Commission 3 NM Shore Area, and San Diego Arc Area), Section K.5.5 (Settlement Areas within the Southern California Portion of the HSTT Study Area), and Section K.6.2 (San Diego Arc: Area Parallel to the Coastline from the Gulf of California Border to just North of Del Mar). This analysis included consideration of seasonality and the potential effectiveness of restrictions to use of mid-frequency active sonar by Navy in the area. Based on the Appendix K analyses, the Navy plans to implement additional mitigation within the San Diego Arc, as detailed in Section 5.4.3 (Mitigation Areas for Marine Mammals in the Southern California Portion of the Study Area), to further avoid or reduce impacts on marine mammals from acoustic and explosive stressors and vessel strikes from Navy training and testing in this location. Regarding the proposed increase in seasonality to December 31, the San Diego Arc and current seasonality was established by NMFS during its Biologically Important Area designation process. While blue whale calls have been detected in Southern California through December (Rice et al., 2017, Lewis & Širović in press), given a large propagation range (10–50 km or more) for low-frequency blue whale vocalization, blue whale call detection from a Navy-funded single passive acoustic device near the San Diego Arc may not be a direct correlation with blue whale presence within the Arc from November through December. In addition, passive acoustic call detection data does not currently allow for direct abundance estimates. Calls may indicate some level of blue whale presence, but not abundance or individual residency time. In the most recent Navy-funded passive acoustic monitoring report including the one site in the northern San Diego Arc from June 2015 to April 2016, blue whale call detection frequency near the San Diego Arc starts declining in November after an October peak (Rice et al., 2017, Širović, personal communication). The newest Navy-funded research on blue whale movements from 2014 to 2017 along the U.S. West Coast based on satellite tagging has shown that individual blue whale movement is wide ranging with large distances covered daily (Mate et al., 2017). Nineteen (19) blue whales were tagged in 2016, the most recent reporting year available (Mate et al., 2017). Only 5 of the 19 blue whales spent time in the Southern California Range Complex portion of HSTT, and those 5 only spent a few days within the range complex (2–13 days). Average distance from shore for blue whales was 113 km. None of the 19 blue whales tagged in 2016 spent time within the San Diego Arc. From previous year efforts (2014–2015), only a few tagged blue whales passed through the San Diego Arc. In addition, Navy and non-Navy-funded blue whale satellite tagging studies started in the early 1990s and has continued irregularly through 2017. In general, most blue whales start a south-bound migration from the “summer foraging areas” in the mid- to late-fall time period, unless food has not been plentiful, which can lead to a much earlier migration south. Therefore, while blue whales have been documented within the San Diego Arc previously, individual use

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	<p>of the area is variable, likely of short duration, and declining after October. Considering the newest passive acoustic and satellite tagging data, there is no scientific justification for extending the NMFS designated San Diego Arc period from October 31 to December 31.</p> <p><u>2) Prohibit hull-mounted mid-frequency sonar and helicopter dipping sonar.</u> The San Diego Arc is already part of a Navy proposed mitigation area where use of hull-mounted mid-frequency sonar is annually limited.</p> <p>Appendix K discusses the Navy's analysis of mid-frequency active sonar restrictions within the San Diego Arc. Other training mid-frequency active sonar (MFAS) systems are likely to be used less frequently in the vicinity of the San Diego Arc than surface ship mid-frequency active sonars. Given water depths, the San Diego Arc area is not conducive for large scale anti-submarine warfare exercises, nor near areas where other anti-submarine warfare training and testing occurs.</p> <p>Due to the presence of existing Navy subareas in the southern part of the San Diego Arc, a limited amount of helicopter dipping MFAS could occur. These designated range areas are required for proximity to airfields in San Diego such as Naval Air Station North Island and for airspace management. However, helicopters only used these areas in the Arc for a Kilo Dip. A Kilo Dip is a functional check of approximately 1-2 pings of active sonar to confirm the system is operational before the helicopter heads to more remote offshore training areas. This ensures proper system operation and avoids loss of limited training time, expenditure of fuel, and cumulative engine use in the event of equipment malfunction. The potential effects of dipping sonar have been accounted for in the Navy's analysis. Further, due to lower power settings for dipping sonar, potential impact ranges of dipping sonar are significantly lower than surface ship sonars. For example, the HSTT average modeled range to temporary threshold shift of dipping sonar for a 1-second ping on low-frequency cetacean (i.e., blue whale) is 77 m (HSTT Draft EIS/OEIS Table 3.7-7). This range is easily monitored for large whales by a hovering helicopter and is accounted for in the Navy's proposed mitigation ranges for dipping sonars. Limited ping time and lower power settings therefore would limit the impact from dipping sonar to any marine mammal species. During a Kilo Dip or any other use of MFAS, the Navy will implement the procedural mitigation as described in Section 5.3.2.1 (Active Sonar).</p> <p>It should be pointed out that the CCC condition is based on new Navy funded behavioral response research specific to beaked whales (Falcone et al., 2017). The Navy relied upon the best science that was available to develop behavioral response functions in consultation with NMFS for the Draft EIS/OEIS. The article cited in the comment (Falcone et al., 2017) was not available at the time the Draft EIS/OEIS was published. The new information and data presented in the article has been thoroughly reviewed when it</p>
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became available, further considered in discussions with some of the paper's authors, and will be incorporated into the HSTT Final EIS/OEIS. Many of the confounding variables requiring further analysis for beaked whales and dipping sonar impact assessment are still being researched under continued Navy funding through 2019. The small portion of designated Kilo Dip areas that overlap the southern part of the San Diego Arc are not of sufficient depth for preferred habitat of beaked whales (see Figure 2.1-9 in the HSTT Draft EIS/OEIS). Furthermore, the research conducted by Falcone et al. (2017) was focused exclusively on beaked whales and cannot be scientifically extended to blue whales or any other species, whose reactions (or lack of reactions) to dipping sonar could be completely different.

Finally, Navy-funded behavioral response studies of blue whales to simulated surface ship MFAS demonstrated there are distinct individual variations as well as strong behavioral state considerations that influence any response or lack of response (Goldbogen et al., 2013). Navy-funded satellite tracking of blue whales in Southern California and along the US West Coast from 2014-2017 documented extensive daily movements by individual blue whales (Oregon State University, personal communication). 83 blue whales were tagged during this project representing approximately 5% of the entire Eastern Pacific blue whale stock. While variable by year, average individual blue whale daily movement ranged from 25-44 miles per day. Use of the San Diego Arc by blue whales also varied by year. Out of 21 whales tagged in 2014, 14 traveled through the Arc. However, individuals stayed within the Arc <1 to no more than 3.4 days. Only 9 of 22 blue whales traveled through the Arc in 2015 (<1-3 days), no blue whales traveled through the Arc in 2016, and only one blue whale traveled through the Arc in 2017 (<0.3 days).

In conclusion, given the infrequent use of and low residency within the Arc as well as high degree of daily movement, the increased sightability of these large baleen whales especially if foraging, less frequent use of the San Diego Arc by other lower-powered short-duration Navy MFAS systems, low use of the Arc for more intensive surface ship sonar events, existing Navy mitigations for all sonar systems, and proposed geographic limitations for the more impactful surface ship sonar, further MFAS restrictions in the San Diego Arc are not warranted.

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<p>(3) Speed Restrictions. Observe 10 knot speed restrictions, seasonally, within the San Diego Arc and the blue whale habitat at Tanner-Cortez Bank</p>	<p>Navy Response [14]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, this condition is not required to further Navy consistency with CCMPs.</p> <p>The rationale for this determination is outlined more completely in Navy Response #3. In addition, as explained in Navy Response #10, Navy funded blue whale tracking has documented little blue whale residency at or transits of Tanner Banks.</p> <p>Previously, the Navy commissioned a vessel density and speed report for HSTT. Based on an analysis of Navy ship traffic in the HSTT Study Area between 2011 and 2015, median speed of all Navy vessels within Southern California is typically already low, with median speeds between 5 and 12 knots. Slowest speeds occurred closer to the coast including the general area of the San Diego Arc and approaches to San Diego Bay. The presence and transits of commercial and recreational vessels, numbering in the many hundreds, far outweighs the presence of Navy vessels. Furthermore, blue whale mortality and injuries attributed to commercial ship strikes in California waters was zero in the most recent reporting period between 2011 and 2015 as reported by the National Marine Fisheries Service. Section 3.7.3.4.1 (Impacts from Vessels and In-Water Devices) and Section K.4.1.6.2 (San Diego [Arc] Blue Whale Feeding Area Mitigation Considerations), state the important differences between most Navy vessels and their operation and commercial ships that individually make Navy vessels much less likely to strike a whale.</p> <p>Furthermore, the Navy has not had a ship strike to a blue whale in Southern California for over 14 years. In addition, there has never been a Navy ship strike to any marine mammal species including blue whales within the coastal zone (<10-20 n mi from shore) which includes the San Diego Arc area. Nor has there ever been a Navy ship strike to any marine mammal species at Tanner-Cortez Bank.</p> <p>In conclusion, additional speed restriction mitigation is not scientifically supported or warranted.</p>
<p>(4) Fin Whale Mitigation. Add seasonal fin whale cautionary measures within the 200 to 1000 meter isobaths, from November 1 to May 31</p>	<p>Navy Response [15]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, this condition is not required to further Navy consistency with CCMPs.</p> <p>The rationale for the Navy's need for speed flexibility is outlined more completely in Navy Response #3.</p> <p>This particular condition is also predicated on an over simplification of Navy funded fin whale research in Southern California. Based on years of NMFS and Navy monitoring in Southern California, there appears to be a constant presence of fin whales in the region across seasons and years. New research by Širović et al. (2017) supports a hypothesis that between the Gulf of California and Southern California, there could be up to four distinct sub-populations based on fin whale call types, including a Southern California</p>

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resident population. There is also evidence that there can be both sub-population shifts and overlap within Southern California (Širović et al. 2017). Scales et al. (2017) also postulated two Southern California sub-populations of fin whales based on satellite tagging and habitat modeling. Scales et al. (2017) stated that some fin whales may not follow the typical baleen whale migration paradigm, with some individuals found in both warm, shallow nearshore waters < 500 m, and deeper cool waters over complex seafloor topographies. Collectively, the author's spatial habitat models with highest predicted occurrence for fin whales cover the entire core training and testing portion of the Southern California portion of HSTT, not just areas between 200-1000m. Results from Navy funded long-term satellite tagging of fin whales in Southern and Central California still shows some individual fin whales engage in wide-ranging movements along the US West Coast, as well as large daily movements well within subareas (Mate et al. 2017). In support of further refining the science on Southern California fin whales, Falcone and Schorr (2014) examined fin whale movements through photoID and short-to-medium term (days-to-several weeks) satellite tag tracking under funding from the Navy. The authors conducted small boat surveys from June 2010 through January 2014, approximately three and a half years. Of interest in terms of the 200-1000 m isobath occurrence, more fin whale tag locations were reported off the Palos Verdes Peninsula and off of the Los Angeles/Long Beach commercial shipping ports in fall, both areas north of and outside of the Navy's Southern California Range Complex. Compared to the above areas, there were not as many tag locations in the similar isobath region off San Diego associated with the Navy range area. Falcone and Schorr (2014) did document an apparent inshore-offshore distribution between winter-spring and summer-fall. Given the apparent resident nature of some fin whales in Southern California as discussed in Falcone and Schorr (2014), Scales et al. (2017), and Širović et al. (2017), it remains uncertain if the inshore-offshore seasonal pattern as well as sub-population occurrence will persist into the future, or if fin whales will change distribution based on oceanographic impacts on available prey (ex. El Nino, climate change, etc.). The efforts from Falcone and Schorr on fin whales began in 2010 and are planned to continue for the next several years (2010-2020) under Navy monitoring funding to further refine fin whale population structure and occurrence within Southern California.

Furthermore, the Navy has not had a ship strike to a fin whale in Southern California for over nine years. In addition, there has never been a Navy ship strike to any marine mammal species including fin whales within the coastal zone (<10-20 n mi from shore). This range (<20 n mi) incorporates the proposed bathymetry in the proposed CCC condition due to the steep bathymetry gradient off the Southern California mainland coast. Therefore, although fin whales might be the more abundant large baleen whale species in Southern California, there is no current evidence of heightened risk from Navy ship movements.

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	<p>In conclusion, speed restrictions within 200-1000m of the coast is unwarranted given the wide range of fin whale movements along the US West Coast including areas within and outside of 200-1000m contours, sometimes large scale daily movements within regional areas as documented from Navy funded satellite tagging, the current lack of ship strike risk from Navy vessels in Southern California (2010-2018), the already safe training and testing ship speeds Navy uses within HSTT, and existing Navy mitigation measures including provisions to avoid large whales by 500 yards where safe to do so.</p>
<p>(5) Gray Whale Speed Restriction. Increase protection for gray whales by limiting vessel transit speeds to 10 knots, within 10 n mi of the mainland, from December 1 to May 20</p>	<p>Navy Response [16]. The Navy is unable to incorporate the CCC proposed condition because it would prevent the Navy from meeting its statutory testing and training requirements. In addition, this condition is not required to further Navy consistency with CCMPs.</p> <p>The rational for this determination is outlined more completely in Navy Response #3. Furthermore, as of this date there has not been any Navy ship strike to a gray whale for over 12 years along any of the gray whale migration corridors along the entire US West Coast. This includes nearshore zones associated with the proposed CCC condition, as well as offshore zones which the bulk of the gray whale population uses to transit across Navy areas in Southern California. In addition, there has never been a Navy ship strike to any large whale species including gray whales within the coastal zone (<10-20 n mi from shore).</p> <p>In conclusion, speed restrictions within 10 n mi of the coast is unwarranted given the short residency times for gray whales as they migrate along the US West Coast including areas within and outside of 10 n mi, the current lack of ship strike risk from Navy vessels in Southern California, the already safe training and testing ship speeds Navy uses within HSTT, and existing Navy mitigation measures including provisions to avoid large whales by 500 yards where safe to do so.</p>
<p>(6) Marine Sanctuary and MPAs. Exclude testing and training from all National Marine Sanctuaries and Marine Protected Areas</p>	<p>Navy Response [17]. The Navy is already meeting significant portions of this condition as outlined in Navy Responses #6 and #7 (see also Figure 1). As discussed in Navy Response #7, most of the Southern California Marine Protected Areas adjacent to islands and the mainland coast within the HSTT Study Area are not used for sonar and explosive Navy activities. However, as discussed in Navy Response #7, excluding all testing and training activities from all Southern California Marine Protected Areas is not practicable and would prevent the Navy from meeting its statutory testing and training requirements.</p>
<p>(7) National Defense Command Authorization. Allow for “derogation” (i.e., provide for deviations from the marine species protection measures where the Navy determines, “at the highest command authority” that</p>	<p>Navy Response [18]. The Navy’s geographic mitigation measures discussed in the Consistency Determination and proposed new areas discussed above all include a provision to allow a restricted activity to occur in the area if there is a national security requirement. See Navy Response #6 for example of this provision. NMFS would also be provided a notification if a restricted activity will take place due to a national security requirement.</p>

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<p>national defense needs necessitate such deviation, including a “transparency” procedure that would involve reporting to the Commission of any such deviation determinations)</p>	
<p>(8) Low Visibility Detonation Restrictions. Avoid in-water detonations in low-visibility conditions, and with annual reporting to the Commission of any non-compliance</p>	<p>Navy Response [19]. The Navy avoids in-water detonations in low visibility conditions as a standard operating procedure, unless there is a specific training or testing requirement.</p> <p>Diver placed underwater explosive training and testing is generally exclusively a daytime, high visibility activity. Daytime bad weather and high sea states are also not safe for diver placed explosive training and testing which often use small boats, so events are not conducted in these conditions.</p> <p>For larger ordnance-associated explosive use such as 5-inch gun projectiles, rockets, missiles, and bombs, daytime use is always preferred and directed for the scheduling and safety reasons mentioned previously. This does not preclude infrequently using explosives at night, if needed for a national defense or critical unit certification and deployment requirement.</p> <p>Annual reporting of HSTT use by authorized explosive bins is provided by the Navy to the National Marine Fisheries Service, although the level of detail is confined to a cumulative summary by bin within a given reporting year.</p>
<p>(9) Use Of SOAR As Mitigation. Use SOAR passive acoustic instruments to monitor marine mammal vocalizations, with reporting to trainers/testers using sonar or in-water detonation activities</p>	<p>Navy Response [20]. The Navy is unable to incorporate the CCC proposed condition because it would not be practical for the Navy to implement. However, the following information is provided to elaborate on several key points supporting the Navy's position.</p> <p>The use of real-time passive acoustic monitoring (PAM) for mitigation at SOAR exceeds the capability of current technology. The Navy has a significant research investment in the Marine Mammal Monitoring on Navy Ranges (M3R) system at three ocean locations including SOAR. However, this system was designed and intended to support marine mammal research for select species, and not as a mitigation tool. Marine mammal PAM using instrumented hydrophones is still under development and while it has produced meaningful results for marine species monitoring, abundance estimation and research, it was not developed for nor is it appropriate for real-time mitigation. The ability to detect, classify and develop an estimated position (and the associated area of uncertainty) differs across species, behavioral context, animal location vs. receiver geometry, source level, etc. Based on current capabilities, and given adequate time, vocalizing animals within an indeterminate radius around a particular hydrophone are detected, but obtaining an estimated position for all individual animals passing through a predetermined area is not assured. Detecting vocalizations on a phone does not determine whether vocalizing individuals would be</p>

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	<p>within the established mitigation zone in the timeframes required for mitigation. Since detection ranges are generally larger than current mitigation zones for many activities, this would unnecessarily delay events due to uncertainty in the animal's location and put at risk event realism.</p> <p>Furthermore, PAM at SOAR does not account for animals not vocalizing. For instance, there have been many documented occurrences during PAM verification testing at SOAR of small boats on the water coming across marine mammals such as baleen whales that were not vocalizing and therefore not detected by the range hydrophones. Animals must vocalize to be detected by PAM; the lack of detections on a hydrophone may give the false impression that the area is clear of marine mammals. The lack of vocalization detections is not a direct measure of the absence of marine mammals. If an event were to be moved based upon low-confidence localizations, it may inadvertently be moved to an area where non-vocalizing animals of undetermined species are present.</p> <p>To develop an estimated position for an individual, it must be vocalizing and its vocalizations must be detected on at least three hydrophones. The hydrophones must have the required bandwidth, and dynamic range to capture the signal. In addition, calls must be sufficiently loud so as to provide the required signal to noise ratio on the surrounding hydrophones. Typically, small odontocetes echolocate with a directed beam that makes detection of the call on multiple hydrophones difficult. Developing an estimated position of selected species requires the presence of whistles which may or may not be produced depending on the behavioral state. Beaked whales at SOAR vocalize only during deep foraging dives which occur at a rate of approximately 10 per day. They produce highly directed echolocation clicks that are difficult to simultaneously detect on multiple hydrophones. Current real-time systems cannot follow individuals and at best produce sparse positions with multiple false locations. The position estimation process must occur in an area with hydrophones spaced to allow the detection of the same echolocation click on at least three hydrophones. Typically, a spacing of less than 4 km in water depths of approximately 2 km is preferred. In the absence of localizations, the analyst can only determine with confidence if a group of beaked whales is somewhere within 6 km of a hydrophone. Beaked whales produce stereotypic click trains during deep (<500 m) foraging dives. The presence of a vocalizing group can be readily detected by an analyst by examining the click structure and repetition rate. However, estimating position is possible only if the same train of clicks is detected on multiple hydrophones which is often precluded by the animal's narrow beam pattern. Currently, this is not an automated routine.</p> <p>In summary, the analytical and technical capabilities required to use PAM such as M3R at SOAR as a required mitigation tool are not sufficiently robust to rely upon due to limitations with near real-time classification and determining estimated positions. The level of uncertainty as to a species presence or absence and location are too high to provide the accuracy required for real-time mitigation. Existing Navy</p>
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	<p>visual mitigation procedures and ranges as described in Chapter 5 of the HSTT EIS/OEIS when performed by individual units at-sea measures still remain the most practical means of protection for marine species.</p>
<p>(10) Thermal System Program. Establish a pilot “thermal monitoring” marine mammal detection program</p>	<p>Navy Response [21]. The Navy is already meeting this condition. Navy Response #2 provided above contains more details. In summary, the Navy’s Office of Naval Research has been conducting extensive testing of thermal systems with associated computer programs for marine mammal detection since the late 2000s.</p>
<p>(11) Sonar Signal Research. Conduct research on sonar signal modifications having the potential to reduce the severity or onset of behavioral responses</p>	<p>Navy Response [22]. Mid-frequency sonar signal properties, in particular those from hull-mounted surface ships, have proven to be effective in submarine detection since designed in the late 1950s. Sonar signals are designed explicitly to provide optimum performance at detecting underwater objects (e.g., submarines, mines, etc.) in a variety of acoustic environments. Although the Navy acknowledges that this very limited data set suggests up or down sweeps of the sonar signal may result in different animal reactions, this is a very small data sample, and this science requires further development. If future studies indicate this could be an effective approach, then Navy will investigate the feasibility and practicability to modify signals, based on tactical considerations and cost, to determine how it will affect the sonar’s performance.</p>

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<p><u>(12) Additional Beaked Whale Research.</u> Conduct research to further delineate beaked whale habitats</p>	<p><u>Navy Response [23].</u> The Navy is already meeting this condition.</p> <p>The Navy has funded the majority of Southern California beaked whale occurrence research and monitoring since 2004. These efforts continue through the current 2018 monitoring year. To gain further knowledge on the presence of beaked whales in Southern California, the Navy continues to fund additional passive acoustic field monitoring, as well as research advancements for density derivation from passive acoustic data. For the five-year period from 2013 to 2017, U.S. Pacific Fleet on behalf of the U.S. Navy funded \$14.2 million in marine species monitoring within Hawaii and Southern California. Specifically, in terms of beaked whales, the Navy has been funding beaked whale population dynamics, tagging, and passive acoustic studies within HSTT since 2004. Variations of these efforts are planned to continue through the duration of the next HSTT permit cycle using a variety of passive acoustic, visual, tagging, photo ID, and genetics research tools.</p> <p>At the Navy and National Marine Fisheries Service adaptive management monitoring meeting for HSTT in March 2018, the Navy committed to additional expanded beaked whale monitoring to further clarify the spatial extent of beaked whale occurrence in Southern California. In addition to ongoing Cuvier’s beaked whale population research and surveys in San Nicolas basin (2004-2022), the Navy plans multi-month deployments in other Southern California locations of underwater gliders with passive acoustic detectors for improved beaked whale detection across larger areas. Concurrently, bottom-mounted passive acoustic devices for improved year-round beaked whale detection will be deployed at select sites, including areas not surveyed previously. In addition, a Navy-funded trial analysis of beaked whale towed-array passive acoustic detections obtained from California Cooperative Oceanic Fisheries Investigations (CalCOFI) is also planned starting in 2019. CalCOFI conducts quarterly surveys across a standardized set of Southern California tracklines. If successful, this data set would provide beaked whale seasonally related occurrence information across large swaths of Southern California.</p>
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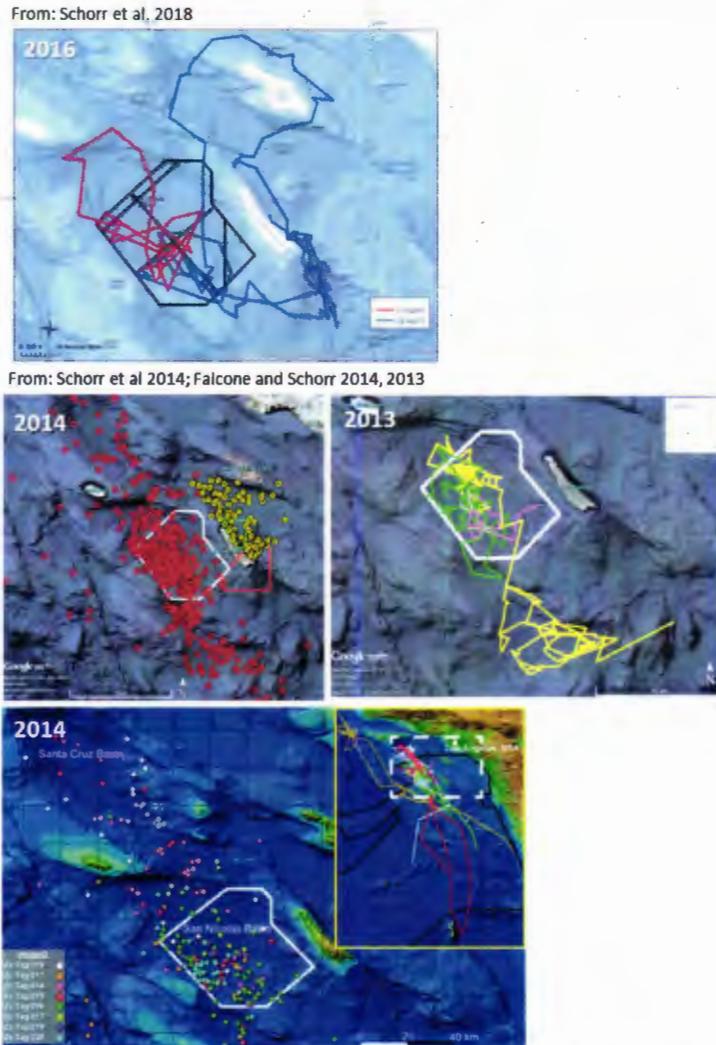


Figure 2. Navy-funded Cuvier’s Beaked Whale Satellite Tracking 2013-2016

Jan-Jul 2016: During 40 days of tracking, 84% of location estimates were within the SOAR boundary (Schorr et al. 2018³); Jun 2010 – Jan 2014: Daily positions of tagged Cuvier’s beaked whales, with animals tagged on SOAR denoted by red diamonds and animals tagged in the Catalina Basin by yellow circles; 67.5% within the San Nicolas Basin (Falcone and Schorr 2014⁴); All eight whales were tagged within the Southern California Anti-submarine Warfare Range (outlined in solid white). Tagged whales were within the San Nicolas Basin for 51% of all days tags transmitted, and within the SOAR boundaries for 71% of the days when in the basin, suggesting site fidelity to the MFA sonar training range. Inset map shows the entire track-line of each tagged whale with the primary map region indicated by a dashed box (Schorr et al. 2014⁵, Falcone and Schorr 2013⁶).

³ Schorr, G.S., Falcone, B.K. Rone, and E.L. Keene. 2018. Distribution and demographics of Cuvier’s beaked whales in the Southern California Bight. Interim Report for the US Navy Pacific Fleet Integrated Comprehensive Monitoring Program, Award No. N66604-14-C-0145. Jan 2018. 24 pp.

⁴ Falcone, E.A. and G.S. Schorr. 2014. Distribution and demographics of marine mammals in SOCAL through photoidentification, genetics, and satellite telemetry. Prepared for: Chief of Naval Operations, Energy and Environmental Readiness Division, Washington DC. Prepared by: Cascadia Research Collective and supported under Naval Postgraduate School Grant N00244-10-1-0050. Dec 2014. 74 pp.

⁵ Schorr G.S., Falcone, E.A., D.J. Moretti, and R.D. Andrews. 2014. First Long-Term Behavioral Records from Cuvier’s Beaked Whales (*Ziphius cavirostris*) Revealed by Record-Breaking Dives. PLoS ONE 9(3): e92633. doi:10.1371/journal.pone.0092633

⁶ Falcone, E.A. and G.S. Schorr. 2013. Distribution and demographics of marine mammals in SOCAL through photoidentification, genetics, and satellite telemetry - summary of surveys conducted 1 July 2012 - 30 June 2013. Prepared for: Chief of Naval Operations, Energy and Environmental Readiness Division, Washington DC. Prepared by: Cascadia Research Collective and supported under Naval Postgraduate School Grant N00244-10-1-0050. Aug 2013. 44 pp.

Attachment B

Navy Blue Whale BIA Areas

Enclosure- U.S. Navy Responses To California Coastal Commission Adopted Findings of August 8, 2018
August 24, 2018

New Areas Identified

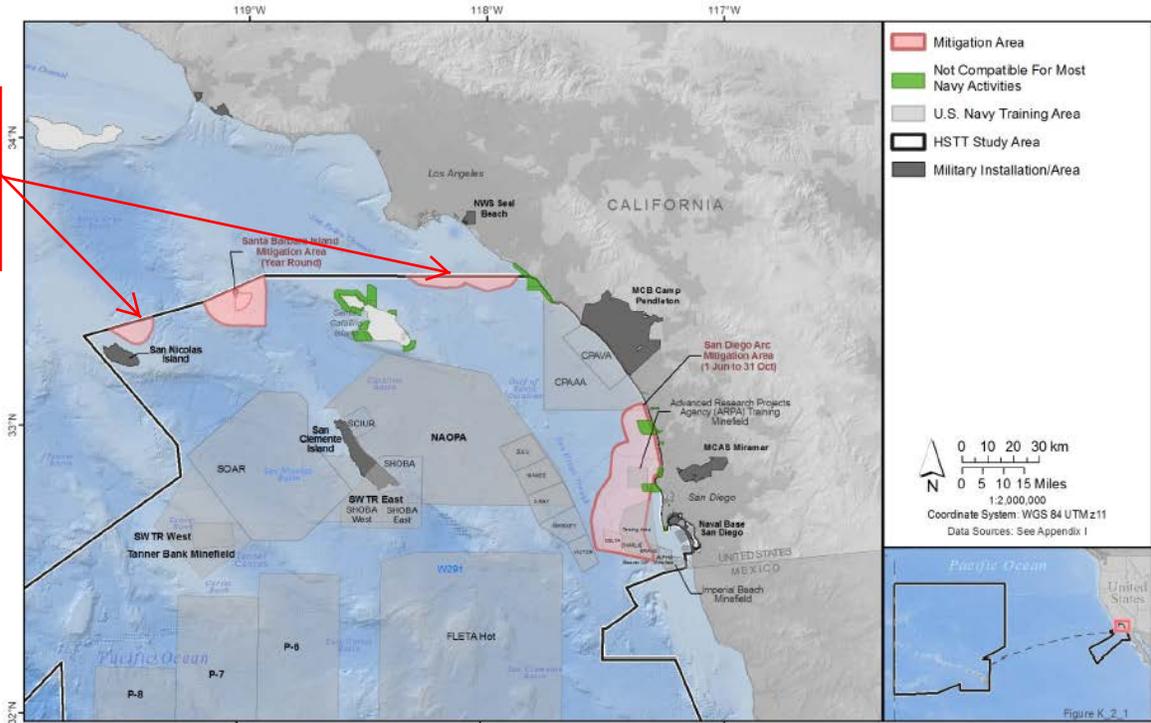


Figure 1. Southern California Range Complex With Proposed Mitigation Areas