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REVISED STAFF RECOMMENDATION

ON CONSISTENCY DETERMINATION

Consistency Determination No.	**CD-086-06**
Staff:	MPD-SF
File Date:	10/30/06
60th Day:	12/29/06
75th Day:	1/13/07
Commission Meeting:	1/10/07

FEDERAL AGENCY: **U.S. Navy**

PROJECT LOCATION: Four Navy operating areas: Southern California operating area (Exhibits 1-2), San Clemente Island Range Complex, Marine Corps Base Camp Pendleton, and Silver Strand Training Complex (Exhibits 1-3)

PROJECT DESCRIPTION: Onshore and offshore U.S. Pacific Fleet military training exercises

SUBSTANTIVE FILE DOCUMENTS: See page 38.

[Staff Note – This item was continued from the December Coastal Commission meeting in order to consider additional mitigation measures primarily to address marine mammal and sea turtle monitoring, minimization, and mitigation measures related to mid-frequency sonar. This staff report has been revised to include a list of recommended conditions, found on pages 10-13.]

EXECUTIVE SUMMARY

The U.S. Navy (Navy) has submitted a consistency determination for the U.S. Pacific Fleet's offshore and onshore military training exercises in southern California. The four training areas are: the southern California operating area (Exhibit 1), San Clemente Island Range Complex, Marine Corps Base Camp Pendleton, and Silver Strand Training Complex (Exhibit 2). The

exercises involve a wide range and combinations of ships, support craft, submarines, helicopters, airplanes, and amphibious vehicles, and other equipment used to train Navy and Marine forces with "complex, deployment-preparation exercises."

Many of the exercises would take place outside the coastal zone (up to 80 miles offshore). Activities within the coastal zone include Amphibious Operations, Naval Surface Fire Support, Ship Mine Countermeasures Operations, Demolition Operations, and Mining (airborne, non-explosive, mine-laying) Operations.

Potential marine environment and use issues raised by the projects are impacts to marine mammals, sea turtles, kelp beds, white abalone, commercial and recreational fishing, and recreational diving in the marine environment. Potential land habitat issues raised are impacts to sensitive bird breeding areas (e.g., snowy plovers and loggerhead shrikes) in several areas and the island night lizard on San Clemente Island. The exercises are similar to activities the Navy has been regularly undertaking for many years and do not represent an intensification in use of the affected areas compared to past years' activities. Activities with the potential to disturb marine mammals include ship movement, inert mine drops, underwater detonations, and, outside the coastal zone, mid-frequency sonar, missile launches, and amphibious landings. Use of explosives within the coastal zone would be limited to small (mostly 1-5 lb.) charges. Mid-frequency sonar would only occur outside the coastal zone, and, for the most part, beyond 80 nautical miles from shore (off San Clemente Island).

The Navy's initial consistency determination focused on activities physically within the coastal zone; nevertheless, in response to Commission staff questions the Navy has provided additional information detailing the protection measures in place from activities outside but potentially affecting the coastal zone. Marine mammal and sea turtle protection measures include: Marine Species Awareness Training material, shipboard surveillance for marine mammals and sea turtles, aerial surveillance where planes or helicopters are part of the activity, passive acoustic monitoring, implementing a buffer zone (700 yard arc-radius around detonation sites for small explosives (mostly 1-5 pounds, with none exceeding 20 pounds)), reducing the likelihood of exposing marine mammals or sea turtles to sounds exceeding 173 decibels (dB), avoiding of dropping any inert mines on marine mammals or sea turtles, removing from the marine environment inert mines dropped pre- and post-exercise surveys, coordinating with NMFS in the event of any injury to a marine mammal or sea turtle observed and submitting monitoring reports, and providing the Commission with the monitoring reports it provides to NMFS.

However, the Navy has not provided the Commission with the level of detail needed for the Commission to fully review the proposed project and its marine resource impacts. The Commission has traditionally required, as the Navy did provide for its most recent consistency determination involving active acoustics in Monterey Bay (CD-37-06 - Navy Monterey Bay (MB) 06), a detailed analysis of estimated "take" (numbers of animals affected), and for each acoustic source, the frequency range, duty cycle, acoustic intensity, and distance to what the

Navy had estimated as the threshold for effect (although, as noted below, both NMFS and the Commission determined lower thresholds were needed than what the Navy had originally proposed). While the subject proposal is not a new activity in these waters, this is the first opportunity the Commission has had to review issues related to mid-frequency sonar since concerns were raised in the Bahamas, De Haro Straits, Hawaii, and other coastal areas in recent years.

In the subject case, NMFS has not yet completed its review; however NMFS most recent Incidental Harassment Authorization for Navy training in Hawaii involving mid-frequency sonar (RIMPAC) expressed an approach that would consider 190 dB as a Temporary Threshold Shift "take" threshold, and 173 dB as a behavioral harassment "take" threshold.

As it found during the review of CD-037-06, the Commission believes that a lower threshold than articulated by NMFS is warranted. NMFS appears to have taken a "middle ground" approach, noting that available evidence exists to support a lower threshold, but basing its determination on the level at which 25% of mammals were behaviorally affected in a captive dolphin study (Finneran and Schlundt (2004)). As the Commission noted in CD-037-06, the Nowacek study (Exhibit 10), which NMFS cited but did not base its threshold on, supports reliance on a lower threshold, given that it addresses animals not in captivity (and not trained to expect rewards). Also, the Natural Research Council has expressed concerns (see pages 29-32) over reliance solely on studies of captive animals. Given this information, combined with the paucity of data concerning the effects of anthropogenic sound on marine species, and the difficulty in detecting marine mammals and sea turtles, a compelling case exists that a lower threshold is warranted. Therefore, the Commission reiterates its finding from CD-037-06: "While the Commission agrees that the movement from a single to a dual criteria is a step in the right direction, the Commission does not believe the Navy has established a basis for its proposed [in that case]186 dB threshold. An equivalent if not better case can be made for adopting what Woods Hole Oceanographic Institution has suggested (i.e., a more precautionary 154 dB threshold)." Consequently, the Commission believes the conditions on pages 10-13, which include implementation of a lower threshold, as well as other measures to protect marine mammals and sea turtles, are needed to bring the project into consistency with the marine resource policy of the Coastal Act (Section 30230). These conditions would require the Navy to:

implement safety zones out to the 154 dB (received level (RL), expressed in decibels (re 1 µPa2 ·s @ 1m [one micropascal squared second at one meter]);

include two dedicated NOAA-trained observers at all times during use of mid-frequency sonar;

provide adequate, NMFS approved training for the monitors;

include Passive Acoustic Monitoring and use it to enforce the safety zones;

perform aerial monitoring;

avoid, where possible, effect on gray whales, the Channel Islands National Marine Sanctuary, and areas with known high concentrations of marine mammals, and complex, steep seabed topography (except on the Navy's instrumented range off San Clemente Island);

additional measures for night and low visibility conditions, during Surface Ducting Conditions, and for Choke-point exercises**;**

to the degree possible, retrieval of inert mine shapes dropped; and

as agreed to previously, submit all monitoring results provided to NMFS (unless classified) to the Commission staff.

Only as conditioned, would the proposed training exercises be consistent with the applicable marine resource, water quality, and fill of open coastal waters policies (Sections 30230, 20331, and 30233) of the Coastal Act.

For land-based species, because the activities are similar to past training exercises, the Navy is relying on mitigation measures developed through its Endangered Species Act consultations with the U.S. Fish and Wildlife Service and contained in several existing Biological Opinions. These agreements include measures to protect loggerhead shrikes and island night lizards on San Clemente Island for Naval Surface Fire Support activities, and snowy plovers at Camp Pendleton and the Silver Strand peninsula for amphibious landing activities. These measures are adequate to find the project consistent with the environmentally sensitive habitat policy (Section 30240) of the Coastal Act.

Measures to minimize impacts to boating, diving and fishing activities include publishing Notices to Mariners, limiting operations offshore of San Clemente Island to Federally-designated danger and restricted zones, temporary closures of other affected areas, avoiding operations if boats or divers do not leave the area, and limiting amphibious landings to restricted military beaches already off-limits to the public. With these measures, the proposed exercises would be consistent with the commercial and recreational fishing and diving policies and public access and recreation policies (Sections 30234, 30234.5, 30210, and 30212) of the Coastal Act.

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

STAFF SUMMARY AND RECOMMENDATION

I. STAFF SUMMARY:

A. Project Description. The Navy has submitted a consistency determination for a series of offshore and onshore military exercise used to train the U.S. Pacific Fleet in southern California both onshore and in offshore waters. The four training areas are: the southern California operating area, San Clemente Island Range Complex, Marine Corps Base Camp Pendleton, and Silver Strand Training Complex (Exhibits 1-2). The exercises, which have been conducted in various forms since the 1920s, are used to train Navy and Marine forces with "complex, deployment-preparation exercises" involving "varied land, sea, and undersea training environments to properly demonstrate the full range of capabilities required of deploying naval forces."

The exercises are separated into three, increasingly complex phases, which the Navy calls: "Basic, Integrated and Sustainment." The Navy calls the latter two phases "COMPTUEX," standing for Composite Training Unit Exercises, and "JTFEX," standing for Joint Task Force Exercises.

The exercises would involve troops from bases in three states (California, Arizona and Nevada (Exhibit 1)), which would form "Strike Groups." Strike Groups are either: (a) a Carrier Strike Group (CSG) (normally formed around an Aircraft Carrier (CV/N), with an embarked Air Wing (CVW)); or (b) an Expeditionary Strike Group (ESG) (formed around an Amphibious Helicopter Carrier (LHD), with an embarked Marine Expeditionary Unit (MEU)). Both types of groups would also involve a number of support ships. CSG exercises are offshore; only ESGs would involve bring troops ashore (either by helicopter or amphibious vehicle).

The Navy elaborates:

> *A COMPTUEX is conducted as a series of scheduled training events that occur according to a given time schedule against an opposition force. The COMPTUEX provides an opportunity for the Strike Group to become proficient in the myriad of required warfare skill sets. Additionally, it stresses the integration or coordination of the different warfare areas and provides realistic training on in-theater operations. The COMPTUEX is normally more structured than the JTFEX, so it is longer in duration.*
>
> *JTFEX is in the Sustainment or final Phase of the FRTP and may involve either a CSG or an ESG. It is a scenario-driven, at-sea training exercise designed to evaluate the Strike Group's preparedness for forward deployed contingency and combat operations. JTFEX also utilizes a simulated opposition force and serves as the venue for U.S. THIRD Fleet to assess the readiness, interoperability, and proficiency of*

> *naval forces in realistic, free-play scenarios, ranging from military operations other-than-war to armed conflict. As the final certification event of the FRTP, the Strike Group must demonstrate the ability to operate and integrate into a Joint Operations Area under simulated austere, hostile conditions.*

Most of the training would occur outside the coastal zone on federal land or in federal waters. The Navy's consistency determined examined those exercises within or with the potential to affect the coastal zone. Exercises outside the coastal zone are listed and briefly summarized in Exhibit 3. (The asterisks (*) in the list below denote those activities the Navy believes has the potential to affect the coastal zone. The acronyms stand for the four operating areas (OPAREAs): SOCAL, SCIRC, SSTC, MCBCP - southern California operating area, San Clemente Island Range Complex, Silver Strand Training Complex, and Marine Corps Base Camp Pendleton, respectively).

Table 1-2. COMPTUEX/JTFEX Activities Inside the Coastal Zone

EVENT	**RANGE/OPAREA**
Amphibious Exercise*	SCIRC, SSTC, MCBCP
Ship Mine Countermeasures Exercise*	SCIRC, SSTC, MCBCP
Demolition Operations*	SCIRC, SSTC, MCBCP
Visit, Board, Search, and Seizure	SOCAL
Naval Cooperation and Guidance for Shipping	SOCAL
Maritime Security Operations	SOCAL
Naval Surface Fire Support*	SCIRC, SOCAL
Straits Transit/Q Route	SOCAL
Fast Inshore Assault Craft	SOCAL
Dynamic STRIKE/TSS	SCIRC
Close Air Support	SCIRC, MCBCP
Counter Special Operations Force	SOCAL
Mining Exercise*	SOCAL
Surge Exercise	SOCAL
Live-Fire Exercise	SOCAL, SCIRC, MCBCP
Special Warfare Operations	SCIRC, MCBCP
Humanitarian Assistance/Disaster Relief	MCBCP
Non-Combatant Evacuation	SCIRC, MCBCP
Embassy Reinforcement	SCIRC, MCBCP
Combat Search and Rescue Trap	SCIRC, SOCAL, MCBCP

Thus, of these activities, the Navy believes only the following five types of events have the potential to affect coastal resources: Amphibious Operations, Naval Surface Fire Support, Ship Mine Countermeasures Operations, Demolition Operations, and Mining Operations. Describing these, the Navy states:

> ***2.2.1 At-Sea Training Operations***
>
> ***Amphibious Operations***
>
> *Amphibious operations may include shore assault, boat raid, airfield seizure, humanitarian assistance, and force reconnaissance. Amphibious landings are launched from Navy ships positioned out to 50 mi (80 km) offshore. For an assault on a beach, units come ashore in Landing Craft, Air Cushion (LCAC) and in Amphibious Assault Vehicles (AAV)(lightly armored tracked vehicles). An amphibious exercise may last from 2 days up to 3 weeks, depending on the size and complexity of the exercise, and typically includes a Live-Fire Exercise. Amphibious operations normally take place at MCBCP and the SCIRC. Additionally, smaller amphibious exercises have occurred on the southern beaches of the SSTC. The participants and assets in amphibious operations typically include: 1,500 Marines; rotary wing, fixed wing, and tilt-wing aircraft; amphibious vehicles, vessels, and boats - Landing Craft, Utility (LCU), Combat Rubber Raiding Raft (CRRC), Rigid Hull Inflatable Boat (RHIB); three amphibious ships; and other surface ships.*
>
> ***Naval Surface Fire Support (NSFS) Operations***
>
> *NSFS operations involve naval surface ships with the MK-45 5-inch/54 or the MK-45 5-inch/62 naval gun firing system, engaging land and surface targets. NSFS operations are an annual requirement for all naval vessels outfitted with the 5-inch gun system. NSFS is conducted against land targets in the SHOBA on SCI. Because ships are firing from sea to land targets located in SHOBA, the public is restricted in the offshore portion of SHOBA, called Fire Support Area (FSA), during the live-firing portion of the operations. However, the cumulative time that ships are actually firing weapons during these operations is extremely short. The participants associated with an NSFS operation include: four to six ships.*
>
> ***Mine Countermeasures (MCM) Operations***
>
> *MCM Operations train forces to locate and neutralize inert (non-explosive) mine shapes in shallow-water environments in support of the CSG and ESG. A typical exercise would involve bottom-laid explosive and mid-water column explosive training evolutions. The training would take place offshore of the beaches at SSTC/MCBCP, and in the nearshore waters off the western side of SCI. The assets include two MCM ships, two to three airborne mine countermeasures helicopters,*

divers, unmanned underwater vehicles (UUV) and marine mammals (dolphins). Some or all of the following equipment would be used: underwater explosives (up to 20 pounds net explosives weight (NEW)), side-scan sonar, high-frequency sonar, laser line scans, magnetic sweep gear, and influence sweep gear.

Demolition Operations (DEMO)

DEMO provides training in the identification and neutralization or destruction of inert floating or moored mines. This training includes hydrographic reconnaissance of approaches to prospective landing beaches; demolition of obstacles and clearing mines; locating, improving, and marking of useable channels; channel and harbor clearance; and acquisition of operational intelligence during pre-assault operations. Explosives used in DEMO are less than 20 pounds. During a COMPTUEX or JTFEX there may be up to 20 demolition events. The DEMO exercise takes place at locations routinely used for explosive ordnance disposal (EOD) and DEMO training at SCIRC, MCBCP, SSTC, and Naval Base Coronado (NBC). The participants and assets typically used in this event include: EOD divers, small boats, and helicopters.

2.2.2 Air Operations

Mining Operations
Mining Operation consists of airborne mine-laying. The aircraft drop a series of (usually four), non-explosive inert training shapes (MK-76, bomb dummy unit [BDU] 45, or BDU 48) in the water. The aircraft may make multiple passes on the same flight pattern, dropping one or more shapes each pass. The shapes are scored for accuracy as they enter the water. The training shapes are inert and recovered at the end of the operation.

Describing the need for the training, the Navy also states:

1.3 PURPOSE AND NEED
The purpose of conducting COMPTUEXs and JTFEXs is to train, prepare and certify Strike Group readiness prior to deployment of forces to Combatant Commanders. The exercises incorporate a multi-dimensional, multi-threat environment that stresses all aspects of joint maritime operations.

The need for major naval exercises such as COMPTUEXs or JTFEXs is derived from the Congressional mandate to organize, train, and equip the military services for prompt and sustained combat operations (10 United States Code [U.S.C.] Sections 5032 and 5062). The COMPTUEX and JTFEX are required both to train the units and to evaluate their combat readiness. At the conclusion of the JTFEX, Commander, U.S. THIRD Fleet certifies to the Commander, Pacific Fleet that the CSG or ESG is ready to deploy, fulfilling the Navy's Title 10 responsibilities.

B. History. As noted above, the exercises are similar in duration, intensity, and location to long-standing Navy training in the operating areas. The Navy states:

> *Nominally, the U.S. Navy (Navy) conducts seven COMPTUEXs and seven JTFEXs per 2-year period throughout existing major ranges and facilities in the southwestern United States and offshore Southern California (Table 1-1 and Figure 1-1 [Exhibit 1]). Dependent on national tasking, an average of three ESG COMPTUEXs, four CSG COMPTUEXs, three ESG JTFEXs, and four CSG JTFEXs, would be conducted over a 2-year period (fourteen total exercises). Beginning January 2007, the Navy proposes to conduct some of these major range events concurrently. The overall number, type, frequency, and location of these major range events would not change from current baseline operations. Southern California (SOCAL) land, sea and air ranges have supported major Fleet training dating back before the 1920's. San Clemente Island (SCI) has served as a dedicated Fleet training asset since it was transferred over to the Department of the Navy (DON) in 1934. As early as 1935, naval gunfire and bombing, and U.S. Fleet Landing exercises have occurred in the SCI Shore Bombardment Area (SHOBA) and throughout the island, respectively.*

C. Federal Agency's Consistency Determination. The Navy has determined the project consistent to the maximum extent practicable with the California Coastal Management Program.

II. STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following motion:

MOTION: **I move that the Commission conditionally concur with consistency determination CD-086-06 and determine that, as conditioned, the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).**

STAFF RECOMMENDATION:

Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

RESOLUTION TO CONDITIONALLY CONCUR WITH CONSISTENCY DETERMINATION:

The Commission hereby **conditionally concurs** with consistency determination CD-086-06 by the Navy on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the Navy agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR §930.4.

Conditions:

1. Safety Zones. The Navy shall adopt safety zones (i.e., marine mammal preclusion zones) out to the distance at which the sonar has attenuated to 154 dB (received level (RL), expressed in decibels (re 1 $\mu Pa^2 \cdot s$ @ 1m [one micropascal squared second at one meter]). The Navy will monitor the area and lower sonar levels (or delay transmissions until an animal has left the safety zone) such that marine mammals and sea turtles will not be exposed to received levels greater than 154 dB. If the 154 dB level cannot be feasibly achieved, the Navy shall either cease sonar transmissions should a marine mammal be detected within 2 km of the sonar dome, as the Navy has currently agreed to for its SURTASS LFA sonar operations, or the Navy shall provide the Commission with sufficient information about the sonar intensities and attenuation rates, and the maximum capabilities of its monitoring, to enable the Commission to determine that the Navy will protect a safety zone as close as is feasible to the 154 dB zone.

2. Surveillance. Surveillance shall include two dedicated NOAA-trained observers at all times during use of mid-frequency sonar.

3. Training. The Navy shall employ the RIMPAC-derived measures, which state:

> **NMFS-Approved Training**
> • Navy shipboard lookouts shall be qualified watchstanders who have completed marine species awareness training.
> - Navy watchstanders will participate in marine mammal observer training approved by NMFS.

4. Passive Acoustic Monitoring. To the maximum extent feasible, passive acoustic monitoring will be used to enforce safety zones. All personnel engaged in passive acoustic sonar operations during an exercise employing mid-frequency sonar shall monitor for marine mammals and report the detection of any marine mammal to the appropriate watch station for dissemination and appropriate action.

5. Aerial Monitoring. The Navy shall ensure that aircraft operating in the Navy's instrumented range off San Clemente will monitor the area for marine mammals during

their assigned missions and will monitor the area throughout any mid-frequency sonar exercises on the instrumented range. All other aircraft flying low enough to reasonably spot a marine mammal will watch for marine mammals. The Navy shall require that all aerial sightings of marine mammals be reported to the appropriate watch stations for appropriate action. Appropriate action means taking mitigation measures and disseminating the information to other units and watchstanders for increased situational awareness.

6. Gray Whale Migration Season. To the maximum extent feasible, the Navy shall locate and schedule training outside the gray whale migration season, where the sonar is near enough to known or observed gray whale migration paths to expose gray whales to sonar levels above 154 dB. If conducting exercises during the migration season the Navy shall avoid known gray whale migration corridors.

7. Areas of High Marine Mammal Populations. To the maximum extent feasible, the Navy shall avoid training in areas with known high concentrations of marine mammals, including but not limited to:

> avoiding active sonar transmissions within the National Marine Sanctuaries off California's coast (e.g., the Channel Islands NMS); and
>
> avoiding seamounts and coastal areas with complex, steep seabed topography, except on the Navy's instrumented range off San Clemente Island.

8. Night and low visibility conditions. The Navy shall employ the RIMPAC-derived measures, which state:

> **Low visibility conditions (i.e., whenever the entire safety zone cannot be effectively monitored due to nighttime, high sea state, fog or other factors) –** The Navy will use additional detection measures, such as infrared (IR) or enhanced passive acoustic detection. If detection of marine mammals is not possible out to the prescribed safety zone, the Navy will power down sonar by 6 dB as if marine mammals were present in the zones it cannot see.

9. Stranding Response and Reporting. The Navy shall employ the RIMPAC-derived measures, which state:

> • The Navy will coordinate with the NMFS Stranding Coordinator for any unusual marine mammal behavior, including stranding, beached live or dead cetacean(s), floating marine mammals, or out-of-habitat/milling live cetaceans that may occur at any time during or shortly after major exercises.

• The Navy will provide a report to NMFS after the completion of a major exercise that includes:

- An assessment of the effectiveness of these mitigation and monitoring measures with recommendations of how to improve them.

- Results of the marine species monitoring during the major exercise. As much unclassified information as the Navy can provide including, but not limited to, where and when sonar was used (including sources not considered in take estimates, such as submarine and aircraft sonars) in relation to any measured received levels, source levels, numbers of sources, and frequencies, so it can be coordinated with observed cetacean behaviors. If necessary, classified information may be provided to NMFS personnel with an appropriate security clearance and need to know.

10. Surface Ducting Conditions. During significant surface ducting conditions, as defined by NMFS (2006), the Navy shall power down the sonar source by 6 dB. The Navy shall assess whether surface ducting conditions are present at least once hourly during periods as specified by NMFS (and as discussed on page 3 of the NMFS IHA for RIMPAC (Exhibit 13)).

11. Choke-point exercises. - Prior to approving a proposed choke-point exercise, Navy commands shall consult with OPNAV N45.

- The Navy will provide NMFS (Stranding Coordinator and Protected Resources, Headquarters) with information regarding the time and place for the choke-point exercises in advance of any proposed choke-point exercise.

- The Navy and NMFS will mutually agree upon whether non-Navy observers are required.

- The Navy will coordinate a focused monitoring effort around the choke-point exercises, to include pre-exercise monitoring (2 hours), during-exercise monitoring, and post-exercise monitoring (1-2 days). This monitoring effort will include at least one dedicated aircraft or one dedicated vessel for realtime monitoring from the pre- through post-monitoring time period, except at night, with the vessel or airplane maintaining regular communication with a Tactical Officer with the authority to shutdown, power-down, or delay the start-up of sonar operations. These monitors will communicate with the Navy command to ensure the safety zones are clear prior to sonar start-up, to recommend power-down and shut-down during the exercise, and to extensively search for potentially injured or stranding animals in the area and downcurrent of the area post-exercise.

12. Mine Shape Retrieval. To the maximum extent feasible, the Navy shall retrieve inert mine shapes dropped.

13. Monitoring Reports. In addition to the above, as agreed to previously, all monitoring results provided to NMFS (unless classified) shall be submitted to the Commission staff.

III. APPLICABLE LEGAL AUTHORITIES.

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

> *(a) Federal agencies, … should cooperate with State agencies to develop conditions that, if agreed to during the State agency's consistency review period and included in a Federal agency's final decision under Subpart C … would allow the State agency to concur with the federal action. If instead a State agency issues a conditional concurrence:*
>
> *(1) The State agency shall include in its concurrence letter the conditions which must be satisfied, an explanation of why the conditions are necessary to ensure consistency with specific enforceable policies of the management program, and an identification of the specific enforceable policies. The State agency's concurrence letter shall also inform the parties that if the requirements of paragraphs (a)(1) through (3) of the section are not met, then all parties shall treat the State agency's conditional concurrence letter as an objection pursuant to the applicable Subpart . . . ; and*
>
> *(2) The Federal agency (for Subpart C) … shall modify the applicable plan* [or] *project proposal, … pursuant to the State agency's conditions. The Federal agency … shall immediately notify the State agency if the State agency's conditions are not acceptable; and*
>
> *…*
>
> *(b) If the requirements of paragraphs (a)(1) through (3) of this section are not met, then all parties shall treat the State agency's conditional concurrence as an objection pursuant to the applicable Subpart.*

B. Practicability. The federal consistency regulations also provide:

> *15 CFR § 930.32: Consistent to the maximum extent practicable.*
> *(a)(1) The term ''consistent to the maximum extent practicable'' means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

Since the Navy has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the policies of the California Coastal Management Program (CPRC §§ 30200-30265.5).

IV. FINDINGS AND DECLARATIONS:

The Commission finds and declares as follows:

A. Marine Resources/Coastal Waters/Environmentally Sensitive Habitat. The Coastal Act provides:

> ***Section 30230:*** *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*
>
> ***Section 30231****: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*
>
> ***Section 30240:*** *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Sensitive marine species in the project areas include marine mammals and sea turtles, kelp beds, white abalone, and essential fish habitat. Potentially affected onshore species include snowy plovers at Camp Pendleton and the Silver Strand peninsula, and loggerhead shrikes and the island night lizard on San Clemente Island (Exhibits 5 & 6). The Navy's consistency determination focuses on the five types of exercises occurring within the coastal zone and having the potential to affect coastal zone resources. The Navy states:

Coastal Zone Effects

The Proposed Action would be consistent with Section 30230. Under the Proposed Action, the overall number, type and location of training operations would not increase. Biological productivity of coastal waters would be maintained and populations of fish and other marine organisms would be sustained. Important marine resources would be avoided.

Discussion

COMPTUEX/JTFEX activities within the SOCAL OPAREA with potential to affect marine resources include deployment of inert mine shapes on surface targets, sea-to-land weapons firing into designated land-based ranges, underwater detonation, and amphibious landings. Due to the generally dispersed, infrequent nature of Navy training exercises and the wide dispersal of marine resources, biological productivity of coastal waters will be maintained.

Marine resources of special biological or economic significance in the SOCAL OPAREA include:

- *Marine flora, especially kelp forests*
- *Commercial and recreational fish stocks and essential fish habitat*
- *Special-status species, including marine mammals, sea turtles, and white abalone*

These resources are considered, for this analysis, to be suitable indicators of general biological productivity, and representative of the overall marine resources within the SOCAL OPAREA.

Exhibit 4 contains the Navy's estimates of marine mammal distributions and population trends in the offshore operating areas. The Navy states:

Effects of the Proposed Action

Overview

JTFEX/COMPTUEX activities would have negligible effects on marine mammals. Minor acoustic effects to marine mammals could occur from underwater detonations and possibly include: temporary changes in behavior, movement away from an area of activity, temporary reduction in hearing sensitivity, and no response. It is highly unlikely that a marine mammal would experience any long-term effects because the proposed training is:

- *Intermittent*

• Localized in discreet, shallow water areas in SOCAL
• Mitigated, such that marine mammals will not be in proximity to underwater detonations during training events

Underwater Detonations

Marine mammals may be exposed to acoustic energy from underwater detonations from DEMO and SMCMEX, and to physical injury from inert mine shapes dropped during MINEX. Small charges are used to neutralize inert mine shapes during DEMO and SMCMEX. Underwater detonations associated with DEMO are aimed at removing obstacles and clearing mines in areas to be used for approaches to landing beaches. Underwater detonations conducted during SMCMEX involve one bottom-laid detonation and one mid-water column detonation. While water depth is slightly greater than DEMO activities, SMCMEX activities are conducted to locate and neutralize inert mine shapes in shallow water environments. Because underwater detonations conducted during DEMO and SMCMEX occur in shallow or very shallow water, a significant portion of the energy is dissipated as surface blowout pressure and/or into the ocean substrate. In addition, bottom substrate characteristics have an affect on the amount of energy propagating through the water column.

Characteristic of the west coast of North America, Southern California has mixed semidiurnal tides. This results in four daily tidal heights, including a low low tide, high low tide, low high tide, and high high tide. During these tides, sand and gravel from submerged portions of intertidal beaches are washed into the water column. This frequent tidal flow, combined with close proximity to erosion of sand and particulate matter from coastal dunes and hills results in a relatively deep sandy substrate in nearshore waters. Consequently, propagation of acoustic energy from these shallow water, and shallow water bottom-laid mine shapes is significantly reduced in the water column.

Operating procedures for detecting marine mammals would be implemented in conjunction with underwater detonations training. Prior to an underwater detonation (DEMO, SMCMEX) or mine laying activity (MINEX), ship-based or aerial observers would visually scan the area for marine mammals. As with sea turtles, underwater detonations or mine laying would be delayed, postponed or cancelled if a marine mammal approached the operating area; thereby, avoiding injury to marine mammals.

While marine mammals may detect the underwater detonations or sound of an inert mine shape dropping into the water from a distance, these exercises would be intermittent, and of very short duration. Underwater detonations and mine-laying would not affect the biological productivity of marine mammal populations in the CZ. The Proposed Action is consistent to the maximum extent practicable with Section 30230 for marine resources.

Concerning water quality, the Navy states:

> *Coastal Zone Effects*
>
> *COMPTUEX/JTFEX activities within the SOCAL OPAREA with the potential to affect biological productivity include underwater detonations from DEMO and SMCMEX. Mine shapes used in conjunction with these activities are either floating or moored mines. Small charges are used to neutralize inert mine shapes. Underwater detonations associated with DEMO are aimed at removing obstacles and clearing mines in areas to be used for approaches to landing beaches. Because these underwater detonations occur in very shallow water, a significant portion of the energy is dissipated as surface blowout pressure; thereby, reducing affects to water quality and plankton communities in the water column. Underwater detonations conducted during DEMO and SMCMEX would not be conducted in kelp forests surrounding SCI.*
>
> *Due to the generally dispersed, infrequent nature of underwater detonations, small charges used, significant tidal flow (particularly around SCI), discreet effects associated with underwater detonations, and the wide dispersal of marine resources, biological productivity of coastal waters will be maintained. The Proposed Action is consistent to the maximum extent practicable with Section 30231.*

The Commission notes that the proposed training exercises are similar to activities the Navy has been regularly undertaking for many years and do not represent an intensification in use of the affected areas compared to past years' activities. However the Commission takes a broader view than the Navy as to which activities may affect the coastal zone. Many of the species covered potentially affected by the proposed training activities spend some portions of their life cycles within coastal waters (e.g., birds that fly in and out of the coastal zone and marine species that swim in and out of the coastal zone)(see Exhibit 7, NOAA letter to CCC, March 10, 1995). Without adequate avoidance and mitigation measures, a greater number of exercises than those listed by the Navy could adversely affect coastal zone resources. The Commission believes that the numbers and types of activities with the potential to disturb marine species and other sensitive habitat include ship movement, inert mine drops, underwater detonations, and, from activities outside the coastal zone, mid-frequency sonar, missile launches (onto federally owned San Clemente Island), and amphibious landings (onto federally owned Navy and Marine Corps bases at Camp Pendleton and the Silver Strand). Accordingly, the Commission staff requested additional information from the Navy about the activities outside the coastal zone, and in response, the Navy has provided some additional information and a list and summary of monitoring and mitigation measures it intends to adopt for the proposed training exercises (Exhibit 2), as well as an explanation that it will be coordinating with the federal regulatory agencies under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA)).

The list of acoustic protection measures to minimize effects of active sonar and underwater detonations on marine mammals and sea turtles includes:

- requiring all Navy lookouts to review the NMFS-approved Marine Species Awareness Training material;
- shipboard surveillance for marine mammals and sea turtles;
- aerial surveillance where planes or helicopters are part of the activity;
- passive acoustic monitoring;
- implementation of a buffer zone (700 yard arc-radius around detonation sites for small explosives (mostly 1-5 pounds, with none exceeding 20 pounds));
- reducing the likelihood of exposing marine mammals or sea turtles to sounds > 173 dB (received level (RL), expressed in decibels (re 1 $\mu Pa^2 \cdot s$ @ 1m [one micropascal squared second at one meter]));
- avoidance of dropping any inert mines on marine mammals or sea turtles;
- removal from the marine environment of inert mines dropped pre- and post-exercise surveys; and
- coordination with NMFS in the event of any injury to a marine mammal or sea turtle observed and submitting monitoring reports.

The Navy has also agreed to submit its monitoring reports to the Commission staff. (The Commission also notes, parenthetically, that the Navy will be preparing a report on the effectiveness of these types of measures, when it submits its report to the National Marine Fisheries Service on the "RIMPAC"[1] measures, expected within the next few months.)

However, the Navy has not provided the Commission with the level of detail needed for the Commission to fully review the proposed project and its marine resource impacts. The Commission has traditionally required, as the Navy did provide for its most recent consistency determination involving active acoustics in Monterey Bay (CD-37-06 - Navy Monterey Bay (MB) 06), a detailed analysis of estimated "take" (numbers of animals affected), and for each acoustic source, the frequency range, duty cycle, acoustic intensity, and distance to what the Navy had estimated as the threshold for effect (although, as noted below, both NMFS and the

1 Small Takes of Marine Mammals Incidental to Specified Activities; Rim of the Pacific (RIMPAC) Antisubmarine Warfare (ASW) Exercise Training Events Within the Hawaiian Islands Operating Area (OpArea), National Oceanic and Atmospheric Administration Federal Register Notice, Vol. 71, No. 78, Monday, April 24, 2006.

Commission determined lower thresholds were needed). The following table shows a sample of that information provided:

CD-037-06 Navy Monterey Bay 2006, or MB 06, acoustic sources

Source type	***Frequency***	***Source level***	***Pulse length***	***Radius to 186 dB***
Shipboard ADCPs (Acoustic Doppler Current Profilers)	*50-150 kHz*	*223.6 dB*	*12-24 ms*	*2-76 meters*
Fixed or Mobile ADCPs	*140-170 kHz*	*192 dB*	*6 ms*	*2 meters*
Lagrangian Floats	*8-16 kHz*	*192 dB*	*5 ms*	*2 meters*
Side Scan Sonar	*50 kHz*	*200 dB*	*30 ms*	*5 meters*
Sub-bottom profiler	*3.5/12 kHz*	*221 dB*	*5 ms*	*56 meters*
Float tracking device	*8-16 kHz*	*192 dB*	*5 ms*	*2 meters*
Bubble scan device	*0.75-1 MHz*	*210 dB*	*200 ms*	*16 meters*

During its review of that consistency determination for "MB06," the Commission found:

> ***[Staff Note – Dual Criteria/Sound Exposure Levels**: Regulators and acoustic experts have recently been moving towards "dual" criteria for acoustic thresholds, a combined "SPL" (sound pressure level) and "SEL" (sound exposure level). The first measures instantaneous peak pressures, and the second is a more cumulative measure of energy received over time. SPL is an instantaneous measurement and can be expressed as the peak, the peak-peak, or the root mean square (rms). Root mean square, which is the square root of the arithmetic average of the squared instantaneous pressure values, is typically used in discussions of the effects of sounds on vertebrates. The commonly used reference pressure level in underwater acoustics is 1 µPa (micropascal, sometimes written as "mPa") and the units for SPLs are dB re: 1 µPa. SPL (in dB) = 20 log (pressure/reference pressure). SPL does not take the duration of a sound into account.*
>
> *SEL is an energy metric that integrates the squared instantaneous sound pressure over a stated time interval. The units for SEL are dB re: 1 μPa^2–s. SEL = SPL + 10 log (duration). If an animal is exposed to multiple pings, the SEL in each individual ping is summed to calculate the total SEL. The total SEL depends on the SPL, duration, and number of pings received. The acoustic effects on hearing that result in temporary threshold shift (TTS) and permanent threshold shift (PTS) do not imply any specific SPL, duration, or number of pings. The SPL and duration of each received ping are used to calculate the total SEL and determine whether the received SEL meets or exceeds the effect thresholds.]*
>
> *The Navy's uses the following acoustic criteria for sound exposure level (SEL) from intermittent sounds:*

- *Level A threshold – onset permanent threshold shift (PTS), or injury: 215 dB re: 1 µPa^2-s;*
- *Level B threshold – onset temporary threshold shift (TTS), or harassment: 195 dB re: 1 µPa^2-s; and*
- *Level B threshold – behavioral disruption: 186 dB re: 1 µPa^2-s.*

…

In the context of quite different activities, more potentially disruptive military sonar proposals (proposed in other areas of the country), the scientific debate over applicable thresholds for military mid-frequency sonar remains unresolved. For Navy mid-frequency sonar proposed off North Carolina and Hawaii, the Navy initially proposed a 190 dB threshold, NOAA Fisheries (NMFS) selected 173 dB,[2] and several institutions and environmental organizations have suggested 154 dB may be the most appropriate threshold. Not much focus has occurred over thresholds that may be applicable to the fairly common types of research-related and shipping sounds at the frequencies, intensities and durations similar to those proposed here, and unlike strandings associated with military sonar, no documentation exists to date that these types of sources pose threats to marine mammals. Nor does NMFS believe a "take" permit is even needed for the proposed research.

In the separate, mid-frequency sonar dialogue, the Navy selected 190 dB as representing 50% of mammals behaviorally affected in a controlled study (Finneran and Schlundt (2004)). NMFS selected 173 dB from the same study (combined with two others)[3] but representing the level where 25% of the mammals showed an effect. Placing more emphasis on the right whale studies in the wild (Nowacek et al. 2003), comments on the same Navy mid-frequency sonar proposals included letters from the

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[2] NMFS recently requested that the Navy use 173 dB as an SEL threshold for behavioral impacts, in both: (1) NMFS' January 30, 2006, comments on the Navy's Draft Overseas EIS/EIR for the Dept. of the Navy's Undersea Warfare Training Range (proposed off North Carolina); and (2) NMFS' comments in its Federal Register Notice of April 24, 2006, on the Navy's NMFS Permit application for Small Takes of Marine Mammals Incidental to Specified Activities; Rim of the Pacific (RIMPAC) Antisubmarine Warfare (ASW) Exercise Training Events Within the Hawaiian Islands Operating Area (OpArea).

[3] NMFS believes that " … in the absence of controlled exposure experiments, the following investigations and reports … constitute the best available scientific information for establishing an appropriate acoustic threshold for sub- TTS behavioral disruption: (1) Finneran and Schlundt (2004), in which behavioral observations from TTS studies of captive bottlenose dolphins and beluga whales are analyzed as a function of known noise exposure; (2) Nowachek [sic] et al. (2004), in which controlled exposure experiments were conducted on North Atlantic right whales using ship noise, social sounds of con-specifics, and an alerting stimulus; and (3) NMFS (2005), in which the behavioral reactions of killer whales in the presence of tactical midfrequency sonar were observed, and analyzed after the fact. Based on these three studies, NMFS has set the sub-TTS behavioral disruption threshold at 173 dB re 1 µPa –s (SEL)." (Fed. Reg. Notice, April 24, 2006, Navy's NMFS Permit application for "RIMPAC")

Natural Resources Defense Council (NRDC) and Woods Hole Oceanographic Institution (WHOI, which is also conducting some of the proposed research) urged a lowering of the behavioral threshold to 154 dB. Based on the Nowacek study WHOI noted "…significant behavioral responses (cessation of foraging and re-location) were reported at ELs (energy levels, or received levels) of about 154 dB ….[4] *NRDC echoed similar concerns in its May 24, 2006, comments on "RIMPAC."*

Having been extensively involved in the Marine Mammal Commission's Advisory Committee on Acoustic Impacts on Marine Mammals, the Commission is well aware of the difficulty in achieving consensus on regulatory thresholds for marine mammal impacts. At the same time, unlike the above-discussed Hawaii and North Carolina activities (Navy mid-range sonar, 1 to 10 kHz), for which a NMFS take permit was required,[5] *and for which documentation does exist that similar past comparable activities have been associated with, and likely caused in some cases,*[6] *marine mammal strandings and thus that the sound levels in those activities warrant serious concern, NMFS does not believe the proposed research activities in Monterey Bay even trigger the need for a take permit.*

Thus, while the case can be made that commonly occurring, predominantly high-frequency marine research activities should not be treated the same as mid-frequency military sonar, the issue of marine mammal threshold criteria continues to be debated. While the Commission agrees that the movement from a single to a dual criteria is a step in the right direction, the Commission does not believe the Navy has established a basis for its proposed 186 dB threshold. An equivalent if not better case can be made for adopting what Woods Hole Oceanographic Institution has suggested (i.e., a more precautionary 154 dB threshold.

Prior to the hearing, the Navy agreed (in a telephone communication with the Commission staff) that the 100 yd. marine mammal preclusion zone included the understanding that if a marine mammal were to enter the agreed-upon 100 yd. preclusion zone, active acoustic devices would be turned off. During the public hearing, noting a difference of opinion about the marine mammal thresholds, the Commission indicated its preference for a 154 decibel (dB) Sound Energy Level (SEL) threshold, rather than the 186 dB threshold that the Navy had relied on in its consistency determination. Consequently, the Commission requested, and the Navy representative agreed, that the Navy would provide an additional calculation of the lateral (horizontal) distance to 154 dB, and if that meant a larger preclusion radius

[4] Letter dated 27 January, 2006, from Dr. Mark P. Johnson, Woods Hole Oceanographic Institution, to Keith Jenkins, U.S. Navy.

[5] NMFS estimated a "Level B" take of up to 30,000+ marine mammals for the Navy's "RIMPAC" exercise.

[6] For example, the March 2000 Bahamas beaked whale stranding.

than the previously-agreed-to 100 yd. preclusion zone, then any such larger preclusion zone would become the preclusion zone for the proposed research. Thus, this commitment was incorporated into the project as part of the Navy's submittal.

NMFS defended its rationale for its use of a 173 dB SEL threshold during its review of the Navy's RIMPAC training is contained in its Federal Register Notice of July 7, 2006,[7] which included:

Harassment Thresholds

For the purposes of this IHA, NMFS recognizes three levels of take; Level A Harassment (Injury), Level B Harassment (Behavioral Disruption), and mortality (or serious injury that may lead to mortality) (Table 2). Mortality, or serious injury leading to mortality, may not be authorized with an IHA.

NMFS has determined that for acoustic effects, acoustic thresholds are the most effective way to consistently both apply measures to avoid or minimize the impacts of an action and to quantitatively estimate the effects of an action. Thresholds are commonly used in two ways: (1) To establish a shut-down or power down zone, i.e., if an animal enters an area calculated to be ensonified above the level of an established threshold, a sound source is powered down or shut down; and (2) to calculate take, for example, if the Level A Harassment threshold is 215 dB, a model may be used to calculate the area around the sound source that will be ensonified to that level or above, then, based on the estimated density of animals and the distance that the sound source moves, NMFS can estimate the number of marine mammals exposed to 215 dB. The rationale behind the acoustic thresholds proposed for this authorization are discussed below.

(1) Finneran and Schlundt (2004) analyzed behavioral observations from related TTS studies (Schlundt et al., 2000; Finneran et al., 2001; 2003) to calculate cetacean behavioral reactions as a function of known noise exposure. During the TTS experiments, four dolphins and two white whales were exposed during a total of 224 sessions to 1-s pulses between 160 and 204 dB re 1 mPa (root-mean-square sound pressure level (SPL)), at 0.4, 3, 10, 20, and 75 kHz. Finneran and Schlundt (2004) evaluated the behavioral observations in each session and determined whether a ``behavioral alteration'' (ranging from modifications of response behavior during hearing sessions to attacking the experimental

7 http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/06-6050.htm

equipment) occurred. For each frequency, the percentage of sessions in which behavioral alterations occurred was calculated as a function of received noise SPL. By pooling data across individuals and test frequencies, respective SPL levels coincident with responses by 25, 50, and 75 percent behavioral alteration were documented. 190 dB re 1 mPa (SPL) is the point at which 50 percent of the animals exposed to 3, 10, and 20 kHz tones were deemed to respond with some behavioral alteration, and the threshold that the Navy originally proposed for sub-TTS behavioral disturbance.

(2) Nowacek et al. (2004) conducted controlled exposure experiments on North Atlantic right whales using ship noise, social sounds of con-specifics, and an alerting stimulus (frequency modulated tonal signals between 500 Hz and 4.5 kHz). Animals were tagged with acoustic sensors (D-tags) that simultaneously measured movement in three dimensions. Whales reacted strongly to alert signals at received levels of 133-148 dB SPL, mildly to conspecific signals, and not at all to ship sounds or actual vessels. The alert stimulus caused whales to immediately cease foraging behavior and swim rapidly to the surface. Although SEL values were not directly reported, based on received exposure durations, approximate received values were on the order of 160 dB re: 1 mPa\2\-s.

(3) NMFS (2005) evaluated the acoustic exposures and coincident behavioral reactions of killer whales in the presence of tactical mid-frequency sonar. In this case, none of the animals were directly fitted with acoustic dosimeters. However, based on a Naval Research Laboratory (NRL) analysis that took advantage of the fact that calibrated measurements of the sonar signals were made in situ and using advanced modeling to bound likely received exposures, estimates of received sonar signals by the killer whales were possible. Received SPL values ranged from 121 to 175 dB re: 1 mPa. The most probable SEL values were 169.1 to 187.4 dB re: 1 mPa\2\-s; worst-case estimates ranged from 177.7 to 195.8 dB re: 1 mPa\2\-s. Researchers observing the animals during the course of sonar exposure reported unusual alterations in swimming, breathing, and diving behavior.

For more detailed information regarding how marine mammals may respond to sound, see the Navy's IHA application, the Navy's associated EA, Richardson's Marine Mammals and Noise (1995), or the references cited on NMFS' Ocean Acoustic Program website (see ADDRESSES)

Sub-TTS Behavioral Disruption

NMFS believes that behavioral disruption of marine mammals may result from received levels of mid-frequency sonar lower than those believed necessary to induce TTS, and further, that the lower limit of Level B Harassment may be defined by the received sound levels associated with these sub-TTS behavioral disruptions. As of yet, no controlled exposure experiments have been conducted wherein wild cetaceans are deliberately exposed to tactical mid-frequency sonar and their reactions carefully observed. However, NMFS believes that in the absence of controlled exposure experiments, the following investigations and reports (described previously in the Behavioral Effects section) constitute the best available scientific information for establishing an appropriate acoustic threshold for sub-TTS behavioral disruption: (1) Finneran and Schlundt (2004), in which behavioral observations from TTS studies of captive bottlenose dolphins and beluga whales are analyzed as a function of known noise exposure; (2) Nowachek et al. (2004), in which controlled exposure experiments were conducted on North Atlantic right whales using ship noise, social sounds of con-specifics, and an alerting stimulus; and (3) NMFS (2005), in which the behavioral reactions of killer whales in the presence of tactical mid-frequency sonar were observed, and analyzed after the fact. Based on these three studies, NMFS has set the sub-TTS behavioral disruption threshold at 173 dB re 1 mPa\2\-s (SEL).

The Finneran and Schlundt (2004) analysis is an important piece in the development of an appropriate acoustic threshold for sub-TTS behavioral disruption because: (1) researchers had superior control over and ability to quantify noise exposure conditions; (2) behavioral patterns of exposed marine mammals were readily observable and definable; and, (3) fatiguing noise consisted of tonal noise exposures with frequencies contained in the tactical mid-frequency sonar bandwidth. In Finneran and Schlundt (2004) 190 dB re 1 mPa (SPL) is the point at which 50 percent of the animals exposed to 3, 10, and 20 kHz tones were deemed to respond with some behavioral alteration. This 50 percent behavior alteration level (190 dB SPL) may be converted to an SEL criterion of 190 dB re 1 mPa\2\-s (the numerical values are identical because exposure durations were 1-s), which provides consistency with the Level A (PTS) effects threshold, which are also expressed in SEL. The Navy proposed 190 dB (SEL) as the acoustic threshold for sub-TTS behavioral disruption in the first IHA application they submitted to NMFS.

NMFS acknowledges the advantages arising from the use of behavioral observations in controlled laboratory conditions; however, there is considerable uncertainty regarding the validity of applying data collected from trained captives conditioned to not respond to noise exposure in establishing thresholds for behavioral reactions of naive wild individuals to a sound source that apparently evokes strong reactions in some marine mammals. Although wide-ranging in terms of sound sources, context, and type/extent of observations reported, the large and growing body of literature regarding behavioral reactions of wild, naive marine mammals to anthropogenic exposure generally suggests that wild animals are behaviorally affected at significantly lower levels than those determined for captive animals by Finneran and Schlundt (2004). For instance, some cetaceans exposed to human noise sound sources, such as seismic airgun sounds and low frequency sonar signals, have been shown to exhibit avoidance behavior when the animals are exposed to noise levels of 140-160 dB re: 1 mPa under certain conditions (Malme et al., 1983; 1984; 1988; Ljungblad et al., 1988; Tyack and Clark, 1998). Richardson et al. (1995) reviewed the behavioral response data for many marine mammal species and a wide range of human sound sources.

Two specific situations for which exposure conditions and behavioral reactions of free-ranging marine mammals exposed to sounds very similar to those proposed for use in RIMPAC are considered by Nowacek et al. (2004) and NMFS (2005) (described previously in Behavioral Effects subsection). In the Nowacek et al. (2004) study, North Atlantic right whales reacted strongly to alert signals at received levels of 133-148 dB SPL, which, based on received exposure durations, is approximately equivalent to 160 dB re: 1 mPa\2\-s (SEL). In the NMFS (2005) report, unusual alterations in swimming, breathing, and diving behaviors of killer whales observed by researchers in Haro Strait were correlated, after the fact, with the presence of estimated received sound levels between 169.1 and 187.4 dB re: 1 mPa\2\-s (SEL).

While acknowledging the limitations of all three of these studies and noting that they may not necessarily be predictive of how wild cetaceans might react to mid-frequency sonar signals in the OpArea, NMFS believes that these three studies are the best available science to support the selection of an acoustic sub-TTS behavioral disturbance threshold at this time. Taking into account all three studies, NMFS has established 173 dB re: 1 mPa\2\ (SEL) as the threshold for sub-TTS behavioral disturbance.

In its "RIMPAC" review (same Federal Register notice[8]), NMFS commented as follows on a request to use a lower than 173 dB threshold:

> *Comment 44: The 173-dB behavioral threshold is not supportable, as significant behavioral changes have been demonstrated in a controlled exposure experiment (Nowacek et al., 2004) at 154 dB SEL. It is not appropriate to use the 25th percentile results of the Finneran study (173 dB), as the captive animals in that study cannot adequately represent the responses of wild animals. Alternatively, NMFS received one comment in support of the issuance of the IHA, but that commenter believed that the 190-dB behavioral threshold was supported, not the 190-dB threshold.*
>
> *Response: As discussed in the text, NMFS used the three examples (Finneran and Schlundt, 2004, Nowacek et al., 2004; and NMFS Haro Strait analysis) of cetacean responses to high intensity sound that we believe are the most predictive for marine mammal responses to tactical sonar to develop the threshold. Generally, NMFS interprets the received SELs in these studies as approximately 50 percent disturbance = 190 dB SEL (Finneran), approximately maximum SEL:160 dB (Nowacek), and approximately 165-175 dB SEL (Haro Strait). Where using a single threshold, instead of the likely more appropriate but currently unknown dose-response sigmoidal relationship, NMFS acknowledges that some animals exposed above the threshold may not be harassed by the sound and, conversely, some animals exposed to a sound below the threshold may be harassed. Therefore, NMFS believes that an appropriate threshold is a number somewhere between the lowest and highest mid-frequency signal exposure levels to which animals have demonstrated profound behavioral disturbance, which is why we chose 173 dB SEL for this authorization.*
>
> *NMFS also considers disruption of the behavior of marine mammals that can result from sound levels lower than those considered necessary for TTS to occur (often referred to as sub-TTS behavioral disruption). Though few studies have specifically documented the effects of tactical mid-frequency sonar on the behavior of marine mammals in the wild, many studies have reported the effects of a wide range of intense anthropogenic acoustic stimuli on specific facets of marine mammal behavior, including migration (Malme et al., 1984; Ljungblad et al., 1988; Richardson et al., 1999), feeding (Malme et al., 1988), and surfacing (Nowachek et al., 2004). Below, NMFS summarizes the results*

8 http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/06-6050.htm

of two studies and one after-the-fact investigation wherein the natural behavior patterns of marine mammals exposed to levels of tactical mid-frequency sonar, or sounds similar to mid-frequency sonar, lower than those thought to induce TTS were disrupted to the point where it was abandoned or significantly altered:

(1) Finneran and Schlundt (2004) analyzed behavioral observations from related TTS studies (Schlundt et al., 2000; Finneran et al., 2001; 2003) to calculate cetacean behavioral reactions as a function of known noise exposure. During the TTS experiments, four dolphins and two white whales were exposed during a total of 224 sessions to 1-s pulses between 160 and 204 dB re 1 mPa (root-mean-square sound pressure level (SPL)), at 0.4, 3, 10, 20, and 75 kHz. Finneran and Schlundt (2004) evaluated the behavioral observations in each session and determined whether a ``behavioral alteration'' (ranging from modifications of response behavior during hearing sessions to attacking the experimental equipment) occurred. For each frequency, the percentage of sessions in which behavioral alterations occurred was calculated as a function of received noise SPL. By pooling data across individuals and test frequencies, respective SPL levels coincident with responses by 25, 50, and 75 percent behavioral alteration were documented. 190 dB re 1 mPa (SPL) is the point at which 50 percent of the animals exposed to 3, 10, and 20 kHz tones were deemed to respond with some behavioral alteration, and the threshold that the Navy originally proposed for sub-TTS behavioral disturbance.

(2) Nowacek et al. (2004) conducted controlled exposure experiments on North Atlantic right whales using ship noise, social sounds of con-specifics, and an alerting stimulus (frequency modulated tonal signals between 500 Hz and 4.5 kHz). Animals were tagged with acoustic sensors (D-tags) that simultaneously measured movement in three dimensions. Whales reacted strongly to alert signals at received levels of 133-148 dB SPL, mildly to conspecific signals, and not at all to ship sounds or actual vessels. The alert stimulus caused whales to immediately cease foraging behavior and swim rapidly to the surface. Although SEL values were not directly reported, based on received exposure durations, approximate received values were on the order of 160 dB re: 1 mPa\2\-s.

(3) NMFS (2005) evaluated the acoustic exposures and coincident behavioral reactions of killer whales in the presence of tactical mid-frequency sonar. In this case, none of the animals were directly fitted with acoustic dosimeters. However, based on a Naval Research Laboratory (NRL) analysis that took advantage of the fact that calibrated

> *measurements of the sonar signals were made in situ and using advanced modeling to bound likely received exposures, estimates of received sonar signals by the killer whales were possible. Received SPL values ranged from 121 to 175 dB re: 1 mPa. The most probable SEL values were 169.1 to 187.4 dB re: 1 mPa\2\-s; worst-case estimates ranged from 177.7 to 195.8 dB re: 1 mPa\2\-s. Researchers observing the animals during the course of sonar exposure reported unusual alterations in swimming, breathing, and diving behavior.*

[Note: the Finneran and Schlundt (2004) and Nowacek et al. (2004) studies referenced above are attached as Exhibits 10 and 11.]

As it found during the review of CD-037-06, the Commission believes that a lower threshold than articulated by NMFS is warranted. NMFS appears to have taken a "middle ground" approach, noting that available evidence exists to support a lower threshold, but basing its determination on the level at which 25% of mammals were behaviorally affected in a captive dolphin study (Finneran and Schlundt (2004)). As the Commission noted in CD-037-06, the Nowacek study (Exhibit 10) (and supported by the January 27, 2006, letter from Woods Hole to the Navy (Exhibit 9)) represents a more reliable indicator, given that it addresses animals not in captivity (and not trained to expect rewards). Given the results of this study, combined with the paucity of data concerning the effects of anthropogenic sound on marine species, and the difficulty in detecting marine mammals and sea turtles, a compelling case exists that a lower threshold is warranted. Therefore, the Commission reiterates its finding from CD-037-06: "While the Commission agrees that the movement from a single to a dual criteria is a step in the right direction, the Commission does not believe the Navy has established a basis for its proposed 186 dB threshold. An equivalent if not better case can be made for adopting what Woods Hole Oceanographic Institution has suggested (i.e., a more precautionary 154 dB threshold)." Consequently, the Commission believes the conditions on pages 10-13 are needed to, among other measures, implement a 154 dB (received level (RL)).

The Commission notes that further support for a lower threshold exists in the Woods Hole Oceanographic Institution letter of January, 27, 2006 to the Navy (Exhibit 9), NMFS' IHA for a recent Scripps seismic survey, and the National Research Council's 2005 report "Marine Mammal Populations and Ocean Noise: Determining When Noise Causes Biologically Significant Effects."

In its IHA for Scripps Institution of Oceanography (SIO) (Incidental Harassment Authorization (IHA) to take small numbers of marine mammals, by harassment, incidental to conducting an oceanographic survey in the South Pacific Ocean (SPO),[9] NMFS set forth a 160 dB threshold, stating:

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9 http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/E6-21611.htm and http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/06-8353.htm

> *The Level B harassment estimates are based on a consideration of the number of marine mammals that might be exposed to sound levels at or higher than 160 dB, the criterion for the onset of Level B harassment, by operations with the 2 GI-gun array planned to be used for this project.*

The National Research Council's 2005 report "Marine Mammal Populations and Ocean Noise: Determining When Noise Causes Biologically Significant Effects" highlighted the uncertainties in relying on studies from captive animals and noted:

> *The behavioral responses of marine mammals to acoustic stimuli vary widely, depending on the species, the context, the properties of the stimuli, and prior exposure of the animals (Wartzok et al., 2004). Species variation in auditory processing is so important that a distinction should certainly be made between taxonomic groups that have widely different hearing and sensitivity frequencies. For example, pinnipeds have lower maximal frequency of hearing and maximal sensitivity of hearing than odontocetes (toothed whales). They typically have a high-frequency cutoff in their underwater hearing between 30 and 60 kHz, and maximal sensitivity of about 60 dB re 1 µPa, and odontocetes have best frequency of hearing between 80 and 150 kHz and maximum sensitivity between 40-50 dB. Therefore, odontocetes can hear over a wider frequency range and have keener hearing than pinnipeds, so they could potentially be affected by a wider variety of sounds. Little is known about the frequency range of hearing and sensitivity of some marine mammal taxa, such as baleen whales, but several attempts have been made to divide marine mammals into functional categories on the basis of hearing (e.g., Ketten, 1994).*
>
> *As mentioned above, some of the variation in responses between species or individuals may stem from differences in audition. Not only do different species have different hearing capabilities but there is considerable variation in hearing among conspecifics. One of the most predictable patterns in mammals involves age-related hearing loss, which particularly affects high frequencies and is more common in males than females (Willott et al., 2001).*

Auditory processing is less likely than behavior to differ between captive and wild animals, and captive data on behavioral reactions closely linked to audition may be relevant to other settings. For example, Schlundt et al. (2000) noted disturbance reactions of captive bottlenose dolphins (Tursiops truncatus) and beluga whales during TTS experiments. The behavioral reactions involved avoidance of the source, refusal of participation in the test, aggressive threats, or attacks on the equipment. Finneran and Schlundt (2004) showed that the probability of those reactions increased with increasing received level from 160 to 200 dB rms re 1 µPa at 1m except for low-frequency (400-Hz) stimuli near the low-frequency boundary of auditory sensitivity. The kinds of reactions observed and how they scale with intense exposures near the level that provoked TTS suggest that the signals were perceived as annoyingly loud.

Some of the variation in responses to sound may stem from experience. There are several well-known mechanisms by which an animal modifies its responses to a sound stimulus, depending upon reinforcement correlated with exposure. The response of animals to an innocuous stimulus often wanes after repeated exposure—a process called habituation. The National Research Council (NRC, 1993) recommended studies on habituation of marine mammals to repeated human-made sounds. In one of few experimental studies of habituation in marine mammals, Cox et al. (2001) showed that porpoises tended to avoid at a distance of 208 m upon initial exposure to a 10-kHz pinger with a source level of 132 dB peak to peak re 1 µPa at 1m. This avoidance distance dropped by 50% within 4 days, and sightings within 125 m equaled control values within 10-11 days. The pingers are used on nets to prevent porpoises from becoming entangled in them, so evaluations of their effectiveness must take habituation into account.

Kastelein et al. (1997) report that a captive harbor porpoise (Phocoena phocoena) avoided exposure to high-frequency pingers with source levels of 103-117 dB rms re 1 µPa at 1m and received levels of 78-90 dB rms re 1 µPa. When exposed to a source with a level of 158 dB rms re 1 µPa at 1m, the porpoise swam as far away as possible in the enclosure and made shallow rapid dives. Those results combine with the results of Cox et al. (2001) to suggest that porpoises react to sound at much lower levels than the captive delphinids studied by Finneran and Schlundt (2004). However, the context of the captive studies was quite different: the dolphins and belugas studied by Finneran and Schlundt were being rewarded for submitting to exposure to intense sounds, whereas the porpoise was not being rewarded for remaining in the sound field.

If an animal in captivity or the wild is conditioned to associate a sound with a food reward, it may become more tolerant of the sound and may become sensitized and use the sound as a cue for foraging. Several large-scale studies have shown that the distribution of feeding baleen whales correlates with prey but not with loud sonar or industrial activities (Croll et al., 2001); but the studies were unable to test for

potentially more subtle effects on feeding, such as reduced prey capture per unit effort and reduced time engaged in feeding.

Some of the strongest reactions of marine mammals to human-generated noise may occur when the sound happens to match their general template for predator sounds. The risk-benefit relationship is very different for predator defense and foraging. An animal may lose a meal if it fails to recognize a foraging opportunity, but it may die if it fails to detect predators. Animals do not have the luxury of learning to detect predators through experience with them. Deecke et al. (2002) showed that harbor seals responded strongly to playbacks of the calls of mammal-eating killer whales and unfamiliar fish-eating killer whales but not to familiar calls of local fish-eating killer whales. That suggests that, like birds studied with visual models of predators (Schleidt, 1961a; 1961b), these animals inherit diffuse templates for predators. They initially respond to any stimulus similar to the predator template but learn through habituation to cease responding to harmless variants of the general predator image.

It would make sense for animals to show strong reactions to novel sounds that fit within the predator template, whatever the received level. Indeed, the behavioral reactions of belugas to ice breaker noise match the local Inuit description of their responses to killer whales, a dangerous predator. Some of those strong reactions to novel sounds, such as the responses of diving right whales to an artificial alarm stimulus as reported by Nowacek et al. (2003), might be expected to habituate if the stimuli are distinguishable from real predators and are not associated with aversive effects. In fact, the only right whale subject not to respond was the last of six whales tested, and it may have heard the stimulus up to five times before. Beluga whales that fled icebreaker noise at received levels of 94-105 dB rms re 1 µPa returned in 1-2 days to the area where received icebreaker noise was 120 dB rms re 1 µPa (Finley et al., 1990). In contrast, Kastak and Schusterman (1996) reported that a captive elephant seal not only did not habituate but was sensitized to a broadband pulsed stimulus somewhat similar to killer whale echolocation clicks even though nothing dangerous or aversive was associated with the noise.

The low sound levels that stimulate intense responses of Arctic beluga whales (Frost et al., 1984; LGL and Greeneridge, 1986; Cosens and Dueck, 1988) contrast sharply with the high levels required to evoke responses in captive beluga whales (Finneran and Schlundt, 2004). This difference highlights that there are likely to be several kinds of response, depending on whether the animal is captive and whether the noise resembles that of a known predator. Annoyance responses may require levels of sound well above levels that may stimulate strong antipredator responses. If animals in the wild hear a sound that matches their auditory template for a predator, they may avoid exposures to sound levels much lower than those required to elicit the disturbance responses observed by Finneran and Schlundt (2004). If learning can modify the predator template, as suggested by Deecke et al. (2002), it is essential to conduct studies of

behavioral responses of animals to human-made stimuli in habitats resembling those encountered by wild populations.

An important property of most anthropogenic sound is that high-intensity levels are typically confined to the immediate location of the sound source (an exception is high-intensity, low-frequency sound), so any effects caused by exposure to high levels are reduced as animals move away from the source. However, high-intensity low-frequency sound travels well enough underwater that animals can detect signals at ranges of tens to hundreds of kilometers from the source. If, as in the case of Arctic belugas hearing icebreaker noise, exposure to low received levels can still trigger an intense response, a few sources may affect a large fraction of a population.

Even in the absence of a strong response, low received levels of sound can affect a large fraction of a population if the sound results in a masking of normal stimuli. Marine mammals show exquisite adaptations to overcome masking, but they may not be effective in the presence of pervasive anthropogenic sounds (reviewed in NRC, 2003b; Wartzok et al., 2004).

Concerning other issues raised by this proposal, the Navy has documented that the project would not adversely affect kelp beds, white abalone, or any marine mammal haulout areas or rookeries. The primary onshore sensitive species of concern are snowy plovers at the Silver Strand in Coronado, and island night lizards and loggerhead shrikes on San Clemente Island (Exhibits 5-6), but again, measures and efforts are in place to protect these species, both through Biological Opinions covering Navy training exercises and through the Navy's INRMPs for the affected bases. Of these species the only "listed" species potentially affected that lives completely outside the coastal zone is the island night lizard (on San Clemente Island). Although it is listed as a threatened species under the ESA, based on extrapolation the Fish and Wildlife Service estimates a fairly robust population of 2-20 million individuals throughout the island (and the Navy's INRMP estimates "an excess of 20 million"). The Fish and Wildlife Service is currently undergoing an analysis to consider "de-listing" the species, at least for this island (compared to possibly genetically distinct and much smaller populations on San Nicolas and Santa Barbara Islands). Also, possibly arguably not a coastal zone species (the biological important activities of which occur predominantly on the federally owned island) is the San Clemente Island loggerhead shrike, which does not migrate but is sometimes observed over water areas, and which has been described as "…possibly the most endangered animal population in the continental United States." (Lynn et al. 1999) (Source, Navy May 2002 San Clemente Island Integrated Natural Resources Management Plan (INRMP). Other populations of loggerhead shrikes may occur on the mainland and nearby Santa Catalina Island; however, the San Clemente Island population is genetically and morphologically distinct from these populations (Ridgway 1903; Miller 1931; Mundy et al. 1996 in Lynn et al. 2000)(same source).

Through the ESA and Integrated Natural Resource Management Plan (INRMP) processes, the Navy is currently implementing aggressive, island-wide measures to manage, protect, and improve loggerhead shrike and island night lizard habitat, including but not limited to, surveying, monitoring and research, predator management and removal, fire controls (including during Naval Surface Fire Support from the proposed training activities), establishing restricted areas off limits to military and other human activities, captive breeding, and habitat enhancement. Firebreaks are coordinated with the Navy's Natural Resources Office prior to installation, and fire suppression equipment is on site during live-firing events. The Navy has also established snowy plover avoidance measures that must be implemented for any training occurring during the snowy plover nesting season at the Silver Strand Peninsula. The Marine Corps implements conservation measures on landing beaches off Camp Pendleton, including: fencing nesting areas, predator controls, restoring dunes within nesting areas, monitoring breeding activities, and studying long-term snowy plover and least tern population trends.

In conclusion, for the reasons discussed on pages 18-32 above, based on the project's marine resource concerns, the Commission is conditioning its concurrence on requirements that the Navy incorporate the following monitoring and mitigation measures (see p. 10-13 for condition language):

implement safety zones out to the 154 dB (received level (RL), expressed in decibels (re 1 µPa2 ·s @ 1m [one micropascal squared second at one meter]);

include two dedicated NOAA-trained observers at all times during use of mid-frequency sonar;

provide adequate, NMFS approved training for the monitors;

include Passive Acoustic Monitoring and use it to enforce the safety zones;

perform aerial monitoring;

avoid, where possible, effect on gray whales, the Channel Islands National Marine Sanctuary, and areas with known high concentrations of marine mammals, and complex, steep seabed topography (except on the Navy's instrumented range off San Clemente Island);

additional measures for night and low visibility conditions, during Surface Ducting Conditions, and for Choke-point exercises**;**

to the degree possible, retrieval of inert mine shapes dropped; and

as agreed to previously, submit all monitoring results provided to NMFS (unless classified) to the Commission staff.

While the proposed training is not a new activity in these waters, this is the first opportunity the Commission has had to review issues related to mid-frequency sonar since concerns were raised in the Bahamas, De Haro Straits, Hawaii, and other coastal areas in recent years. The Commission concludes that, only as conditioned, would the proposed training exercises be consistent with the applicable marine resource, water quality, and fill of open coastal waters policies (Sections 30230, 20331, and 30233) of the Coastal Act. The Commission also concludes that, for the other habitat issues raised, the project would be consistent with the environmentally sensitive habitat policy (Section 30240) of the Coastal Act.

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

B. <u>Public Access/Fishing</u>. Section 30210 of the Coastal Act provides:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with safety needs and the need to protect public rights, rights of private property public owners, and natural resource areas from overuse.*

Section 30212 provides in part:

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

Section 30220 provides:

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

In addition, aside from the commercial fishing protection afforded under Section 30230, quoted above on page 14, Sections 30234 and 30234.5 underscore the need to protect commercial and recreational fishing opportunities:

> **30234.** *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed*

recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

30234.5. *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

The Navy maintains that the project is consistent with the public access and recreation, and recreational fishing policies of the Coastal Act, stating that:

The Proposed Action is fully consistent with California CZ policy Section 30210 because it would not alter current public access to recreational areas or recreational opportunities in the CZ. Public beaches and beach access routes are not affected, nor are National Park facilities. Notices to Mariners (NOTMARs) and Notices-to-Airmen (NOTAMs) are issued to allow mariners and commercial recreational services (e.g., dive charters) to select alternate destinations without substantially affecting their activities. The Proposed Action would not increase the number or type of training operations or change the training locations.

Most COMPTUEX/JTFEX activities in the CZ are compatible with concurrent recreational activities. Some COMPTUEX/JTFEX activities (i.e., those involving the live firing of weapons) require access to be restricted for safety and military security concerns. COMPTUEX/JTFEX activities in areas of joint use occasionally limit public access to portions of the shoreline or nearshore waters for short periods because the Navy implements strict safety procedures prior to each training activity. The locations, sizes, and durations of safety zones are carefully tailored to the needs of the military exercise so as to minimize the effects on public access and recreation, and ensure public safety.

Discussion

The Navy has implemented procedures to efficiently inform the public about temporary exclusions when such exclusions are necessary for public safety during NSFS, Mine Exercise (MINEX), DEMO, Ship Mine Countermeasures Exercise (SMCMEX), and Amphibious Exercise (AMPHIBEX). Potential effects of the Proposed Action on public access to beaches are negligible because these activities take place on or in proximity to Federally-owned property for which the public is not permitted access.

Elements of these activities that require exclusive use of an open-ocean area have the potential to affect public access and recreational fishing operations during the actual operation. Around SCI, these operations occur in Federally-designated danger and restricted zones. In the other nearshore operating areas offshore SSTC and MCBCP, non-authorized individuals are cleared from the area for the duration of the exercise. Short-term, intermittent effects on individual recreational use of these areas may result

from temporary closures of specific operating areas, but the areas are relatively small, and easily circumvented.

Prior to commencement of these events, NOTMARs and NOTAMs are issued, providing the public, including commercial fishermen, with notice of upcoming location and time restrictions in specific training areas. In addition, the Southern California Offshore Range (SCORE) maintains a public website depicting upcoming restrictions in designated Danger Zones around SCI. These notices detail date, time, duration, and location of restricted access so that commercial and private fishermen and divers can plan their activities accordingly. The restricted times only extend through the duration of the training activity; thereby allowing the public to shift their activities to alternate areas during temporary closures. The Navy will continue to schedule its activities to minimize conflicts, and to provide adequate public notice. The Proposed Action would be consistent with Section 30210 to the maximum extent practicable.

Nearshore and Beach Areas

San Clemente Island Range Complex

SCI is Navy-owned property where public access is strictly controlled for purposes of military security and public safety. The Navy considers all ocean areas around SCI to be co-use zones that are available for public access, except for the restricted anchorages in the Wilson Cove Exclusive Zone. Access to some co-use zones may be restricted from time to time for public safety. When such restrictions are necessary, the Navy implements procedures to minimize effects on the public. Under the Proposed Action, COMPTUEX/JTFEX activities at SCI are consistent with Section 30210. Recreational activities in the CZ include sport fishing, sailing, boating, whale-watching, and diving. Commercial uses include fishing, tourism, and marine transportation. The area also is used by the public for scientific research and education.

Silver Strand Training Complex

The Navy leases ocean beaches along the SSTC from the California State Lands Commission. Boat lanes extend out 2 nm from these beaches in support of offshore amphibious training. Bayside training areas off the northern portion of SSTC are also used in support of amphibious training events. When not in use for military training, the nearshore bay and ocean waters off SSTC are used for commercial fishing and recreational boating. The Navy training areas on San Diego Bay adjacent to the peninsula are within a designated restricted area. However, non-Navy vessels may transit through the area when the training lanes are not scheduled for military activities. Consistent with ongoing activities, public access and recreation co-exist with Navy training.

The Navy contributes to the provision of public access on the Silver Strand peninsula. The Silver Strand peninsula has several water-oriented public facilities, including marinas, parks, beaches, and resorts. Together, these facilities provide the public with substantial access to the local beaches and waters of San Diego Bay and offshore areas. YMCA Camp Surf operates on 80 acres on SSTC-South at the southern end of the peninsula on Navy land, providing overnight beachfront accommodations for local youth and instruction in water sports. A salt marsh ecological preserve and salt evaporator ponds located on about 27 acres (10.9 hectares) of SSTC South property fronting San Diego Bay is leased by the Navy to San Diego County Department of Parks and Recreation, which has installed a parking lot and bicycle and pedestrian paths. The Proposed Action is consistent with California CZ Section 30210 to provide maximum public access consistent with public safety.

Marine Corps Base Camp Pendleton

Substantial public access to beaches and nearshore waters is provided both to the north and south of Marine Corps Base Camp Pendleton. San Onofre Beach, located at the northern end of MCBCP, is a public beach leased to the State by the Marine Corps. Both San Onofre State Beach and the adjacent San Mateo State Preserve/Trestles Beach are directly accessible from the Interstate-5 freeway. Immediately south of Camp Pendleton lies the City of Oceanside, with a harbor and extensive beach areas. Public access is not affected by COMPTUEX/JTFEX training exercises because the Camp Pendleton shoreline is not accessible to the public. Under the Proposed Action, the extent and accessibility of adjacent public areas would not change. The Proposed Action is consistent with Section 30210 to provide maximum public access consistent with public safety.

Concerning commercial fishing, the Navy states:

Potential effects of the Proposed Action on economic, commercial, and recreational fishing have been evaluated by the Navy. COMPTUEX/JTFEX activities do not have the potential to result in permanent modifications of the marine environment within the CZ. Elements of the Proposed Action that require exclusive use of an ocean area (e.g., those operations in which weapons are fired) have the potential to affect commercial and recreational fishing operations during the actual operation. Short-term adverse effects on individual commercial fishermen may result from temporary closures of specific ocean areas, but the economic importance of the regional commercial fishing industry would be unchanged.

Prior to these events, NOTMARs and NOTAMs are issued, providing the public and commercial fishermen with notice of upcoming location and timing restrictions in specific training areas. In addition, the Southern California Offshore Range (SCORE)

maintains a public website depicting upcoming restrictions in designated Danger Zones around SCI. These notices detail date, time duration, and location of restricted access, so that commercial and private fishermen and divers can plan their activities accordingly. The restricted times only extend through the duration of the training activity; thereby allowing the public to shift their activities to alternate areas during temporary closures. Thus, the Proposed Action would be consistent with Section 30234.5 to the maximum extent practicable.

The Navy's proposal is consistent with the Coastal Act policies that provide for balancing maximum public access in a manner consistent with public safety and military security needs. In past reviews, the Commission has found that absent a nexus such as intensifications of public access closures, no new public access requirements are normally required. For the proposed exercises, the public area closures during the exercises, which are clearly necessary for both public safety and military needs, are similar to past closures from similar Navy testing. The proposal may even reduce closures, as one of the Navy's goals is to schedule more frequent simultaneously occurring exercises than previously scheduled. The Commission concludes that the existing military restrictions are necessary and consistent with Coastal Act policies, that the Navy is not proposing greater numbers or durations of closures, and that the project is consistent with the public access, recreation, and fishing policies (Sections 30210, 30212, 30234, and 30234.5) of the Coastal Act.

V. SUBSTANTIVE FILE DOCUMENTS:

1. Navy Consistency Determinations CD-20-95 (Navy San Clemente Island Cable Repair), CD-109-98 (Navy Advanced Deployable System (ADS) Ocean Tests), CD-95-97 and CD-153-97 (Navy, Low-Frequency Active (LFA) Sonar Research, Phases I and II), CD-2-01 (Navy Point Mugu Sea Range testing and training activities), CD-045-89 and CD-50-03 (Navy FOCUS Cable and Cable repairs, San Nicolas Island), and CD-37-06 (Navy Monterey Bay (MB) 06).
2. Island Night Lizard, 5-Year Review, U.S. Fish and Wildlife Service.
3. San Clemente Island Integrated Natural Resources Management Plan (INRMP), Navy, May 2002.
4. USGS Seismic Survey Consistency Determinations No. CD-14-02, CD-16-00 and CD-32-99.
5. Mobil Oil Pier and Wharf Decommissioning (Coastal Development Permit (CDP) No. E-96-14).
6. Monterey Bay Aquarium Research Institute (MBARI) (CDP No. E-05-007/Consistency Certification No. CC-076-05).
7. Consistency Determination No. CD-102-99, National Marine Fisheries Service, small test of "pulsed power" acoustic harassment device to protect recreational fishing from sea lions.

8. Consistency Certification CC-110-94/Coastal Development Permit Application 3-95-40, Scripps Institution of Oceanography, Acoustic Thermometry of Ocean Climate (ATOC) Project and Marine Mammal Research Program (MMRP).
9. High Energy Seismic Survey Review Process and Interim Operational Guidelines for Marine Surveys Offshore Southern California, the High Energy Seismic Survey Team (HESS), for the California State Lands Commission and the U.S. Minerals Management Service Pacific OCS Region, September 1996 – February 1999.
10. Caltrans 10 Mile River Bridge Replacement, CDP No. 1-06-022/Public Works Plan 1-06-01/LCP Amendment A-1-MEN-98-017-A2.
11. Marine Mammal Populations and Ocean Noise: Determining When Noise Causes Biologically Significant Effects, National Research Council, Committee on Characterizing Biologically Significant Marine Mammal Behavior, Ocean Studies Board, 2005.
12. Finneran and Schlundt (2004)), Effects of Intense Pure Tones on the Behavior of Trained Odontocetes, Authors: J. J. Finneran; C. E. Schlundt; Space And Naval Warfare Systems Center, San Diego Ca, February 2004, J. Acoust. Soc. Am. 107(6), 3496-3508.
13. Nowacek et al. (2004), Atlantic right whales (Eubalaena glacialis) ignore ships but respond to alerting stimuli.
14. Letter dated 27 January, 2006, from Dr. Mark P. Johnson, Woods Hole Oceanographic Institution, to Keith Jenkins, U.S. Navy.
15. Federal Register Notice July 7, 2006, (NOAA, Navy RIMPAC): http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/06-6050.htm
16. Federal Register Notice March 24, 2006 and September 28, 2006 (Scripps): http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/E6-21611.htm
http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/06-8353.htm

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