

PROTECTED SPECIES MONITORING AND MITIGATION RESULTS

FOR

**2018 LONG RANGE STRIKE WEAPON SYSTEM
EVALUATION PROGRAM OPERATIONAL TESTING**

PACIFIC MISSILE RANGE FACILITY, KAUA'I, HI



FINAL REPORT

**Department of the Air Force
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JUNE 2018

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EXECUTIVE SUMMARY

This report fulfills requirements of the Biological Opinion (BO) and Letter of Authorization (LOA) issued by the National Marine Fisheries Service (NMFS) to 86 Fighter Weapons Squadron (FWS) for Long Range Strike Weapon System Evaluation Program (WSEP) Operational Evaluation. On 11-13 June 2018, seven GBU-39 Small Diameter Bombs (SDBs) were released. Weapons were employed against the following coordinates, N22° 43' 00" W159° 56' 00" on the water surface, located in the Pacific Ocean at the Pacific Missile Range Facility (PMRF). Employment occurred approximately 40 miles offshore from Kaua'i, HI. Net explosive weight for each SDB was 37 pounds with detonations occurring at the water surface. The BO and LOA included mitigation and monitoring procedures in order to offset potential impacts to marine mammals. This report describes the implementation of the mitigation and monitoring procedures, the results of pre- and post- mission surveys, a summary of the mission day's events, any potential take that may or may not have occurred, and analyzes the overall effectiveness of these measures.

For Long Range Strike WSEP activities that occurred 11-13 June 2018, no mammals were sighted during the pre- and post-mission surveys. No mammals were noted as having been disturbed at this location. **Thus, 86 FWS believes that no takes occurred as a result of the Long Range Strike WSEP mission.**

86 FWS believes all mitigation and monitoring measures were successfully implemented and were effective in protecting marine mammals from negative impacts associated with the live detonations from 2018 Long Range Strike WSEP Operation Evaluations.

1. MITIGATION AND MONITORING REQUIREMENTS

The following subsections describe the mitigation and monitoring requirements that were developed during consultations with NMFS and implemented during Long Range Strike WSEP missions. To prevent impacts to protected species, the 86 FWS proposed to survey a given area before each mission to ensure it was clear of protected species before live missions begin. Surveys would be conducted by dedicated observers who received training in identifying marine species. 86 FWS also agreed to conduct analysis on acoustic hydrophone data collected leading up to, during, and after mission events. The hydrophone data collected would be analyzed at a future point to determine the presence of vocalizing marine life, effects on that marine life as interpreted through vocalizations, and the length of time until vocalizing marine life resumed normal behavior.

Determining Survey Areas

The BO and LOA require that an area of minimum radius eight miles from the impact point be surveyed for 30 minutes pre- and post-mission. This area was determined based on previous missions conducted at PMRF and considered operational feasibilities for completing the aerial surveys.

Recording and Analyzing Hydrophone Data

The PMRF Barking Sands Underwater Range Expansion (BSURE) area is outfitted with a hydrophone array capable of recording underwater sounds. The array is designed and optimized for triangulating impact data from surface to surface weaponry. The 86 FWS agreed to record acoustic data 40 hours prior to the beginning of missions, during missions, and 40 hours after mission completion. The 86 FWS has partnered with the Space and Naval Warfare Systems Command (SPAWAR) to analyze hydrophone recordings. The first analysis will occur three years into 86 FWS's five year LOA, which began in 2017. SPAWAR's role will be to analyze the acoustic data and determine whether any effects on vocalizing marine life occurred and to provide the information to 86 FWS and NMFS for future LOA renewals. The results of the analysis will be provided to NMFS upon completion of a separate monitoring report.

2. DESCRIPTION OF LONG RANGE STRIKE WSEP MISSION

This section describes the events of the live mission day conducted for Long Range Strike WSEP operations. The mission was conducted in two segments, with each segment individually satisfying the impact area survey requirements.

2.1 Pre-Mission Survey Results

Pre-mission surveys were each conducted by one F-16 Fighting Falcon. The survey was completed using state of the art advanced targeting pods as described in the BO. All observers received Marine Species Observer Training/Refresher Course on 7 Jun 2018. The following table

conveys pre-mission survey periods in local times. The surveys yielded no sighting of marine mammals.

Table 1. Pre-Mission Survey Time Periods

Date	Pre-Mission Surveys	
	Start	End
11 Jun 2018	0945	1015
12 Jun 2018	0931	1001
13 Jun 2018	0936	1006

Surveys were completed at an altitude conducive to an optimal combination of targeting pod accuracy and efficiency, about 10,000 ft MSL. At this altitude, pilots were able to effectively scan the required area in high detail. Surveys were flown in a 3 nautical mile orbit centered above the impact point. Targeting pod surveys were conducted using a transect scan pattern, enabling the pilot to monitor as the entire footprint as effectively as possible. The weather was sunny with occasional clouds. Sea States were reported to be at Sea State 3. Visibility was good, and weather was not an issue for marine life detection. Ground facilities used for monitoring included cameras and infrared sensors located on Makaha Ridge. When not supporting mission execution, these instruments were trained at the impact point to detect any marine life. Again, weather was conducive to marine life detection.

Concurrently with the pre-mission surveys, a specially equipped Grumman Gulfstream II was used to clear the range of all non-participating vessels. Once the safety container was cleared of all vessels and the pre-mission surveys reported no visible marine life, a Green Range was declared by the Safety Officer who monitored the mission from PMRF's Range Operations Control Center (ROCC). Exercise participants monitored impact points with vigilance prior to weapon employment.

2.2 Mission Results

The SDBs were successfully employed and impacted their target locations as planned. Seven live SDB-Is were released and detonated on the surface as verified by the hydrophones located on the range.

Aircraft also employed inert GBU-39 Guided Test Vehicles, GBU-12 laser guided bombs, and training 20mm PGU-27 rounds. These weapons had no explosive ordnance.

2.3 Post-Mission Survey Results

After the mission was completed, the F-16s returned to the impact sites. Post-mission monitoring was conducted within a radius of 8 miles around the impact site and within the immediate area of the impact location. The following table conveys post-mission survey periods in local times. No protected species sightings were recorded.

Table 2. Post-Mission Survey Time Periods

Date	Post-Mission Surveys	
	Start	End
11 Jun 2018	1046	1116
12 Jun 2018	1200	1230
13 Jun 2018	1147	1217

3. SUMMARY OF ALL MISSION RESULTS

For Long Range Strike WSEP evaluations that occurred on 11-13 June 2018, there were no sightings of protected mammals during the pre- and post-mission surveys.

For the 11-13 June 2018 missions, hydrophone data was recorded in accordance with the timeframes specified. Data was transported to SPAWAR, checked for quality and usability, and stored for future analysis.

Munitions that were actually dropped are compared to what was authorized in both the LOA and BO in Table 1.

Table 3. Comparison of Proposed and Actual Live Munitions Released

Type of Munition	NEW (lbs)	Detonation Type	Total # in LOA & BO	# Released in 2018
GBU-39 (Live)	37	Surface	8	7

4. SIGNATURES

PROTECTED SPECIES MONITORING & MITIGATION RESULTS FOR LONG RANGE STRIKE WEAPON SYSTEMS EVALUATION PROGRAM 2017 MISSIONS

FINAL REPORT

EGLIN AIR FORCE BASE, FLORIDA

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Mitigation and Monitoring Plan for the
 Long Range Strike Weapon Systems Evaluation Program at the Pacific Missile Range Facility
 FINAL

MISSION SUMMARY REPORT FORM

Complete this form regardless of whether or not protected species are sighted

Date: 01/11/17		Survey platform used: - lb	
Detonation site location: Latitude: 21° N Longitude: 151° 06' W			
Arrival time to mission site (LOCAL): 07:11 Sea state: (see chart below): 3			
Pre-Mission Survey: Start time: 07:00 End time: 17:01			
Were any protected species or indicators observed? Y			
Was mission site relocated? Y			
If mission site is relocated, please fill out a new Mission Summary Report Form for the new location			
Mission Summary: Weapon-release aircraft on approach Start time: 10:30			
Were any protected species or indicators observed? Y/4			
Munition Released	Number	Detonation Time	
1-1000	1	10:30	
	1	17:00	
	1	17:05	
	1	17:10	
Mission end time: 17:00			
Post-Mission Survey: Starttime: 17:00 End time: 17:30			
Were any protected species or indicators observed? Y N			
If the mission was postponed, cancelled, or relocated please describe:			

*If "Yes," complete the Protected Species Sighting Form.

Points of contact to report a dead or injured marine mammal or sea turtle:

NMFS Pacific Islands Regional Stranding Coordinator (888-256-9840)
 NMFS Office of Protected Resources (301-427-8400)

Sea State Scale for Survey Conditions

Scale Number	Sea Conditions
0	Flat; wind speed < 1 knot; wave height = 0 feet
1	Some ripples; wind speed 1 to 3 knots; wave height 0 to 1 feet
2	Small wavelets; wind speed 4 to 6 knots; wave height 1 to 2 feet
3	Large wavelets; wind speed 7 to 10 knots; wave height 2 to 3.5 feet
4	Small waves with white caps; wind speed 11 to 16 knots; wave height 3.5 to 6 feet
5	Moderate waves with white caps; wind speed 17 to 21 knots; wave height 6 to 9 feet
6	Large waves with extensive white caps; wind speed 22 to 27 knots; wave height 9 to 12 feet

