

**Deployment of Four Ecological Acoustic Recorders in the
Mariana Islands Range Complex (MIRC), September 2011**

Final Report

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MIRC Passive Acoustic Monitoring Summary

In September of 2011, four passive acoustic monitoring devices were deployed in the Marianas Island Range Complex (MIRC). These Ecological Acoustic Recorders, or “EARs”, were developed by Marc Lammers and Whit Au at the University of Hawai‘i/Hawai‘i Institute of Marine Biology. The dates, locations, and deployment depths for the four instruments are summarized in Table 1. Deployments were made to the northwest and southwest of Guam, one to the north off Saipan, and one to the southwest of Tinian. Deployments were performed by HDR staff in coordination with the University of Hawai‘i/Hawai‘i Institute of Marine Biology. These instruments were deployed in support of the U.S. Navy’s monitoring plan under the MMPA Letter of Authorization (LOA) and permit granted to the Navy by the National Marine Fisheries Service (NMFS) for training using medium-frequency active sonar (MFAS) and underwater explosives in the MIRC. The data generated by these instruments will enable the Navy and NMFS to better understand the distribution and abundance of marine mammals and sea turtles in the Mariana Islands. The monitoring data will be provided to NMFS in the Navy’s 2012 year end monitoring report and used by the Navy for analysis in future monitoring years.

The EARs were deployed as bottom mounted autonomous sensors with the aims of reaching between 5 and 6 months of battery life before needing to be refurbished (new batteries and new hard drives). Collection of the hard drives and refurbishment of the devices is expected to occur in the spring of 2012. The recording settings of the EARs can be found in Table 2.

All four instruments were deployed with ORE Edgetech acoustic releases between depths of 820 and 952 meters (Figure 1). After each deployment event, the depth and vertical orientation of each EAR was confirmed by the acoustic release associated with each device. The EARs deployments off Guam were accomplished using a charter dive vessel, the Sun Chaser, a 42-foot Newton (owned and operated by Micronesian Divers Association, Piti, Guam). The vessel used for the Saipan and Tinian EAR deployments was a 32-foot charter fishing vessel, named Mizuwari, built by Hsing Hang Marine (owned and operated by Pelley Boat Charters Inc., Saipan).

Table 1. PAM deployment site information

Site	Latitude	Longitude	Depth	Deployment Date	Begin Recording
Guam North	13 41.781 N	144 45.186 E	820 m	9/5/2011	9/10/2011
Guam South (11 mile reef)	13 13.392 N	144 28.303 E	952 m	9/15/2011	9/16/2011
Saipan	15 27.292 N	145 50.938 E	850 m	9/12/2011	9/12/2011
Tinian	15 04.602 N	145 26.676 E	869 m	9/11/2011	9/12/2011

Table 2. Acoustic recording settings and specifications

Sampling Rate	80 kHz
Recording Time (duration)	30 sec
Recording Period (how often)	360 sec (6 minutes)
Anti-Aliasing filter	90%
Hydrophone sensitivity	Approximately 193 dB re 1 μ Pa
Clock	Local Time
Disk Space	320 GB maximum
Energy Detection	Disabled

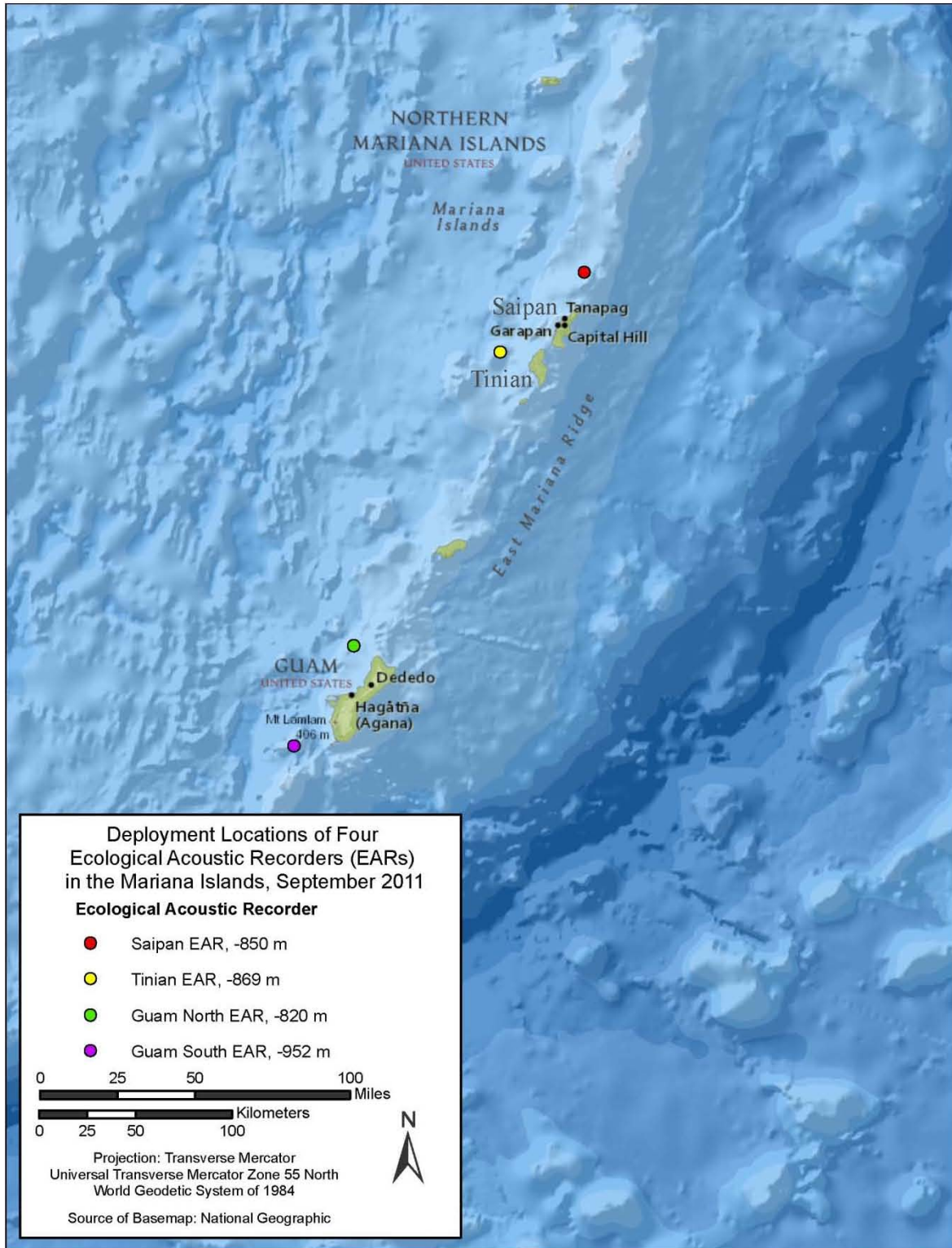


Figure 1. Deployment locations of four ecological acoustic recorders in the Mariana Islands, September 2011