

**Annual Report of Hawai'i Wildlife Fund
Hawksbill Nest Monitoring and Research
2013 Season**

Federal Fish and Wildlife Permit No. TE829250-8
Department of Land and Natural Resources Permit No. 2013-22



December 31, 2013

**Hawai'i Wildlife Fund
P.O. Box 70
Volcano, HI 96785**

2013 Maui Hawksbill Sea Turtle Nesting Activities

Introduction

In the Pacific, little is known about the abundance and distribution of critically endangered hawksbill sea turtles (*Eretmochelys imbricata*). Within the Hawaiian Archipelago, hawksbills predominately nest on Hawai'i Island. Lower numbers are also known to nest on the islands of Maui, Moloka'i and O'ahu, with a statewide estimate thought to be at least fifty reproductive females with only 6-20 of these nesting each year. Hawksbill nesting activities were first documented on Maui in 1991 at Kealia. Hawai'i Wildlife Fund (HWF) organized a community-based effort to systematically monitor these occurrences in 1996 after a passing car killed a second gravid female (the first happened in 1993) when she wandered onto North Kihei Road, either seeking suitable nesting habitat or disoriented by headlights.

The primary objectives of this monitoring and research are to identify individual nesting hawksbill turtles, take biopsy samples for analysis, determine sizes of these females, the sites they use for nesting, the inter-nesting intervals, the number of nests laid in a season by each female, to relocate nests that may be threatened by tidal flooding, to determine nest success, and to attach transmitters to post-nesting females to track them to their long-term foraging/resting areas. During the course of this research, nesting females, nests and hatchlings are protected against dangers caused by predators, human disturbance, coastal lighting, non-native vegetation, and vehicular traffic.

Methods

Project Activities

Ongoing activities included email announcements/updates to our >1,000 contacts, public outreach events, multiple turtle fence fixing project days, and marine debris and rubbish cleanups partnering with Community Work Day, Na Kai 'Ewalu Canoe and Cultural Club, Surfrider Foundation, The Maui Ocean Center, and South Maui Sustainability Group.

Nesting Turtle and Nest Monitoring

Nesting season can begin as early as mid-May, with hatching events stretching into January. During these months, the USFWS's Maui Dawn Patrol, a community group of approximately 40 volunteers, walked Maui's four known South Maui nesting beaches (Kealia, Kalepolepo, Kawililipoa, and Oneloa) early each morning looking for evidence of nesting. Although we have had green and hawksbill nesting events in Hana, we have not organized Dawn Patrols there yet (but one thorough trip to all Hana beaches was made by the HWF Team in August). Once nesting activity is discovered, a phone tree is activated to advise the Department of Land and Natural Resources Division of Aquatic

Resources (DLNR DAR), the United States Fish and Wildlife Service (USFWS), and the Hawai'i Wildlife Fund (HWF). Each subsequent nesting and hatching event is intensely monitored by HWF. This entailed all-night vigils to find the nesting females, waiting for the females to nest successfully, identifying them and tagging (metal flipper tags on front flippers and PIT tags in rear flippers). When available in collaboration with NOAA-NMFS, a satellite transmitter is harmlessly attached to the turtle's carapace using marine resin and fiberglass and standardized procedures. HWF guarded the nests 24/7 during the course of hatching to ensure each hatchling reached the ocean safely. Three days after the first major emergence of each nest, the nests are excavated to release any trapped hatchlings and to determine overall nest success.

Results

Maui Nesting Research

No nests were found through December 31, 2013.

Discussion and Conclusion

HWF has tagged eight nesting hawksbills since 1997 and most have returned to nest again. H334 "Orion" (Oneloa 2001, 2004, 2008, and 2012) was the first, H332 "Lele" (Kealia 2000 and 2005) was the second, H330 "Hökūlele" (Kawililipoa 1999 and 2006) was the third, H340 "Kolohe" (Kealia 2002 and 2009) was the fourth, and H326 "Hapa" (Kealia 1997 and 2010) was the fifth known tagged hawksbill to re-migrate to Maui for another nesting season after being tagged. The survivorship of one tagged nester from 1998 (H329 "Sasha" at Kawililipoa) is particularly in question since she has not returned to nest that we know of. Hapa's return after 13 seasons gives hope that Sasha will come back to nest as well.

Ongoing Hawksbill Conservation Issues

Again, the urgent and critical priority for the upcoming nesting season must be the completion of the Kealia fence replacement or repair to keep nesting hawksbills from being run over by passing vehicles on North Kihei Road. Only half of the permanent recycled plastic fence was installed in 2008 and even though funding for the rest of the fence was secured through the County of Maui, it expired before being used by The Kealia National Wildlife Refuge. Sections of the new fence are inadequate at stopping the turtles (they can crawl under or over it) so until the special posts are pounded in, extensions are built, and the rest of the fence is ordered and installed, HWF will have to continue to fix a large part of the dilapidated fenceline. This has unnecessarily cost HWF thousands of dollars and valuable time.

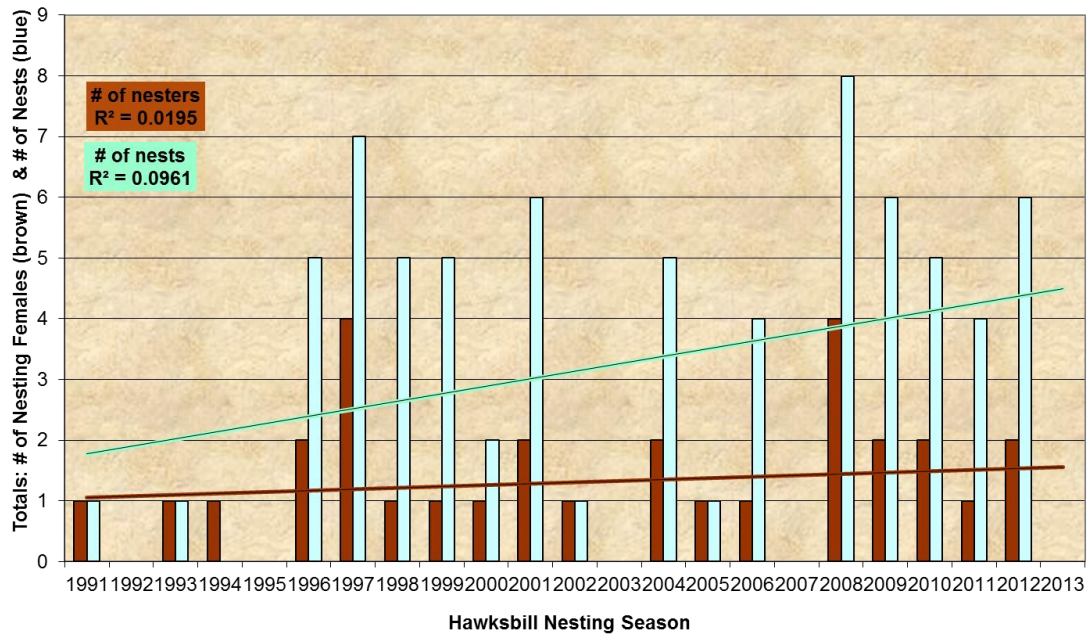
Not only does the whole fenceline need to be fully replaced with the recycled plastic fence material, it ideally should be relocated mauka of the existing location of the sand fence, which is too close to the high tide line in some areas. This will increase the available nesting habitat as much as possible on this highly eroded beach. Unfortunately, this is Alexander and Baldwin land, and we can only presume the negotiations by The Kealia Pond National Wildlife Refuge will continue. The idea of rerouting the road around the Kealia Refuge, obviously the best solution, should be proposed again.

The newly formed Maui Canoe Club has signed a contract with A&B and taken up residency along the southernmost stretch of Kealia, towards the Kealia Condominium. They have erected fences that are reasonably acceptable (saving us money and time) and cleaned up the area by displacing many of the homeless who had been abusing the area. They hopefully will become valuable partners again next season.

Knowing that there are egg development issues at Kealia, a highly degraded habitat to begin with, demands that we become proactive in ensuring that no more clutches are lost like in the past. Therefore, the future relocation of nests from Kealia warrants further discussion. As we stated after the successful 2009 season, our recommendations are that if nests are laid at Kealia where egg development has been unsuccessful (all northwestern sites) then they should be relocated to the 2009 southeastern, successful Kealia nest spots. It's unfortunate that the lack of a State permit and the removal of this possibility from our Federal permit didn't allow us to practice this management solution this season, as the perfect opportunities were there. Another idea is to test at least one clutch (after leaving a control in situ) in a controlled incubator environment, which can in theory eliminate Kealia sand issues altogether. More research and strategizing will be done concerning this topic before next season.

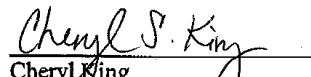
A tremendous effort is ongoing to understand and protect Maui's few nesting hawksbills, and without it the survivorship of these turtles would certainly be jeopardized further. This volunteer-run, community-based project has saved adults and hatchlings from a gauntlet of threats. The intensified monitoring of each nesting and hatching event has also greatly improved the dataset for these occurrences. As of yet, the actual numbers of nesting hawksbills on Maui are not increasing significantly (*see figure below*). With a critically endangered species at such risk, more resources need to be funneled in this direction. And, innovative research methodologies should be explored to further our knowledge of all aspects of this species' life history to aid in its protection.

Summary of Maui's Hawksbill Nesting Activities (1991-2013)



We certify that the information in this report fully and accurately represents our work. Excavation nest numbers still must be verified by NOAA-NMFS, so the ones used here are unofficial.


William Gilman


Cheryl King



Special Activity Permit

No. 2013-22

ACTIVITY REPORT

Results of all activities performed under authority of this permit must be reported on this form (or copies) within one month after the permit expires (see first page). Use as many sheets as you need. Submit the report to the Division of Aquatic Resources at 1151 Punchbowl Street, Room 330, Honolulu, HI 96813.

| Date | Location | Common or Scientific Name | Quantity Collected* | Disposition of Specimens |
|------|----------|------------------------------|------------------------|-----------------------------|
|------|----------|------------------------------|------------------------|-----------------------------|

No samples were taken in 2013